Grove City College Bulletin

July 2026

Catalog Issued for
2026-2027
with calendars and
announcements of courses

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2026 - 2027 ACADEMIC CALENDAR

Fall Semester 2026

	S	M	T	W	R	F	S
Aug.	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31					
Sept.			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30			
Oct.					1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
Nov.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30					
Dec.			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31		

Wed.-Sun.	Aug. 19 - 23	New student welcome and orientation
Wednesday	Aug. 19	Freshman residence halls open - 8:00 am
Saturday	Aug. 22	Upper-class residence halls open - 9:00 am
Monday	Aug. 24	Classes begin - 8:00 am
Wednesday	Aug. 26	Opening convocation - 11:00 am
Friday	Aug. 28	Last day to Drop/Add a class by 5:00 pm
Monday	Sept. 7	Labor Day - No classes
Thursday	Sept. 10	Monday evening classes meet (Makeup for Labor Day)
Saturday	Oct. 3	Homecoming
Monday	Oct. 12	Mid-term grades due/released in afternoon
Thur.-Sun.	Oct. 15 - 18	Fall break - No classes – Residence halls remain open
Monday	Oct. 19	Classes resume - 8:00 am
Monday	Oct. 19	Winter/Spring registration - Seniors
Friday	Oct. 23	Last day to withdraw from a class by 5:00 pm
Monday	Oct. 26	Winter/Spring registration - Juniors
Monday	Nov. 2	Winter/Spring registration - Sophomores
Monday	Nov. 9	Winter/Spring registration - Freshmen
Saturday	Nov. 21	Thanksgiving recess begins, residence halls close - 10 am
Sunday	Nov. 29	Residence halls open - 9:00 am
Monday	Nov. 30	Classes resume - 8:00 am
Mon.-Wed.	Dec. 7 - 9	Evening class finals for 15-week classes
Thursday	Dec. 10	Study Day
Thur.-Tue.	Dec. 10 - 15	Final examinations
Wednesday	Dec. 16	Residence halls close - 1:00 pm
Wednesday	Dec. 16-Jan 9	Winter Online Classes
Monday	Dec. 28-Jan 9	Winter Travel Term

Spring Semester 2027

	S	M	T	W	R	F	S
Jan.						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31						
Feb.		1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28						
March		1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31			
April					1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	
May							1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31					

Saturday	Jan. 9	Residence halls open - 9:00 am (Meals start Sun. lunch)
Sunday	Jan. 10	Dining options begin - 11:00 am
Monday	Jan. 11	Classes begin - 8:00 am
Friday	Jan. 15	Last day to Drop/Add a class by 5:00 pm
Saturday	Feb. 20	Spring break begins, residence halls close - 10:00 am
Sunday	Feb. 28	Residence halls open - 9:00 am
Monday	Mar. 1	Classes resume - 8:00 am
Monday	Mar. 8	Mid-term grades due by noon/released in afternoon
Monday	Mar. 15/22	Summer-Fall-Spring registration - Seniors/Juniors
Thursday	Mar. 25	Easter recess begins - Residence halls open
Monday	Mar. 29	Evening classes resume - 6:30 pm
Tuesday	Mar. 30	Day classes resume - 8:00 am
Monday	Apr. 5	Summer-Fall-Spring registration - Sophomores
Monday	Apr. 12	Summer-Fall-Spring registration - Freshmen
Mon.-Wed.	Apr. 26 - 28	Evening class finals for 15-week classes
Thursday	Apr. 29	Study Day
Thur.-Tue.	Apr. 29-May 4	Final examinations
Wednesday	May 5	Residence halls close for underclassmen - 6:00 pm
Fri.-Sat.	May 7 - 8	Baccalaureate 7:00 pm/Commencement 10:00 am
Saturday	May 8	Residence halls close for seniors - 8:00 pm
Mon.-Sat.	May 10 - 30	May Travel Term

June 1 through August 20

Tuesday	June 1	Early Summer Online classes begin
Thursday	July 1	Late Summer Online classes begin

In keeping with the educational mission of Grove City College, the educational policies and procedures are continually being reviewed and changed. This bulletin, which is to be used as an informational guide, contains regulations, facts, and requirements that were correct at the time of publication. The Board of Trustees of the College reserves the right and authority to alter any or all of the statements contained herein, without prior notice; however, a change in graduation requirements will not be made retroactive unless the change is to the advantage of the student. Students are responsible for keeping informed of the official policies and meeting College requirements.

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HISTORY AND PURPOSE

Founded in 1876, Grove City College remains firmly committed to the Christian faith embraced by its founders. From the beginning, the College has sought to be a highly distinctive and comprehensive Christian liberal arts institution of exceptional academic quality and value. Grounded in permanent ideas and conservative values, and dedicated to the foundations of a free society, the College prepares men and women of the highest proficiency, purpose, and principles to advance the common good.

The College's doors have always been open to qualified students without regard to religious test or belief. But the College's founders believed that the achievements of civilization would be endangered if society's religious and ethical foundations were allowed to wither. So, the College's founders intended that the claims of Christ as God and Savior and the authority of Scripture be presented to all students. Through a program of intellectual, moral, and spiritual formation, they hoped the College would prepare young men and women capable of advancing civilization on every frontier.

During the founding days of the College, Joseph Newton Pew said to Dr. Isaac C. Ketler, "Make the College healthful, for that is essential. Make it beautiful, for that is an education." In later years, J. Howard Pew, for nearly sixty years one of the guiding spirits in building Grove City College, stated that the College's "prime responsibility is to inculcate in the minds and hearts of youth those Christian, moral, and ethical principles without which our country cannot long endure," including "an abiding faith in God and country, a love for freedom, a respect for truth, an acceptance of personal responsibility, and a desire to contribute to the betterment of the human race."

The school for many years was located near the center of Grove City on what is now known as the Lower Campus. In 1929, a farm across Wolf Creek from the old downtown campus was purchased, and the effort was begun to move the school from its gracious but limited area within the heart of Grove City, up onto the hill across Wolf Creek. Today, Grove City College has one of the most beautiful campuses in the country.

Grove City College is governed by a Board of Trustees composed of private citizens who make all policies for the school.

Those who are responsible for Grove City College believe that the progress and security of America are made possible and maintained by a society that: (1) recognizes its obligation to its religious heritage; (2) supports free political institutions; (3) encourages a free society; and (4) promotes an educational system which seeks to perpetuate these religious, intellectual, political, and economic ideals.

The College teaches not only the rights of the individual but also the individual's responsibilities. It recognizes its own responsibility to strengthen and perpetuate our free society. Consistent with Christian principles, Grove City College does not discriminate on the basis of age, race, color, sex, marital status, disability, or national or ethnic origin. And the College has been co-educational from the beginning.

The College aims to maintain a cordial and cooperative relationship between faculty and students. The College's mission necessitates the selection of a faculty who are professing Christians, experts in their chosen fields of learning, and thoroughly loyal to the purposes of the College. All full-time faculty must personally affirm the College's Statement of Faith. Staff members are chosen for both their competence and personal qualities, and those whose work involves student formation must also affirm the Statement of Faith.

Realization of College ideals depends upon the complete cooperation of every member of the College community in:

- Searching courageously, persistently and reverently for truth

- Respecting the individuality of each person
- Seeking a Christian perspective in all fields of learning
- Honoring College regulations and policies
- Enabling the greatest possible mental, spiritual and physical development of every campus citizen

Chapel services and convocation programs are designed to stimulate the campus community to think creatively and critically about ultimate issues in the light of the Word of God. Grove City College is an undenominational, but evangelical, Christian college. The College aims to provide young people with the best in the liberal arts and sciences within a wholesome Christian environment.

The College rejects relativism and secularism. It fosters intellectual, moral, spiritual, and social development consistent with a commitment to Christian truth, morals, and freedom. Rather than political, ideological, or philosophical agendas, objective truth continues as the goal of liberal learning.

The core of the curriculum, particularly in the humanities, consists of books, thinkers, and ideas that have proven over the ages to be valuable in the quest for knowledge. Intellectual inquiry remains open to the questions religion raises and affirms the answers Christianity offers. The ethical absolutes of the Ten Commandments and Christ's moral teachings guide the effort to develop intellect and character in the classroom, chapel, and co-curricular activities. And while many points of view are examined, the College unapologetically advocates preservation of America's religious, political, and economic heritage of individual freedom and responsibility.

The Vision, Mission, & Values of Grove City College

Vision

Grove City College strives to be a highly distinctive and comprehensive Christian liberal arts college of extraordinary value. Grounded in permanent ideas and conservative values and committed to the foundations of free society, we develop leaders of the highest proficiency, purpose, and principles ready to advance the common good.

Mission

Grove City College equips students to pursue their unique callings through a Christ-centered, academically excellent, and affordable learning and living experience.

Core Values

Faithfulness

By God’s grace, we remain committed to the same Christian faith embraced by the College’s founders and to seek, teach, and apply biblical truth in all that we do. While we continuously adapt our efforts in relation to the realities and challenges of this world, we serve a God who is the same yesterday, today, and tomorrow.

Excellence

In everything we do, from classrooms to residence halls, from performance stages to sports venues, we are devoted wholeheartedly to the highest standards of excellence. “…[D]o all to the glory of God” (1 Cor. 10:31).

Community

We foster life-long community engagement through a dynamic and welcoming campus experience marked by fellowship, service, hospitality, and abiding respect for others as God’s image-bearers.

Stewardship

We honor the financial support and commitment of families, alumni, and friends of the College by managing our resources wisely, especially in maintaining affordability and the beauty of the campus, as we secure the long-term sustainability of the College.

Independence

In pursuit of our mission, we value and safeguard our institutional autonomy as a blessing of America's heritage of freedom.

Statement of Faith

Grove City College remains committed to the same Christian faith embraced by the College's founders.

We seek, teach, and apply God's truth in all that we do—truth revealed in the Scriptures and His creation. We strive to exhibit the fruit of the Spirit—love, joy, peace, patience, kindness, goodness, faithfulness, gentleness, and self-control—in our life together as a Christ-centered community.

We aspire to love each other and our students the way Christ loves us.

We commit ourselves to the discipleship of our students and helping them grow in faith. We will shepherd and equip them to pursue their unique callings. As we live, learn, and grow alongside our students, we pray that they will not be conformed to the patterns of the world but instead be transformed by the renewing of their minds.

As educators, pursuers of truth, and makers of disciples, we joyfully affirm these core beliefs:

We believe there is one God, existing eternally in three persons: Father, Son, and Holy Spirit.

We believe God created all things out of nothing.

We recognize the Bible as God's written Word and the infallible authority for faith and practice.

We believe that all people are sinners, unable to save themselves; and that salvation is a sovereign act of God's mercy.

We believe that salvation is found only in Jesus Christ, the eternal Son of God. Fully human and fully divine, He led a sinless life, died a vicarious and atoning death, rose bodily from the grave, ascended to the Father's right hand, will return in power and glory to judge the living and the dead and consummate His saving work with a new heaven and a new earth.

We believe that the Holy Spirit regenerates and indwells those who receive Jesus Christ as Savior by faith and empowers believers to understand truth and live a godly life.

We believe that God wonderfully and immutably created humans as distinctly male or female, ordained marriage as the exclusive, covenantal union between a man and a woman, and designed sexual intimacy to be expressed only within that union.

We believe all human beings—regardless of their stage of development, race, sex, class, or creed—possess equal dignity and worth as bearers of God's divine image.

We affirm the spiritual unity of those who follow Jesus Christ, Head and Shepherd of the one holy, catholic, and apostolic Church.

Goals and Objectives of Grove City College

In pursuit of its mission, Grove City College seeks to achieve the following goals:

- To provide an excellent education in a college which seeks to be thoroughly Christian and evangelical in character.
- To seek a Christian perspective of life which integrates all fields of learning by communicating the significance of the Word of God for all of life in all disciplines.

- To keep the door of educational opportunity open to all by maintaining low charges, thus minimizing financial burdens on families.

In pursuit of its mission, Grove City College seeks to achieve the following objectives:

- *Promote academic development* - Pursue and impart knowledge with conviction, grounded in Christian principles, that objective truth is the goal of intellectual inquiry. Offer a curriculum that is carefully reviewed and revised, avoiding educational philosophies that deny the possibility of truth or meaning, assert the relativity of values, or emphasize contemporary perspectives to the neglect of what has proved itself across the ages to be of value for human life. By example, and by the content of what is taught, foster Christian values, general and specialized knowledge, and commitment of lifelong learning required for successful living in our ever-changing society.
- *Promote spiritual and moral development* - Increase understanding of Christian precepts within the context of Christian fellowship and worship in order to help develop leadership abilities and application of Christian truth. Prepare students for life in an increasingly diverse society and interrelated global community by promoting a Christian vision of humanity and community that transcends cultural differences. Promote a sense of personal responsibility and love of freedom.
- *Promote social and emotional development* - Provide opportunities for students to interact with faculty, staff and peers. Encourage students to take responsible leadership roles in student activities. Make available effective counseling and counseling referrals for personal, career, and academic concerns.
- *Promote physical development* - Provide intramural, intercollegiate, and personal recreational opportunities for men and women, and encourage individuals to engage in a healthy lifestyle that will promote lifelong fitness and wellness.
- *Promote a sense of responsibility to larger community and society* - Provide academic, spiritual, social, and cultural services to the broader community. Support traditional rights, freedoms, and responsibilities. Hold open the door of equal educational and employment opportunities by actively encouraging applications from qualified students and staff of all races, ethnicity, gender, and class.
- *Model responsible administration* - Under the oversight and direction of trustees and through careful stewardship of resources: engage a qualified faculty; support a quality academic program; provide beautiful, efficient facilities; maintain full enrollment; continue a debt-free, independent status; and focus and coordinate all activities and operations so that the College will achieve its goals and objectives.

Accreditation and Memberships

Grove City College is accredited by the Middle States Commission on Higher Education,1007 North Orange Street, 4th Floor, MB#166, Wilmington, Delaware 19801. The Middle States Commission on Higher Education (www.msche.org) is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

By the authority of the Pennsylvania Department of Education (www.education.pa.gov), the College has the right to award degrees and to recommend candidates for elementary, middle level, secondary, K-12, and special education school certifications. Undergraduate curricula in Electrical and Mechanical Engineering have been accredited since 1991 and the Bachelor of Science in Computer Science major since 2013 by the Engineering Accreditation Commission of ABET (www.abet.org). The undergraduate curriculum in Exercise Science has been accredited since 2014 by the Committee on Accreditation of Allied Health Education Programs (www.caahep.org).

Undergraduate curricula in accounting, entrepreneurship, finance, international business, management, and marketing have been accredited since 2014 by the Accreditation Council for Business Schools and Programs (ACBSP; www.acbsp.org). Additional business programs, Business Analysis, Business Economics, Business Statistics, Human Resource Management, Supply Chain Management, Master in Business Administration, and Master of Science in Business Analytics were accredited by ACBSP in 2024. Grove City College's Bachelor of Science in Social Work program is accredited through the Council on Social Work Education (CSWE; www.cswe.org). The College's Bachelor of Science in Nursing Program is accredited by the Accreditation Commission for Education in Nursing (ACEN; www.acenursing.org).

The College is also an institutional member of the American Association of Colleges for Teacher Education, the National Association of Colleges and Employers, the Association of Independent Colleges and Universities of Pennsylvania, and many other associations. Grove City College has been an institutional participant in the National Council for State Authorization Reciprocity Agreements (NC-SARA) for the delivery of interstate post-secondary distance-education courses and programs since January 2019.

Academic Schools

Grove City College divides its academic programs into three schools - the School of Arts and Letters, the School of Science, Engineering, and Mathematics, and the School of Business. These three schools encompass all departments of instruction and provide students with a choice of numerous majors, minors, certifications, pre-professional concentrations, and graduate programs.

The ***Alva J. Calderwood School of Arts and Letters*** was dedicated in 2002 in honor of Dr. Alva J. Calderwood, a professor for 53 years and Dean of the College for 35 years. Dr. Calderwood graduated from Grove City College in 1896, and after pursuing graduate studies at Harvard University, he returned to Grove City College to spend the remainder of his life teaching and administering. He was known as an accomplished professor and academic dean who took a personal interest in the lives of everyone. His example lives on as a guiding light today for faculty, students and administration. The Alva J. Calderwood School of Arts and Letters is comprised of the Departments of Biblical and Theological Studies; Communication and Design; Education; English; History; Modern Languages; Music, Theatre, and Art; Philosophy; Political Science; and Psychology, Social Work, and Sociology.

The ***Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics*** was dedicated in 1997 in honor of Albert A. Hopeman, Jr., who served for 44 years on the Grove City College Board of Trustees and as President of the Board from 1972 until his death in 1998. Mr. Hopeman left a deep imprint on the history and the future of Grove City College and is remembered for his loving attention to the College and its mission. He was awarded an honorary Doctor of Laws degree from the College in 1961. The Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics is comprised of the Departments of Biology; Chemistry; Computer Science; Electrical and Computer Engineering; Exercise Science; Mathematics; Mechanical Engineering; Physics; and the Charles Jr. and Betty Johnson School of Nursing.

The ***Winklevoss School of Business*** was launched in 2022 and dedicated in 2024 in honor of Dr. Howard E. Winklevoss '65, a renowned academic and business technology entrepreneur. After teaching for more than a decade, Dr. Winklevoss entered the private sector, founding multiple ventures, including Winklevoss Consultants, a financial consultant to over 125 major corporations, and Winklevoss Technologies, a company that builds software for the actuarial consulting community to model and administer defined benefit pension plans. The Winklevoss School of Business is comprised of the Departments

of Accounting and Finance; Economics; Entrepreneurship; and Management and Marketing. These departments offer 12 majors and several graduate programs.

The Campus

Grove City College is located approximately sixty miles north of Pittsburgh in Grove City, Pennsylvania, a town with a population of eight thousand. Grove City is less than five miles from the intersection of U.S. Interstates 80 and 79, principal east/west and north/south routes. It is an hour and fifteen minutes' drive from the Pittsburgh International Airport and about ten minutes' drive from a 140-store retail outlet mall. The town of Grove City, organized as a borough, has diversified industries, a fine hospital, and a strong church community that takes great pride in the College.

The campus of Grove City College comprises over 180 beautifully landscaped acres, divided into two sections by Wolf Creek – Lower and Upper Campus. These two areas are connected by Rainbow Bridge, a stone arch footbridge, and by city streets. The Lower Campus, located on the edge of the business district of Grove City, is the site of the Robert E. Thorn Field for football and track; the Donald L. McMillan '32 MD Press Box facility; Phillips Field House; Colonial Hall Apartments; Carnegie Alumni Center; tennis courts; and a softball field. The Upper Campus is the site of administrative buildings; classroom, technology, and laboratory facilities; residence halls; health center; indoor athletic facilities and playing fields and outdoor playing fields; library; chapel; and fine arts center.

Educational Resources

Staley Hall of Arts and Letters is a state-of-the-art teaching facility that features a lecture hall; 40 classrooms (including multimedia-equipped rooms and tiered "case study" rooms); 80 faculty offices; the Early Education Center and Hamilton Curriculum Library. Named in honor of Richard Staley '62, the building houses the Alva J. Calderwood School of Arts and Letters and the Winklevoss School of Business.

STEM Hall is the seat of the Albert A. Hopeman Jr. School of Science, Engineering, and Mathematics. Core features of the building include large lab spaces supporting chemistry, biology, and computer science, research areas designed for specialized chemistry and biology equipment, and common areas with ample writing space on the wall to facilitate group work.

Smith Hall of Science and Technology, built in 1930, is equipped with modern facilities to support programs in chemistry, biology, physics, exercise science, and engineering. The classroom, lab, research, and office spaces were fully renovated in 2025. A signature feature of the building design is a focus on scientific research and collaboration, both within and between departments of the Albert A. Hopeman Jr. School of Science, Engineering, and Mathematics. A structural addition that connects Smith Hall to STEM hall highlights that focus, as it includes several research spaces dedicated to long-term student-faculty projects.

Hoyt Hall, named for Dr. Creig S. Hoyt who served for many years as Chair of the Department of Chemistry and Dean of the College, contains classrooms and modern laboratory facilities for ABET-accredited programs in electrical and mechanical engineering.

Henry Buhl Library provides services and collections to meet the needs of students and faculty. The library maintains strong academic book collections of current and retrospective primary and secondary works, e-books, full-text online reference materials and journals, videos, music, and audiobooks. Its web page offers research guides by major and by course, links to scholarly sites, and help with citing sources. The web page and all e-resources are accessible from any network connection on campus and through the Global Protect Network from off-campus. Interlibrary loans of books and funded document delivery of articles are

available to all students and faculty. Book stacks are open for browsing. Network access, both wired and wireless, is available throughout the building. Group study rooms in the Learning Commons are equipped with Microsoft Surface Hub technology and can be reserved through an online reservation system. Quiet and private study space is available in the book stacks and lower-level reference area. The library also houses the Academic Resource Center (ARC) and the Writing Center.

When school is in session, the library is open every day, totaling nearly 100 hours each week, with the reference desk staffed daily. Librarians provide research assistance from the reference desk during posted hours, through classroom visits, and small-group drop-in sessions. Email requests for help are accepted, and students may schedule research consultations. A campus café with an outdoor patio is also available for student use.

Hamilton Curriculum Library is housed in Staley Hall of Arts and Letters and is designed for elementary and secondary education majors, with special emphasis on supporting field experiences and student teaching.

The J. Howard Pew Fine Arts Center, opened in 1976, is a memorial to Mr. J. Howard Pew, distinguished alumnus and Trustee of the College for nearly sixty years and President of the Board of Trustees from 1931-1971. This complex contains the Pew Memorial Room, a large modern auditorium, a small theater, art and music studios, rehearsal halls, practice rooms, classrooms, faculty offices, and exhibition halls. An addition completed in October 2002 contains additional classrooms, practice rooms, and a 188-seat recital hall.

The Weir C. Ketler Technological Learning Center, named for President Emeritus Ketler, who served his alma mater from 1916 to 1956, is constructed mostly underground, adjacent to the Henry Buhl Library, and houses state-of-the-art equipment for computer-assisted instruction. The 20,000 square-foot building also contains the Technology Help Desk, touch-down points, network printing, a lecture hall, and Print Production Services.

Residence Facilities

The residence halls of Grove City College provide a valuable environment for enjoying community life on campus. An ongoing program of renovation and modernization maintains these facilities for this purpose.

Alumni Hall is located on the second floor of the Physical Learning Center and houses upperclassmen.

Colonial Hall, located on Lower Campus, is comprised of apartments for upperclassmen; one wing of the hall is for women, the other for men.

Helen Harker Hall, named for the wife of the fourth president of the College, houses women.

Hicks Hall, named for College Trustee Lewis W. Hicks, houses men and contains a 500-seat dining facility.

Hopeman Hall, named for College Trustee Bertram C. Hopeman, houses men.

Isaac C. Ketler Hall, built as a memorial to the founder of the College, houses men and contains a recreation lounge on the ground floor that is open to all students.

Lascell House honors David M. Lascell, Esq., chief counsel to the College in its landmark Supreme Court case of 1984, Grove City College vs. T.H. Bell, Secretary of Education.

Lincoln Hall, named for the 16th president of the United States, Abraham Lincoln, houses men. It was a gift from the J. Howard Pew (Class of 1900) family.

Mary Anderson Pew Hall, named for the wife of the first president of the Board of Trustees, houses women and contains a 450-seat dining room, a 145-seat special-event dining room, and The Garage Café.

Mary Ethel Pew Hall, named for a long-time member of the Board of Trustees and benefactor of the College, houses women.

Memorial Hall was built as a memorial to Joseph Newton Pew, first president of the Board of Trustees, and houses men.

Stewart House is named in honor of successful local businessman and Trustee William C. Stewart ’61 and his wife, Gay, for their generosity and contributions of time, talent and treasure.

Administration and Student Support Buildings

Breen Student Union is named in honor of current Board of Trustees Chairman, Edward D. Breen, and his wife, Lynn, generous benefactors of the College and members of the class of 1978. The Breen Student Union houses the Office of Student Life and Learning, bookstore, mailroom, and commuter lounge, as well as a Chick-fil-A restaurant. Private meeting and banquet rooms are also available and may be reserved for special occasions. The Breen Student Union is open 24 hours a day during the academic year.

Carnegie Alumni Center, originally constructed as a library for the College and community by its benefactor Andrew Carnegie, houses offices for the alumni, institutional advancement, and communications departments.

Crawford Hall is the administrative center of the College. It was made possible by a gift from Harry J. Crawford, who served as a member of the Board of Trustees for many years. In addition to offices, it contains an auditorium and a social room for student and faculty gatherings.

Samuel P. Harbison Memorial Chapel is the center of the religious life of the campus. It provides an inspiring place of worship and a place for quiet meditation. It was built by the sons of Trustee Samuel P. Harbison as a memorial to their father, who for many years served the College as a trustee. The beauty of the interior is enhanced by hand carved woodwork and jewel-like stained glass windows. The organ, a four manual Kimball, is a memorial to Frances St. Leger Babcock, wife of F. R. Babcock, a former president of the Board of Trustees. The east and west transepts of the chapel were gifts respectively of Miss Ethel Pew, a trustee of the College, and the Presbyterian Church.

Rathburn Hall functions as the hub for campus ministry and student community outreach groups, and is available for use by other student groups, as well. Named in honor of Board of Trustees Chair Emeritus David ’79, Mark ’08, Tyler ’18, and Jayne Rathburn, the facility contains offices for the Chapel staff, seminar rooms, and a work room for student ministry groups. The building provides a venue for campus group meetings and large group receptions in the Morledge Great Room, as well as a comfortable lounge area for Bible study and small groups. While Christian ministry at Grove City College takes place on every part of the campus, this building represents the College’s commitment to maintaining an authentically Christian environment.

Zerbe Health Center provides outpatient health care by physicians who make weekday visits and by staff nurses. Beds are available for non-overnight, in-patient care of students with minor ailments. Zerbe also houses the college’s Counseling Center. For more information, see ‘Health Services’ in the Student Life section of the *Bulletin.*

Physical Education Facilities

The Physical Learning Center features an arena, an intramural room, two swimming pools, an eight-lane bowling alley, and other recreational facilities. The Career Services Office, which contains staff offices, a library, and professional interviewing rooms for on-campus recruiters, is also located in this building. The Arena, which has a seating capacity of 1,800, is used for intercollegiate and intramural basketball, volleyball, club sports, recreation, and special events. The Intramural Room is equipped with four indoor tennis courts, four volleyball courts, four basketball courts, four badminton courts, a conditioning track, and two pits for pole vault and triple and long jump. The room also provides an ideal

location for dances and other social events. Specific areas for various activities include the Hall of Fame room; Heritage Hall; audio-visual classroom; two fitness center rooms equipped with aerobic, Cybex and free-weight equipment; an aerobic/dance/multi-purpose studio; and a golf training room. The building also houses an athletic training room, athletic laundry room and numerous men's and women's locker rooms.

The College has three outdoor playing-field areas. On Lower Campus, an all-weather eight-lane 400-meter track, complete with a steeplechase water pit, surrounds Robert E. Thorn field. The football and lacrosse field, featuring artificial turf, lights and a seating capacity of 3,500, forms a natural amphitheater bounded on the northwest by a brick and concrete stadium. Adjacent to Thorn Field are the jumping and throwing facilities for field events. Phillips Field House provides locker, training, and coaches' rooms for Thorn Field. The Walters-Zbell Tennis Courts adjoin this facility. Also on Lower Campus is the women's softball field, which is located on Pine Street. On Upper Campus, there is Don Lyle Field for varsity soccer and varsity women's lacrosse, and Jack Behringer Field for varsity baseball. Seven touch-football fields, four softball fields for intramural sports, three multi-purpose intramural fields, and the marching band practice area are located across the street on Madison Avenue behind the Physical Learning Center.

The Center for Entrepreneurship + Innovation

The Center for Entrepreneurship + Innovation (E+I) at Grove City College provides experiential learning activities, programs, competitions, and events centered on entrepreneurship and innovation for the entire student body, regardless of major. The concepts of entrepreneurship and innovation do not apply just when one is starting a business, as they are mindsets and skillsets that prepare our students to thrive and stand out in any career path. Through E+I programs, students are equipped and empowered to go out into the world and make a true difference for the common good, no matter how and where they are called to serve. More information about E+I events, programs, and competitions can be found by visiting www.gccentrepreneurship.com.

The Institute for Faith & Freedom

The Institute for Faith & Freedom is a Grove City College think tank that focuses on public policy and social issues from the perspectives of Christian faith and individual freedom. The Institute is home to Grove City Faith & Freedom Press, the Faith & Freedom Fellows program, and the Center for Faith & Public Life. The Institute also generates faculty research, opinion editorials, and media interviews, and holds at least one major conference each year. The Institute for Faith & Freedom Endowment exists for the benefit of the Institute's student fellows.

Center for Faith & Public Life

Grove City College's Center for Faith & Public Life, under the auspices of the College's Institute for Faith & Freedom, promotes the presence of Judeo-Christian values in public institutions by: 1) expanding awareness of the extensive historic relationship between religious belief and public life; 2) exploring competing frameworks and approaches for integrating Christianity and public policy and service; and 3) strengthening opportunities for Christian engagement in public service. The term "public life" usually refers to the work of government and the political sphere, but it also can be understood more broadly to include business, education, media, and other sectors within our social fabric.

Center for Rural Ministry

The Center for Rural Ministry (CRM) at Grove City College provides a regional hub for pastors, lay leaders, faculty, and students by fostering meaningful partnerships that

promote flourishing in the churches and communities of our region and beyond. As part of this mission, the CRM offers an array of programming, which includes an annual conference for pastors, lay leaders, students, and faculty, student-led spring break mission trips; faculty-led classroom service-learning projects designed to meet the needs of local churches; paid student summer internships in churches, opportunities for students to commit to a local congregation for a semester through the Plowshare program; and regular educational meetings for pastors and lay leaders in our region. Additionally, the CRM participates in the national conversation about rural ministry by building relationships with other individuals and organizations that seek to resource and amplify the voices of rural pastors as well as through the publication of a regular blog and videos featuring pastors, students, and local congregations. More information is available at www.ruralministry.org.

Endowments

The endowment resources of the College have been made possible by the generous gifts of individuals and foundations. Endowments benefiting the College include the following special funds:

The William H. Burchfield Fund. Established in 1995, this trust fund is used to support the College's renewal and replacement program for campus buildings.

The Institute for Faith and Freedom Endowment. Established in 2010, this fund is used to support the annual programs of the Institute.

Harry J. Crawford Trust Fund. Established through a gift by Harry J. Crawford, a former trustee of the College, this fund is used for the maintenance of Crawford Hall.

Pamela (Headley '75) DeFelice and Orlando DeFelice Professor of Business. This endowment will be awarded to a professor in the Winklevoss School of Business.

Clark G. Drake Library Fund Memorial. This fund, in memory of the late Clark G. Drake, is used for library purposes.

The Entrepreneurship Center Endowment. Established by an anonymous donor, this fund is used to support the operations of The Center for Entrepreneurship + Innovation at Grove City College.

Elizabeth Harbison Fund. Miss Martha Harbison, a former student, created a fund for the benefit of the Library, as a memorial to her mother Mrs. Elizabeth Harbison.

Samuel P. Harbison Fund. Established by the Harbison estate and the Board of Christian Education as a memorial to Samuel Pollock Harbison, an early member of the Board of Trustees, this fund is used to support the Biblical & Theological Studies Department.

H. D. Hough, Jr. Library Fund. Established by H. D. Hough in memory of H. D. Hough, Jr., this fund is used to purchase books for the library.

Howard-Nelson Fund. Established by Mr. and Mrs. Samuel Nelson in memory of their parents, the income from this fund is used for the benefit of the Departments of Modern Language and English.

The Howell-Jenkins Fund. Established by Mrs. Josephine Stiefel Jenkins in memory of her husband, the income from this fund is used for general purposes.

Ellen Bell Ketler Fund. Established by the family of the late Ellen Bell Ketler, the income of this fund is used for the benefit of students, either as scholarships, student awards, or for books, works of art or other items, which will add to the cultural resources of the College.

William Richard Ketler Fund. Established by his parents, Weir C. and Ellen B. Ketler, the income from this fund is used for improvements to the Student Union, for scholarship grants, for the purchase of books, or for the purchase of works of artistic, historical or cultural value.

The Kreutner Library Book Purchase Endowment. Established in 1998 by James and Betty Kreutner, this fund is used for the purchase of library books in English, English Literature or Journalism.

Albert C. Lamb Fund. Established by Miss Mary C. Lamb, this fund is used for books for the Biblical & Theological Studies Department.

McNulty, Jewell, Moore, MacKenzie Research Endowment. Established by Richard G. Staley '62, this endowment will support research in the Hopeman School of Science, Engineering, and Mathematics.

Joanne F. McVay & William J. McVay Conservative Student Fellowship Endowment. Established by Drs. Joanne and William McVay, this fund is used to provide assistance to fellows pursuing research of and education in conservative policy.

Dr. Edward W. and Sara K. Naegele Chemistry Endowment. This fund will support chemistry laboratory equipment, teaching aids, and technology applications necessary to enhance scholarly research and classroom learning.

The Samuel M. Nelson & Helen L. Nelson Memorial Trust. Established by Mr. & Mrs. Samuel M. Nelson, the income of this fund is used to support full professor salaries in the Liberal Arts program.

Miriam (Shellito'52) Parker and Royal Parker'52 Organ Recital Endowment. The fund was established by the generosity of the family of Miriam and Royal Parker.

The Phillips Interdisciplinary Endowment Fund. Established in June 2016 by Michael and Marlene Phillips to encourage students to minor and participate in interdisciplinary activities. Eligible students may apply for funding to participate in special programs or projects, attend conferences, or engage in research opportunities.

Reed Fund. Established by Mr. E. B. Reed, this fund is used for books for the Department of Management and Marketing.

The Richard S. Robinson, Sr. Presidential Fund for Student Innovation. Established by Richard S. Robinson, Sr. in December 2015. The Fund is available for the discretionary use by the President of the College for the following: student programming in the Chapel and campus ministries; motivational speakers and competitions for The Center for Entrepreneurship + Innovation at Grove City College and the Department of Management and Marketing; and student research opportunities, internships and equipment in Science, Engineering and Mathematics.

The Dr. John Sparks '66 and Dr. L. John VanTil Fund for The Institute for Faith & Freedom. Established by David H. Peiffer '81 to honor and memorialize the great works and selfless commitment of Drs. Sparks and Van Til to Grove City College, its students, and the world at large. Their work laid the foundation of what would later become the Center for Vision and Values, later renamed The Institute for Faith and Freedom. This fund supports the general operations and mission of the Institute for Faith and Freedom.

The Richard G. Staley '62 Visionary Entrepreneurship Endowment supports the programs within The Center for Entrepreneurship + Innovation.

Stiefel-Jenkins Fund. Established by Josephine Stiefel Jenkins, this fund is used to support the study of economics.

The Storey Fund. Established in 1981 by Dr. James Storey, this fund is used to support the Chemistry Department.

Mark E. Thompson, MD Endowment. This endowment is established by Mark E. Thompson, MD to recognize the significance of a Grove City College education which is based on faith and freedom.

Janet M. Thompson '66 Endowment. This endowment is established by Janet M. Thompson '66 to recognize the significance of a Grove City College education which is based on faith and freedom.

The Bob Thorn Fund for Annual Giving. This endowment, established through the estate of Robert E. Thorn, is directed for use in the Annual Giving Fund.

The Wolverine Innovation Fund. Established in 2018 by Dr. Mark E. Thompson, MD, this fund is used to support the Center for Entrepreneurship + Innovation at Grove City College.

The Clever Campus Beautification Endowment. Established by Terrance R. Clever '75, this fund is used to support the preservation and beautification of the Grove City College campus through maintenance of its grounds and ongoing landscape planning.

The Helen & Ellison Davison Research Endowment. Established by Helen and Ellison Davison, this fund is used to support research within the Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics.

In addition to the above special funds, the following funds have been endowed to support the general operations of the College:

Clifford Bowden Fund
James M. Dugan Fund
General Endowment Fund
Lewis Hicks Endowment Fund
Ketler Foundation Fund
Gen. and Mrs. Richard Mellon Fund
Clark T. and Samantha E. Pease Endowment Fund
S. T. Ramage Fund
Redick and Brandon Endowment Fund
Eva Rutledge Fund
Beatty B. Williams Fund

Opening Enrollment

Fall 2025	**Men**	**Women**	**Total**
Graduate	31	7	38
Seniors	281	249	530
Juniors	265	243	508
Sophomores	278	236	514
Freshmen	294	274	568
Unclassified	71	56	127
Totals	1,220	1,065	2,285

ADMISSIONS

Grove City College continues to believe that its objectives are best realized by maintaining its character as a Christian college of liberal arts and sciences. The requirements for admission are designed to enable the College to select students who will both contribute to and benefit from this type of college community. Prospective students seeking an education that will prepare them to take their rightful place in a free society and willing to accept the responsibilities and rights of campus citizenship are welcome at Grove City College regardless of age, race, color, sex, marital status, disability, or national or ethnic origin.

Prospective students are invited to seek any additional information they may desire from the Admissions or Financial Aid Offices.

Admission Application Process

Grove City College's intentional application review process includes consideration of the content and rigor of your academic coursework, grades, class rank (if applicable), standardized test scores (not required but highly recommended, especially for prospective mechanical engineering majors or computer science majors, biology/health majors who are considering medical school, and/or students who are interested in being considered for merit scholarships), academic or spiritual/character recommendations, extracurricular involvement, leadership and service, thoughtful response to an essay prompt, and an optional (but highly recommended) interview with an admissions counselor. There are no absolute minimum standards for grades, class rank, or test scores, and your personal accomplishments and potential for success are considered in the selective admissions process.

Applications

To access our application for admission and view instructions, visit www.gcc.edu/howtoapply. The online application alone can and should be submitted as soon as possible so that we can learn about your interests, connect you with faculty and others on campus, and begin advocating for your scholarship and admission consideration. If you would prefer to submit a paper application, email admissions@gcc.edu to request one.

All supporting documents must be submitted by your selected admissions application deadline. Please note that once the application has been submitted, it becomes the property of the College. Letters of recommendation; transcript(s); and SAT, ACT, or CLT (Classic Learning Test) scores will not be returned or photocopied.

Recommended Coursework

Graduation from and recommendation by an approved secondary school is required. Homeschooled students, please refer to the section titled 'Homeschooling Requirements' for additional details. An academic, college preparatory curriculum is highly recommended, including:

- 4 years of English
- 3 years of social science
- 3 years of science
- 2 years of history (This may overlap with social science.)
- 3 years of math (The study of mathematics through calculus is required and/or recommended for entrance into the programs of mathematics, science, and engineering.)

- 3 or more years of a modern or classical language, especially for students considering degree paths with a college-level language requirement (noted below). Students with previous language experience will take a placement or proficiency test to determine which course they will begin with in the language sequence at Grove City College (see the "General Education and Degree Programs" section under the "World Language" guidelines).
    - B.A. degrees: Students pursuing a Bachelor of Arts major in any school will be required to complete the equivalent coursework through a second-semester intermediate language course (i.e., 202). This requirement may be met through approved AP, IB, or CLEP scores, through approved transfer coursework, or the TOEFL. Any student needing coursework at GCC will be placed in the appropriate level (101, 102, 201 or 202) based on departmental placement testing.
    - Calderwood or Winklevoss B.S. degrees: Students pursuing a Bachelor of Science in the Calderwood School of Arts and Letters or the Winklevoss School of Business will be required to complete the equivalent coursework through a second-semester elementary language course (i.e., 102). This requirement may be met through approved AP, IB, or CLEP scores, through approved transfer coursework, or the TOEFL. Any student needing coursework at GCC will be placed in the appropriate level (101 or 102) based on departmental placement testing.
    - For students pursuing B.S. degrees in Hopeman School, there is no language requirement.

Grade Point Average

When assessing grade point average, consideration is also given to class rank (if provided) and to the strength and frequency of Honors, Advanced Placement, and International Baccalaureate coursework in a student's curriculum. Consistently strong academic performance throughout a candidate's four-year high school record is an important component of the evaluation process.

Standardized Test Scores

Grove City College is test-optional; however, if you have taken or are scheduled to take an SAT, ACT, or CLT test, we encourage you to submit your test scores for optimal admission and scholarship consideration. We highly recommend that prospective computer science, mechanical engineering, and biology/health (pursuing medical school) majors submit standardized test scores. We do require test scores for international students to demonstrate subject proficiency. Grove City College has always reviewed applicants holistically, considering academic abilities, extracurricular and leadership experiences, and Christian values and character.

You may send your SAT, ACT, or CLT scores to Grove City College via email, fax, or mail or include them in your official high school transcript. SAT and ACT scores may be sent directly to Grove City College from the testing center at your request. If you take the SAT, ACT, or CLT more than once, the College will record the highest sub-scores achieved and will continue to consider your best sub-scores, even if from different sittings; therefore, it is to your advantage to send all test scores from each test date.

The College accepts standardized test scores from freshman and transfer applicants (including international students) who are attending high school in the United States, freshman and transfer applicants who attend overseas American or international schools, and international freshman and transfer applicants who are able to take the SAT in their country. For international applicants, TOEFL and IELTS scores are also accepted. The

minimum TOEFL score considered is 550 paper-based, 213 computer-based, or 79-80 internet-based. The minimum IELTS score considered is 6.5.

Personal Interview (Optional, Highly Recommended)

The interview plays a significant role in our holistic review process and is highly recommended for admission, academic advising, and scholarship consideration. As a guided, one-on-one conversation with an admissions counselor, the interview is a one-time opportunity for students to share their stories, learn more about the College, and get their questions answered.

Although the interview is not required as part of the application for admission, we recommend it for high school juniors and seniors.

We offer interviews Monday through Friday throughout the year as well as on select Saturdays. Visit www.gcc.edu/Info/Visit to view available dates and to schedule your interview.

Academic or Spiritual/Character Recommendation Letter

All freshman applicants should submit an academic letter of recommendation from a teacher or guidance counselor, or a spiritual/character letter of recommendation from a pastor, youth pastor, or someone who can speak to the applicant's spiritual life and character. Additional letters may be submitted. Recommendation letters are not required to follow a specific form or template and may be uploaded to the online application, emailed to admissions@gcc.edu or faxed to (724) 458-3395.

Music Auditions

All applicants for the Bachelor of Music degree must fulfill the audition requirement prior to their selected admissions application deadline: Nov. 1 (Early Decision) or March 15 (Regular Decision). To learn more about the audition process and to schedule an audition, visit www.gcc.edu/applymusic.

Early Decision

If you are prepared to make a binding commitment to Grove City College as your first-choice school, we encourage you to apply for the Early Decision deadline (Nov. 1). You should not apply for Early Decision unless you fully expect to accept an offer of admission from Grove City College. If you apply Early Decision to Grove City College, you should not apply to any other institutions through their early decision programs, although you may submit applications to other schools under early action, regular decision, or rolling admission. Upon acceptance to Grove City College through Early Decision, you must agree to withdraw applications to all other institutions and submit no additional applications.

If you require a financial aid estimate, be sure to contact the Financial Aid Office at financialaid@gcc.edu or (724) 458-3300 before applying for admission via Early Decision.

Your admission decision will be mailed from the College on Nov. 20. At that time, three decisions may be issued: an acceptance, a refusal, or a deferral. Accepted students must submit an enrollment deposit of $250 by Jan. 15. The enrollment deposit includes a $150 matriculation deposit, which may be refunded after graduation or upon voluntary withdrawal from the College after matriculation, and a non-refundable matriculation fee of $100. Deferred students will be considered for admission with Regular Decision applicants and notified after receiving first-semester high school grades.

Regular Decision

If you are considering several colleges and plan to choose your school after receiving admission and scholarship offers, or if you are not prepared to make a binding commitment

to Grove City College upon acceptance, we recommend that you apply Regular Decision (deadline of March 15).

Your admissions decision will be mailed from the College a few weeks after your application is completed, beginning in mid-December. At that time, three decisions may be issued: an acceptance, a refusal, or an offer to be placed on a waiting list (for a limited number of students). Accepted students must submit an enrollment deposit of $250 by May 1 unless they receive a merit scholarship that requires an earlier commitment. The enrollment deposit includes a $150 matriculation deposit, which may be refunded after graduation or upon voluntary withdrawal from the College after matriculation, and a non-refundable matriculation fee of $100.

Applications submitted after March 15 will be considered for fall enrollment as space permits. If space is not available, you may reactivate your application for admission to the College during the following semester.

Once accepted, through the Early Decision or Regular Decision programs, a student must remain in good academic and social standing during the senior year of high school. Grove City College reserves the right to withdraw an offer of acceptance if a significant change occurs in any area of a student's profile.

Dual Enrollment Program

Grove City College offers high school juniors and seniors the opportunity to get a head start on college by enrolling in 100-level or 200-level courses for credit at a reduced cost. Dual enrolled students are classified as non-degree seeking students and can take courses online throughout the year and on campus during the fall and spring semesters.

Dual enrolled students may apply to enroll in 100- and 200-level courses with available seating, as long as prerequisites have been met. Note that internships, independent study/research, upper-level courses, study abroad, music ensembles, and music lessons are not available to dual-enrolled students. Due to California State regulations, California residents are not eligible to participate in Grove City College's online Dual Enrollment Program. Students are responsible for adhering to all College policies as outlined in the Bulletin (academic policies) and The Crimson (student life policies).

Applicants are recommended to have an unweighted cumulative high school GPA of 3.50 or higher. For details on available terms, courses, registration deadlines, application instructions, and required forms, visit www.gcc.edu/dualenrollment or contact dualenrollment@gcc.edu. For more information on division classifications and QPA calculations, refer to the Academic Policies section below.

Early High School Graduation Policy

If you are pursuing early high school graduation, you may apply to Grove City College as a high school junior, as long as you have utilized all available curricula at your high school and have communicated your intentions to your guidance counselor prior to applying to the College. If you have additional high school requirements to complete in order to graduate, you will be solely responsible for appropriate course enrollment. This includes seeking high school approval of all required courses before the start of your first semester at Grove City College.

The Admissions Committee reviews high school junior applications using the same criteria used for students completing the traditional four-year high school experience. These criteria include content and rigor of your academic coursework; grades; class rank (if applicable), standardized test scores (if provided); academic or spiritual/character recommendations; extracurricular involvement; leadership and service; thoughtful response to an essay prompt; and an optional (but highly recommended) interview with an admissions

counselor. Additionally, you must submit a letter from your guidance counselor endorsing your early college enrollment.

Selecting a Major

Grove City College recommends that all applicants declare a major. Major selection is one of the many methods the College uses to shape the freshman class, and because there are limited openings for each major offered, you will be considered for only one major. After enrolling at the College, you may change your originally declared major or add an additional major (pending department approval).

If you are undecided about your major, you may select "Undeclared – Liberal Arts," "Undeclared – Sciences," or "Undeclared – Business." While several majors have a tight, eight-semester curriculum, others are more flexible. Students should declare a major during their freshman year and no later than the end of the sophomore year— by which point most of our undeclared students easily find their fit.

Homeschooling Requirements

The College defines a homeschooled student as one who is taught at home by his/her parent(s)/guardian(s) or by a group of individuals outside the traditional educational system.

Homeschooling can offer a unique experience. Please follow the application instructions, including the submission of your transcript(s) and an outline or resume of extracurricular activities. The transcript should include your course of study and grades (with a letter grade assigned to each class using a 4.0 GPA system). We recommend submitting standardized test scores if you have one or more (i.e., SAT, ACT, CLT). We do not require submission of scores, but they are helpful for the admissions guidance process and for awarding scholarships. The required letter of recommendation should be written by someone outside your home. Small portfolios are welcome but not required. An interview is strongly recommended, and you should be prepared to elaborate on your coursework and activities, as well as your college search and personal goals.

It is acceptable to supplement your coursework with college-level courses, and you will be accepted as a freshman and progress to sophomore, junior, and senior class standing along with your initial cohort.

Transfer Students

If you have already completed high school and have enrolled at a regionally accredited institution for any college-level course, you should apply to the College as a transfer student for the fall term (beginning in August) or spring term (beginning in January). You may be admitted to advanced standing upon presentation of honorable dismissal and acceptable grades. You must have a minimum cumulative grade point average of 2.0 on a 4.0 scale in order to be considered for enrollment. Your class standing will be determined by the Registrar's Office. At this time, applicants for the mechanical engineering major will be handled on a case-by-case basis and are not guaranteed admission due to capacity limits.

The application deadline is August 11 for fall transfer and December 29 for spring transfer. As transfer admission is rolling, you will receive an admissions decision once your application file is complete. To access our application and view instructions, visit www.gcc.edu/transfer.

If you are applying for financial aid, you should submit your application for admission and financial aid at the same time, as well as an Unofficial Transfer Credit Evaluation form and other required documents outlined on our website. Whether you are a candidate for freshman or upper-class standing, you must present any and all official high school

credentials and college transcripts if you have attended another regionally accredited college or university.

Transfer Credit

College credit is awarded to those students who have earned a letter grade of "C" or higher or where a grade of P/Pass is equal to a "C" or higher in a course(s) that have been completed at a regionally accredited institution and approved by Grove City College for transfer. Transfer credits do not enter into the computation of a student's quality point average at the College and may not exceed 50 percent of the total credits counted toward graduation. At a minimum, 64 credit hours of work are required to be completed at the College, as well as a minimum of one half of all hours for any major, minor, certification or concentration.

The College will grant credit to incoming freshmen who have achieved the appropriate academic standards through Advanced Placement (AP), College Level Examination Program (CLEP), International Baccalaureate (IB), or Cambridge Assessments. College courses taken while in high school (typically through College in High School programs) will be evaluated on an individual basis, depending on course equivalencies, and expected learning outcomes. See the Academic Policies section for further details.

A high school student who has completed college-level courses prior to his/her high school graduation will apply as a freshman student. Students who apply and are accepted as freshmen will enter as freshmen and progress to sophomore, junior, and senior class status along with their peers.

Graduate Programs

Grove City College offers Master's degrees in a number of fields, including Accounting, Business Analytics, Business Administration, Economics, Education, and Theology & Ministry. Professional certifications in project management, digital marketing, advanced Excel, and more are also offered through our Office of Online and Graduate Programs.

Students interested in learning more about Grove City College's graduate program and course offerings should reach out to the Office of Graduate and Online Programs via phone (724) 458-2027, email (GraduatePrograms@gcc.edu), or by visiting their website (www.gcc.edu/gradprograms). You can also reference the Master's Programs Bulletin at www.gcc.edu/gradcatalog.

No-Fee Technology Package

A long-established leader in information technology, Grove City College provides comprehensive resources to expand learning and equip students to succeed in college and career. All incoming, degree-seeking, full-time undergraduate students will receive a no-fee technology package that includes a business-class, pen-enabled laptop computer, auxiliary equipment, backpack, and on-site technical support and repair service provided by staff in our Technological Learning Center (TLC). Unlike most schools, Grove City College does not charge a technology fee for full-time students and does not charge labor fees for in-warranty repairs.

Although incoming students may have varying levels of computer knowledge, the 24/7 access to a common platform allows each student to learn what they need to know to utilize the technology. Incoming freshmen and transfer students will receive the technology package with initial training on equipment and software to ensure that they are prepared for the first day of classes. With these tools, students have seamless access to resources that significantly shape their learning environment, including high-end industry standard software that varies depending on major and course requirements. In addition to campus-

wide wireless access, full-wired ethernet connectivity is available within residence hall rooms and select classrooms and labs. While enrolled full-time, students retain the issued equipment even at home during break periods and summer months. Upon graduation from Grove City College, students are granted ownership of the laptop and accessories, adding value to the package beyond their student years. For more information, visit www.gcc.edu/technologypackage. You may also contact the Help Desk in the TLC via phone (724) 458-2255, email (helpdesk@gcc.edu), or by visiting the physical Help Desk in the Technological Learning Center.

EXPENSES AND FINANCIAL AID

Expenses **(2026-2027)**

Matriculation Fee (non-refundable) 100.00
Matriculation Deposit 150.00
(See Admission section for detailed explanations.)

Fall and Spring Semester Charges – Undergraduate Students:
Full time:
Tuition, 12 to 18 credit hours ..... $ 11,735.00
Tuition, each credit hour over 18 credit hours 600.00
Food and Housing, Residence Hall, 21 meals per week 6,615.00
Colonial Hall Apartments – Housing Only 6,185.00
Part time, per credit hour 765.00
Dual Enrollment Program, per credit hour 230.00
Adult Education (audit only), per credit hour 95.00

May/January Travel Term and Winter/Summer Online Charges:
Undergraduate Student:
Tuition, per credit hour ..... $ 495.00
Non-Degree Seeking student, per credit hour 495.00
Dual Enrollment Program student, per credit hour 230.00

Fees for Special Services:
Prevention and Care of Injuries (EXER 251) 45.00
Degree Apostille 25.00
Microsoft Certification Fee (MNGT 110) 150.00
Housing Deposit 200.00
Independent Research (270/370/470 per approved application) 300.00
Independent Study (260/360/460 per approved application) 300.00
Internship Fee (per approved application) 300.00
Laboratory Materials Fee (per course– see Academic Policies, Materials Fee) 150.00
Late Payment Fee (monthly assessment) 1% of balance due (maximum $150, minimum $25)
Marketing Research Fee (MARK 210, MNGT 590) 150.00
Music Group Class (Guitar, Organ, Piano and Voice) 150.00
Music Private Lesson (per half-hour, per week) 450.00
Official Transcript (PDF) 7.65
Online Materials Fee ..... varies by course
Parking Permit Fee (Freshmen annual rate) 250.00
Parking Permit Fee (Upperclassmen annual rate) 150.00
Print Making, Sculpture, Ceramics Materials Fee 150.00
Replacement Diploma 25.00
Returned Check Fee 30.00
Returned Electronic Check Fee 30.00
Student Health Insurance (annual rate) 2,315.00
Study Abroad Fee (Abroad 300 - fall or spring semesters only) 350.00
Technology Fee (Part-time undergraduate students) 300.00
Travel Course Participant Fee (non-credit participation) 750.00

The College reserves the right to adjust its charges prior to the beginning of any semester, although every effort is made to maintain its stated charges throughout the academic year.

Refunds

Students planning to completely withdraw or transfer from Grove City College must immediately contact the Registrar Office's Enrollment Coordinator by emailing transfers@gcc.edu or calling (724) 458-2069 to officially withdraw. The official withdrawal date is determined by the submission of completed withdrawal paperwork to the Enrollment Coordinator. Students residing in the Residence Halls must complete an official check-out with the Resident Director. See the Academic Policies section for further details on withdrawing.

Voluntary Withdrawal – Tuition Charges

A student who voluntarily withdraws from the College may be refunded a portion of the tuition charges based on the official withdrawal date in accordance with the refund schedule for the applicable term:

Fall or Spring Semester (complete withdrawal from all courses):

Term	100% Refund on or before	75% Refund between	50% Refund between	25% Refund Between	No Refund on or after
Fall	8/23/26	8/24-8/30/26	8/31-9/6/26	9/7-9/13/26	9/14/26
Spring	1/10/27	1/11-1/17/27	1/18-1/24/27	1/25-2/2/27	2/3/27

Fall or Spring Semester - Drop or withdrawal from a course but remain enrolled with the College for at least one course:

Term	100% Refund on or before	75% Refund between	50% Refund between	25% Refund Between	No Refund on or after
Fall	8/28/26	N/A	N/A	N/A	8/29/26
Spring	1/15/27	N/A	N/A	N/A	1/16/27

Dropped courses that commence in the middle of a fall or spring semester will be refunded in a similar manner as courses running outside of fall or spring depending on the change in total credit hours enrolled and the date the course was dropped. No refunds will be issued after the drop/add period for that course.

Drop or withdrawal from a course for terms outside Fall and Spring:

Term	100% Refund on or before	75% Refund between	No Refund on or after
Winter Online	12/15/26	12/16-12/17/26	12/18/26
Early Summer			
4-week duration	5/31/27	6/1-6/2/27	6/3/27
6-week duration	5/31/27	6/1-6/3/27	6/4/27
8-week duration	5/31/27	6/1-6/4/27	6/5/27
10-week duration	5/31/27	6/1-6/5/27	6/6/27
12-week duration	5/31/27	6/1-6/6/27	6/7/27
Late Summer			
4-week duration	6/30/27	7/1-7/2/27	7/3/27
6-week duration	6/30/27	7/1-7/3/27	7/4/27

Voluntary Withdrawal – Housing Charges

A student who voluntarily withdraws from the College may be refunded a portion of the housing charges based on the official check-out date from the residence hall in accordance with the refund schedule for the applicable term:

Fall or Spring Semester - Housing refund schedule for complete withdrawal from College:

Term	100% Refund on or before	75% Refund between	50% Refund between	25% Refund Between	No Refund on or after
Fall	8/23/26	8/24-8/30/26	8/31-9/6/26	9/7-9/13/26	9/14/26
Spring	1/10/27	1/11-1/17/27	1/18-1/24/27	1/25-2/2/27	2/3/27

Food and Housing are not available during the Winter and Summer online sessions.

Voluntary Withdrawal – Food Charges

A student who voluntarily withdraws from the College may be refunded a prorated portion of the food charge, which covers the cost of meals, based on the official check-out date from an upper campus residence hall. Students not residing on upper campus who purchased a block meal plan, may be refunded the cost of any unused meals on the meal plan purchased.

Voluntary Withdrawal – Travel Course

A student who voluntarily withdraws from an off-campus travel course, during any academic term, will be eligible for a tuition refund as described herein; however, the cost of transportation or other program expenses incurred on behalf of the student prior to the withdrawal will be deducted from any refund of the program charges.

Medical/Military Withdrawal

A student who must withdraw from Grove City College upon a physician's written recommendation or who is a military reservist and is called to active military duty will be

refunded a prorated portion of tuition based on the number of days in attendance. The food and housing charges will also be refunded on a prorated basis according to the official check-out date from the residence hall. These prorated refunds will be granted for medical/military withdrawal regardless of the time of withdrawal during the semester. Written documentation supporting the physician's recommendation must be received by the Student Life & Learning Office within two weeks of a medical withdrawal.

Housing Deposits

Each spring, students who have indicated their intent to reside on campus the following fall semester will be charged a housing deposit. The housing deposit is not an increase in the cost of food and housing; rather, the amount of the deposit is later reflected as a reduction to the amount due on the student's statement of charges for the upcoming fall semester. This deposit is refundable if the student notifies the College of his/her withdrawal or changes his/her housing status to non-resident by June 30th. The deposit is non-refundable if notification is made on July 1st or later.

Additional Refund Details

The matriculation deposit is refunded upon voluntary withdrawal or after graduation.

No refund of any kind is made when a student is suspended or dismissed from the College, including, but not limited to, tuition and course fees, food and housing, application and matriculation fees and deposits.

The guidelines noted above for tuition will also be used to refund financial aid to the provider of the aid unless specified otherwise by the donor. In the event the student has received a student loan during the current term, all current Grove City College charges will be paid and any remaining credit balance, up to the loan amount, will be used to repay the student loan prior to any refund to the student.

Students who request and are approved to move into the residence halls after the start of a semester will be charged a prorated amount of the food and housing charge based on the remaining days of the semester starting with the official move in date as arranged with and confirmed by the Student Life & Learning Office.

Financial Aid Program

The generosity of alumni and friends of the College has made the Grove City College Financial Aid Program possible. Under the direction of the Board of Trustees, the College administration makes every effort to keep charges as low as possible, thereby, in effect, providing every enrolled student with significant financial assistance.

In addition, a number of scholarships and on-campus work opportunities are available to assist qualified full-time students. Scholarship assistance is based on need and academic achievement and must be applied for each year. Although financial assistance is awarded for the full academic year, if changes occur in the need factor, the College may increase, reduce or withdraw assistance at the beginning of any semester.

Any student or prospective student seeking financial assistance is required to apply each year. Full details are available in the Financial Aid Brochure or on the College website – www.gcc.edu. Every effort is made to provide financial assistance for applicants who meet the academic qualifications and need requirements; however, all applicants must be full-time students who are making academic progress. Grove City College does not discriminate on the basis of age, race, color, sex, marital status, disability, or national or ethnic origin in the administration of its scholarship programs.

Securing financial aid from any source outside the College is a student's responsibility. Upon a student's request, the College will certify a student's enrollment and provide other data with the clear understanding that it is fulfilling a service to its students. The provision

of such service, however, does not indicate that the College is a recipient of the grant or loan funds received by the student, that it is in any way administering any portion of the external program, or that it is responsible for decisions made by outside donors or lenders (private or public). The College performs these limited services for all students seeking private or public financial aid, except as stated in the following paragraphs:

Grove City College does not accept or certify any loans under the Federal Direct Student Loan Program (Student or Parent Program) or participate in the William Ford Direct Loan Program; Pell Grants; TEACH Grants; Supplemental Education Opportunity Grants; Federal Work Study; President's Service Challenge Scholarship through the Corporation for National and Community Service (also known as the AmeriCorps Scholarship); National Science Scholars Program Scholarships; Presidential Access Scholarships; ROTC Scholarships; educational benefits from the Department of Veterans Affairs; assistance through the Office of Health and Human Services (such as grants from the Office of Vocational Rehabilitation or Blindness and Visual Services); or any other scholarships or loans which may be construed as providing direct or indirect federal aid to the College. The College will also not allow any student to register for classes if it is aware that a student has accepted or received such federal financial aid for that semester.

Grove City College has carefully reviewed the legislation pertaining to the GI Bill (a package of educational benefits available to U.S. military veterans and their dependents). Unfortunately, the College is unable to receive funds, certify eligibility, or otherwise participate in this program because it is considered federal financial aid.

Scholarships

The income from a number of endowment funds is available for scholarship aid to students who qualify on the basis of scholarship, financial need, and character. The Scholarship Committee awards these scholarships on a year-to-year basis. Applications and supporting documents must be submitted to the Financial Aid Office on or before April 15 preceding the school year for which scholarship aid is requested (by the first day of spring semester classes for students matriculating mid-year). A continuing Grove City College student must have at least a cumulative QPA of 2.00 and earned at least 24 credits during the previous academic year, or at least 12 credits if the student only attended one semester, to qualify for need-based financial aid. Consult the Grove City College Financial Aid Brochure, available online at www.gcc.edu, for complete details.

How to Apply for Scholarship Aid

All students, prospective and continuing, who are applying for scholarship assistance, must submit the College Scholarship Service (CSS) Profile online at cssprofile.collegeboard.org each year by April 15.

Grove City College does not participate in any federal aid programs, and it does not utilize the Free Application for Federal Student Aid (FAFSA) in applying for College financial aid programs. The FAFSA is generally required in applying for financial aid from non-federal public sources, such as State Grants, in which students are allowed to participate. Students should check with the specific aid source to determine which forms are required for consideration by that source.

To expedite the financial aid process, students should apply as soon after October 1 as possible. In order for the College to process the CSS Profile results, students may be required to submit additional documents with the application. Financial aid is awarded annually based on the aid application deadline and available funds. All applications are due in the Financial Aid Office by April 15. Applications received from April 16 to July 15 will receive 50% of the scholarship that otherwise would be awarded. Applications received

after July 15 will not receive a scholarship award. Transfer applicants should contact the Financial Aid Office regarding deadlines.

Financial aid decisions cannot be made until the student has been accepted for admission. Although applicants must be offered admission to Grove City College to receive need-based financial aid, applicants should not wait for an offer of admission before applying for financial aid.

Students seeking financial aid must reapply for financial aid and loans each year.

Loan Funds

Students who need help in meeting their educational expenses may borrow money using any private loan program of their choice. Please apply for a student loan at least 3 weeks prior to the date the student bill is due.

Academic Progress

Grove City College defines academic progress as earning a minimum of 24 credit hours during a single academic year (September through August) or a minimum of 12 credit hours if the student only attends one semester during the academic year, and have a cumulative QPA of at least 2.00. Students must make academic progress to remain eligible for financial aid from the College. Additionally, students may be subject to the academic progress standard for scholarships, grants or loans received from sources outside of Grove City College, such as Pennsylvania State Grants, and should refer to the guidelines for each program for complete details.

The College's Financial Aid Office reviews all academic records at the conclusion of each spring semester to ensure students are making academic progress. A student who drops courses; withdraws entirely from a semester; or receives either "F – failing" or "I – incomplete" grades may fall below the minimum of 24 earned credit hours required for satisfactory academic progress. These students will be ineligible to receive financial aid from the College until academic progress has been made.

A student who fails to make academic progress and is denied financial aid may submit a written appeal, with supporting documentation, to the College's Financial Aid Office within 14 days of being denied financial aid.

Work Opportunities

A number of positions are available on campus for full-time students who need to support themselves financially. Students who excel in some fields are often given an opportunity to serve as departmental, laboratory, or library assistants. Applications for work on campus may be completed by accessing the "Campus Services" tab within the myGCC portal and clicking on the "Student Employment link on the left-hand side menu.

Scholarship and Financial Aid Funds

A number of funds have been provided to support current scholarships and financial aid awards to Grove City College students. Donors have created over 600 scholarships that award over $12 million per year (some include restrictions specified by the donor). One of Grove City College's priorities is to make our outstanding educational experience accessible to students with academic potential who also have financial need. Currently, 75% of students receive financial aid in the form of Grove City College scholarships. A full list of scholarships is available in the online directory at giving.gcc.edu.

STUDENT LIFE

General Rules and Regulations

Students in a free society have the right to choose the college that best suits their needs, interests, and personal lifestyles. Those same students, having chosen their college, have the responsibility to observe the policies and standards of that college. As one might anticipate, members of the Grove City College campus community are expected to adhere to high Christian moral standards. We believe these historic biblical standards of conduct are essential to the maintenance of a campus environment in which the search for meaning in life and a rational pursuit of knowledge can best be accomplished. A student's enrollment at Grove City College thus involves an agreement with the College that he/she will adhere to the academic and co-curricular standards of the College.

For a detailed description of the College's community standards and disciplinary policies, please refer to the current student handbook, *The Crimson.* Violations of College regulations and policies will be addressed administratively by the Office of Student Life and Learning. Violations of civil law will be reviewed by the College and may also result in disciplinary action. The College reserves the right to exclude at any time students whose conduct or cooperation it regards as unsatisfactory without assigning any further reason. Neither the College nor its officers shall be under any liability whatsoever for such exclusion.

It is also expected that students will observe standards of appearance, which will encourage self-respect and enhance an individual's self-image. Some departments may also set specific standards of appearance as part of the student's professional preparation.

Though the College seeks the comfort and well-being of students on campus, it cannot assume responsibility for students when they leave campus.

Residence Halls

The College's residence halls and student apartments were built not only to ensure convenient and adequate housing for students, but to foster the social unity of the College, and enhance the student learning experience. Therefore, all full-time students, except commuter students who reside with their families, are required to room and board on campus. Traditional-aged, full-time commuting students must live at their parents' or legal guardian's full-time primary legal place of residence, normally within a radius of forty miles of Grove City. With advanced approval, special permission may also be granted for a student to live with a primary non-peer relative other than his or her parents or a legal guardian.

Some students who meet specific requirements may be permitted or required to live off-campus. Those returning to college from the working world may qualify for approved off-campus status if there is a significant age differential between them and those who make up their class. Normally, students who will be twenty-three years of age prior to the first day of fall classes will be considered in this category. Certain students, for medically documented reasons, may also be considered for off-campus status. Those who are older than twenty-five years of age or who have completed more than four years of post-secondary college experience are expected to live off campus, with no need to seek special permission to do so. The College does not provide housing for part-time students. It also does not provide housing for students who move to part-time status after each semester's census date, nursing students in their final online semester, or special status students unless approved by the Director of Residence Life. Housing availability is limited and will be granted at the College's discretion. Special dispensation may be sought by those facing unique circumstances and may be granted if housing availability allows. Married students may

simply provide confirmation of marital status in order to live off campus, as the College does not provide married housing.

Students in these permissions may choose their own housing in the community, but the College reserves the right to require a student to move to another location, or to move on campus, if the College determines there to be a sufficient health, safety, academic, or moral concern. All off-campus housing for students must be registered with and authorized by the College.

The College, while endeavoring to provide attractive housing for resident students, retains all rights of ownership, and therefore considers that all who reside in its facilities agree to abide by all College regulations applying to campus housing. Students are responsible for the proper use of their residence hall rooms and for any violations of College standards taking place in them. The College reserves the right to inspect any room at any time. However, every effort will be made to respect the privacy of our students. The College also reserves the right to require a resident to move whenever the best interests of the College appear to demand such action.

The College cannot be responsible for loss of personal property of residence hall students due to theft, fire, wind, rain, flooding or disruptions to electrical service or naturally occurring catastrophes from rain and/or flooding. It is strongly recommended that insurance protection be carried by each student against loss and/or damage to personal property. The foregoing notwithstanding, however, should loss occur due to negligence of the College, the College will be responsible for the direct damage, but not indirect or consequential damage, as a result of the loss. The College will not be responsible, however, if the proximate negligence or willful conduct causing the loss is that of another student and/or another individual not acting as an employee of and/or without specific authority of the College.

Campus Safety

Grove City College offers students a safe and secure campus environment. Campus Safety personnel work to maintain a safe and secure campus environment that is conducive to academic, social, and spiritual growth. The College enjoys a close, cooperative relationship with both state and local police, and criminal conduct by a student or employee is grounds for immediate suspension and/or dismissal. The Campus Safety Department is responsible for maintaining the security of the College community and facilities. The Director of Campus Safety reports to the Vice President for Student Life and Learning and works closely with Student Life and Learning personnel and other departments. The campus is monitored and evaluated 24 hours a day by Safety personnel on foot, in vehicles and/or on bicycles. The department answers the campus emergency extension at (724) 458-3000 24 hours a day and they actively monitor fire alarm, sprinkler and intrusion alarm systems. Electronic card access systems secure all residence halls and most other campus buildings. Emergency phones and CCTV cameras are located throughout campus and in most parking lots.

Emergency Operation Plan

The Emergency Operation Plan (EOP) provides a framework for incident preparedness and emergency response to situations such as fires, bomb threats, and campus evacuations. The plan describes methods of informing the campus of emergency situations by using a campus siren, voice/text messaging system and email messaging. Resident students will also attend an informative emergency response session as part of the residence hall meetings at the start of each academic year.

Automobiles and Bicycles

All students who have automobiles at the College must obtain a permit from the Campus Safety Department for the privilege of parking a vehicle on campus. Those who have automobiles are expected to refrain from using them in a manner that would hinder the student's academic progress and/or contravene College policy. Finally, the College reserves the right to forbid the possession and use of automobiles in any case where such action is considered advisable.

Racks for bicycle storage are provided near most living areas. Bicycles may be kept in residence hall and apartment rooms, provided they do not impede safe entrance to or exit from the room. Residents who store bicycles in their rooms are expected to respect the space and needs of their roommate(s). Students may register bicycles with Campus Safety free of charge to aid in the event of theft or loss. No summer storage for bicycles is available on campus. (For further detail, see *The Crimson* student handbook.)

Campus Ministries

The Christian Formation Office offers spiritual guidance and direction for the Grove City College student body through weekly chapel programming as well as an array of other staff and student-led ministry opportunities. A variety of student ministry groups are coordinated through the Campus Ministries Office and the staff can assist students in finding the ministry group that best matches their interests and needs. Staff members may also aid students in finding a local church that matches their faith tradition or church background. Discipleship programs for men and women in which students are matched with mature Christian mentors from the College and/or community are available. The Campus Ministries Office also has several resources that students may borrow as they lead Bible studies and/or seek personal spiritual growth.

College-sponsored domestic and international Inter-Cultural Outreach (ICO) service trips are coordinated through the Campus Ministries Office which provides student leaders with the training, resources, and support necessary to effectively lead such a trip. The Global Outreach Program (GOP) helps students who are exploring global missions by supporting them in various summer positions around the world.

Staff members are available to meet with students to talk about issues affecting their spiritual and personal life and to pray. Please visit the Campus Ministries website to learn more about the programs and services provided through the Campus Ministries Office.

Health Services

The College maintains a modern Health & Wellness Center staffed by a physician, a nurse practitioner, or physician assistant during regularly scheduled afternoon hours and a team of registered nurses throughout the day. This health service, designed to treat minor illnesses or injuries, is available to all full-time students without cost other than those charged for special services such as allergy injections.

The College requires a complete medical history, physical exam, and record of immunizations for each student. Pennsylvania law stipulates that the College must also have written proof of the meningitis vaccine or a signed waiver indicating decline.

All full-time students attending Grove City College are required to carry health insurance coverage. For those students not covered under an alternative insurance plan (via a parent, guardian, etc.), the College offers a Health Insurance Plan for full-time students. The cost for annual coverage can be found in the Expenses section of the *Bulletin*.

Counseling services are available through the College's Counseling Center which is also located in the Zerbe Health and Wellness Center.

Student Disability Services

Grove City College is committed to ensuring equal access by providing appropriate and reasonable accommodations for individuals with disabilities, in accordance with the Americans with Disabilities Act of 1990 (ADA) and the Americans with Disabilities Amendments Act of 2008. Under the ADA, a disability is defined as a physical or mental impairment that substantially limits one or more major life activities (see full definition at ADA.gov).

The Office of Disability Services offers support based on a student's individual disability, relevant documentation and an intake meeting with the office. This interactive process is used to determine eligibility and ensure individualized accommodation decisions, assuring that students with disabilities have equal access to opportunity throughout their time and involvement in GCC's programs and activities.

After being accepted and confirming enrollment at the College, students may request services by contacting the Disabilities Service Coordinator at DisabilityServices@gcc.edu or (724) 264-4673.

New Student Orientation

An orientation program is scheduled before the start of each semester to help freshmen and transfer students transition well into the College community.

Academic Advising

The College maintains an academic advising program in which each new student is assigned to a faculty member who acts as an advisor in his/her major. Students entering the College without a major are advised by the Academic Advising Office. During the year, the advisor is available during scheduled office hours for consultation. Students should meet with their advisor at least once a semester to discuss academic planning, progress toward graduation, and other issues of concern.

Advising is a collaborative process in which the advisor assists students with achieving their academic, personal, and professional goals by providing holistic guidance so they can make informed decisions. Advisors play an important role in preparing students to pursue their unique callings and live in a globally diverse world.

In addition to individual advising, the Academic Advising Office coordinates the tutoring program, assists students who are struggling academically, and offers programs to help students succeed in the classroom.

Career Services

The mission of the Career Services Office (CSO) is to support students as they discern and pursue God's calling for their lives. To fulfill this mission, the CSO offers a comprehensive range of programs, resources, and individualized guidance. Students engage in a four-stage career development process that begins with self-assessment—reflecting on their personality, strengths, interests, values, and talents through tools such as PathwayU, Myers-Briggs, Gallup CliftonStrengths, and Working Genius assessments. They then progress to career exploration, career decision-making—often reinforced through experiential learning such as internships, research, or job shadowing—and finally a strategic job search during the senior year or preparation for graduate school.

Through career coaching, events, workshops, and online resources, the CSO helps students build essential career readiness skills, including networking, interviewing, résumé development, and internship and job search strategies. The CSO also partners with employers who post opportunities on the Handshake platform, participate in the annual fall Career Fair and spring Camp & Ministry Fair, and conduct on-campus or virtual recruiting

throughout the academic year. Recruiting and interviewing privileges are available only to current students until they complete their degree. The centralized Career Services Office collaborates closely with Education Career Services, which provides specialized support for education majors pursuing PreK–12 teaching certifications.

Arts & Culture

Grove City College hosts many cultural activities on campus, which include renowned experts in the fields of music, literature, journalism, drama, science, education, national, and international affairs. It is our hope that these events will serve as a memorable part of our students' educational experience.

The College's Cultural Series features artists of national and international reputation in music, drama, and dance. Contemporary music groups are also regularly invited to the campus. Several student dramatic productions; concerts by the Chapel Choir, the Touring Choir, the College Community Symphony Orchestra, the College Symphonic Band, and the Jazz Ensemble; and recitals by Orchesis, a student dance ensemble, also take place on a yearly basis. The College also hosts several student and professional art exhibits on campus each year.

The J. Howard Pew Memorial Lecture; the Albert A. Hopeman, Jr. Memorial Lecture in Science, Engineering, and Mathematics; the C. S. MacKenzie Integration of Faith and Learning Memorial Lecture; the J. Paul Sticht Lecture in Business and Ethics; and the Scholar Lecture Series also bring to campus outstanding speakers in many different fields.

Intercollegiate Athletics

All full-time students enrolled at Grove City College who meet the requirements of the National Collegiate Athletic Association (NCAA) are eligible to represent the College on its varsity athletic teams. The College is a member of the Presidents' Athletic Conference (PAC) and the National Collegiate Athletic Association (NCAA). The College adheres to the rules and bylaws of these organizations. College intercollegiate teams compete in the NCAA Division III. Varsity sports include baseball; basketball; cross-country; football; golf; lacrosse; soccer; softball; swimming and diving; tennis; indoor and outdoor track and field; volleyball; and water polo. Students who incur absences while representing a recognized College athletic team are excused, without prejudice to the student, through the Provost's Office.

Publications

The College owns, funds, and publishes several publications that offer students the opportunity to develop their journalistic skills, including *The Collegian*, the weekly campus newspaper. In addition, *The Echo, Cogitare Magazine*, *The Grove City College Journal of Law and Public Policy,* and other College publications provide students with opportunities for creative writing or practical experience.

Student Government

The Student Government Association is composed of approximately thirty members selected by the student body at a general election each spring. The Association represents students and confers with the governing bodies of the College on matters pertaining to campus life and College policies. The Student Government Association is involved in assisting student organizations in hosting activities through the disbursement of activities funding and is responsible for assisting in projects for the betterment of the College.

Student Organizations

More than one hundred and thirty student organizations and activities are available on campus, serving a wide variety of student interests.

- There are more than ten ministry groups that afford opportunities for Christian study, fellowship, and service.
- The College offers students a radio station experience through involvement in the Wolverine Broadcast Network (WBN), a student-operated streaming internet radio station. This medium provides opportunities for students to develop and broadcast original programming, participate in the engineering and presentation of collegiate sports, and produce news and community-affairs feature programming.
- A variety of musical experiences are provided for both instrumentalists and vocalists through the marching and concert bands, the symphony orchestra, the Chapel Choir, and the Touring Choir, which takes an extensive tour each year during Spring Break.
- There are eight local sororities and ten local fraternities on campus. Nine independent social housing groups also serve the interests of male students not affiliated with a fraternity.
- An extensive program of intramural, club sport, and intercollegiate athletics provides students with a full range of athletic opportunities. Other recreational organizations offer camping, skiing and a host of other recreational opportunities.

In addition to seventeen honor societies, there are twenty-six academic and professional clubs that serve academic and career interests. Among the latter are:

Accounting Society. An organization focused on exposing accounting students to the professional world and current issues related to accounting and business.

American Chemical Society. An organization of chemistry students affiliated with the American Chemical Society.

American Sign Language (ASL) Club.

American Society of Heating, Refrigeration and Air-Conditioning Engineers.

American Society of Mechanical Engineers. A club open to all mechanical engineering students.

Association of Computing Machinery.

BSW/Social Work Club.

Christian Medical and Dental Association.

Council for Exceptional Children.

Crimson Collegiate Investors.

Exercise Science Club. Providing the Grove City College campus community access to fitness-based activities in the region while preparing competent entry-level Exercise Science professionals within the Exercise Science major.

French Club.

Grove City College Federalist Society. Chapter of a national organization that promotes intellectual discussion surrounding legal order and essential order upon which the Country was founded.

Grove City College Management Association. Provides students from all majors with the opportunity to meet business leaders and learn about management practices.

Grove City College Pre-Health Society. Seeking to assist students as they prepare for admission to professional programs in the health field.

Grove City College Speech and Debate Team. An intercollegiate team that competes at forensics tournaments around the country. Students compete in Parliamentary debate, Platform Events (oratory), Limited Preparation Events, and Interpretation Events.

The Institute of Electrical and Electronics Engineers. A student branch of the I.E.E.E. open to students carrying at least thirty percent of a normal full-time load in electrical engineering and allied courses.

Marketing Club. A collegiate chapter of students interested in the field of marketing.

Pennsylvania Collegiate Music Educators Association (PCMEA).

Physics Club.

Secondary Education Society. A group for secondary education majors.

Society of Automotive Engineers. A national chapter open to all engineering students. SAE operates the College Baja Racing Team.

Society of Women Engineers. A national organization open to women in engineering and other related sciences.

Spanish Club.

The Environmental Club. A club open to all students interested in caring for and studying the environment.

Women for Computer Science. A club to provide space for women in the computer sciences major or interested in computer science, to be professional developed and to find community.

Honor Societies

Alpha Mu Gamma. The Epsilon Pi chapter of a national honor society that recognizes excellence in the study of foreign languages.

Alpha Psi Omega. National theatre honor society.

Beta Beta Beta. A national honorary fraternity for biology and molecular biology majors.

Crown and Sceptre. A sophomore women's honor society that recognizes scholarship, leadership and service.

Kappa Delta Pi. An international honor society in education.

Lambda Epsilon Delta. The Gamma chapter of the national honorary for elementary education majors.

Lambda Iota Tau. The Beta Iota chapter of an honor society that recognizes excellence in the study of literature.

Mortar Board. The Alpha Theta Mu Chapter of the national honor society recognizes senior students who have excelled in scholarship, leadership and service.

Omicron Delta Epsilon. The International Economics Honor Society.

Omicron Delta Kappa. The Beta Mu Circle of the national honor society recognizes junior and senior students for scholarship, leadership, and participation in activities.

Phi Alpha Theta. An international history honorary.

Pi Sigma Alpha. The national honorary society for students of political science.

Psi Chi. A national psychology honor society.

Round Table. A sophomore men's honorary which recognizes scholarship, leadership and service to the College.

Sigma Pi Sigma. A national physics honorary.

Theta Alpha Kappa. A national honorary society for religious studies and theology.

Confidential Information Policy

Grove City College maintains a number of records containing information about students and employees, alumni, and friends. The College respects and recognizes the need for privacy for these individuals for much of this information, while at the same time respecting and recognizing the need and desire for information by the parents of its students, and the need for College employees to have reasonable access to confidential information

in order to do their jobs in an efficient and effective manner. To address these concerns, the College has established a Confidential Information Policy.

In summary, the policy provides that:

- Data related to students and employees will be made available to any College employee who needs it to accomplish his/her job responsibilities.
- At the discretion of the College, all data regarding a specific student will be made available, upon request, to that student and to the student's parents or guardians upon verification this person is who he/she claims to be.
- Students with a valid reason may request information be withheld from disclosure to individuals other than College employees. Such request must be in writing, include the rationale for the request and be provided to the College office that maintains the identified information. If the request is considered appropriate, College employees will make every reasonable effort to comply with the student's request.
- College employees have the right to provide selected student or employee information to external parties under certain conditions.
- A student's medical and counseling records shall only be released at the written request of the student, except as provided by our health provider's professional ethics and state and federal laws.
- If, in the professional judgment of the Counseling Center staff, a student is believed to be a danger to self or others, the Counseling Center staff reserves the right to contact appropriate college employees (e.g., Vice President for Student Life and Learning, Associate Dean of Student Life, Director of Student Care, Director of Residence Life, Residence Directors, Director of Health and Wellness) to ensure the safety of all concerned parties while in the process of making appropriate treatment interventions.
- The College will provide any and all information required by law. Because it does not participate in Federal programs or receive Federal funding (direct or indirect), Grove City College is not subject to the Family Educational Rights and Privacy Act (FERPA), and this policy is not intended to comply with FERPA.

Intellectual Property Policy for Students

Grove City College functions to serve its students and society both by generating and disseminating knowledge. The College has built and equipped facilities for those purposes, which are designed to service the needs of students, faculty and staff. Often in the use of those facilities, intellectual property is created. Intellectual property includes such things as patentable inventions, copyrightable subject matter, trade secrets and valuable know-how and processes (including, but not limited to, computer software), which has potential commercial, resale or other value.

Those students who matriculate at and attend the College and who use College facilities or equipment in the development or marketing, in whole or in part, of intellectual property are expected to share the rights to and proceeds of such property with the College, as further described below. The College intends this intellectual property policy to apply to every student and to any and all intellectual property created, enhanced or promoted using College facilities or equipment, whether as part of ordinary coursework or otherwise in connection with an activity funded or sponsored by the College in whole or in part. The College maintains this policy in fairness to all who have contributed to its welfare in the past and as a way to preserve and improve its facilities for those who will come in the future.

Therefore, if a student of the College uses College facilities or equipment to create, enhance or promote, in whole or in part, any intellectual property, the following rules shall apply:

1. Subject to paragraph 6 below, the student shall and hereby does assign all his/her rights in the intellectual property to the College and shall execute all documents reasonably requested by the College to affect such assignment. However, if the intellectual property is patentable and the College has not begun to apply for a patent within six months after the disclosure of the patentable invention to the College and the execution of the applicable assignment documents, the College will permit the author(s)/creator(s) to seek such protection.
2. If a person or entity other than the College promotes and/or markets the intellectual property in any form, any direct or indirect compensation therefrom, e.g., as a lump sum payment or continuing royalty, shall, subject to paragraph 4 below, be divided as follows: 25% to the College 75% to the author(s)/creator(s).
3. If the College promotes and/or markets the intellectual property or manages the promotion and/or marketing of the intellectual property, any direct or indirect compensation wherefrom shall be divided as follows: 60% to the College 40% to the author(s)/creator(s).
4. Before any compensation is paid to the author(s)/creator(s), the College (or other applicable party) shall be reimbursed for all expenses incurred in developing or protecting the applicable intellectual property, including (without limitation) attorney fees and costs for filing and prosecuting a patent application.
5. Notwithstanding the foregoing obligation to compensate the College, if the author(s)/creator(s) of the intellectual property (a) legally dedicates the intellectual property to the public before any commercial exploitation occurs, (b) notifies the College promptly and in writing of the dedication, and (c) provides appropriate documentation of the dedication, he/she shall have no compensation obligation to the College.
6. If the intellectual property was created, enhanced, or promoted outside the student's coursework or otherwise not in connection with an activity funded or sponsored by the College in whole or in part, such student shall grant the College a perpetual, nonexclusive, nontransferable, royalty-free license and right to use the intellectual property for its own purposes.

The foregoing policy shall be disseminated as part of the literature of the College and shall be deemed part of the rights and obligations to which a student is subject.

If a student intends to use College facilities or equipment outside of the scope of his/her coursework or on a project not funded or sponsored by the College (and such use is of more than an incidental nature), he/she shall request permission from the College before such use.

ACADEMIC POLICIES

The College offers courses leading to degrees of Bachelor of Arts, Bachelor of Music, Bachelor of Science, Bachelor of Science in Electrical Engineering, Bachelor of Science in Mechanical Engineering, and Bachelor of Science in Nursing,

General Requirements for Graduation

Candidates for degrees are required to complete the General Education requirements, the courses required for their chosen major, elective hours to meet the minimum 128 total hour requirement, and the chapel attendance requirement. Some students may wish to complete the requirements for a second major or minor. Although this is permitted, the College does not guarantee course availability or class space to complete a second major or minor.

At the discretion of the College, seniors may be required to take educational achievement tests as a condition for graduation.

No credit from other institutions is accepted as applying on the last thirty-two (32) semester hours for a degree to be granted by Grove City College, except as approved by the Registrar.

Grove City College awards degrees to all graduates at one annual Commencement ceremony following completion of the spring semester. A student who completes all graduation requirements at the end of the fall, winter, travel, or summer term will receive his/her diploma at that time. Such students are listed as members of the class of the year in which they finish; however, they may retain a class reunion year appropriate to their original cohort. The class rank will include the entire graduating class.

Quality Point Average Requirements for Graduation

Grove City College requires each candidate for graduation to earn a minimum career quality point average of 2.00 for all coursework completed for the degree. Each student must also earn a major quality point average of 2.00 for all coursework completed in each declared major and minor field of study.

Calculating the Career (CQPA) and Major (MQPA) Quality Point Average

The quality point average is calculated by summing both the credit hours attempted and the quality points earned, then dividing the total quality points by the total hours attempted and truncating to the second decimal place. Only courses taken at Grove City College are used to calculate the CQPA and MQPA values. The courses that count for each MQPA are included with each major's requirements in the Courses of Instruction section of the *Bulletin*. Courses completed within the College's different academic divisions (non-degree seeking, undergraduate, post-baccalaureate, second degree, and graduate divisions) will be kept separate for all QPA calculations.

Student Responsibility for Graduation

Although sufficient academic counseling is given through the advising program at Grove City College, the responsibility for proper registration for each semester rests with the student. Each student is ultimately responsible for planning his/her program in order to satisfy graduation requirements.

A student may participate in the College's May baccalaureate ceremony without restriction and subsequent commencement ceremony if, on the day of commencement, he/she has a cumulative career quality point average and major quality point average of at least 2.00 for all coursework completed; has no more than six (6) unfulfilled chapel requirements; and is able to complete all remaining chapel and outstanding course

requirements by the end of the subsequent summer term. Students that reduce their chapel requirement to 6 or less after study day must submit a "Request to Walk" form, available from the Registrar's Office, to obtain approval to walk in the College's commencement ceremony. If approved, the student will be permitted to participate in a ceremony but will not receive a diploma until all requirements have been met.

Graduation Honors

A student who has completed the final fifty percent of his/her academic work at Grove City College and meets the cumulative quality point averages stated below is granted his/her degree with College honors:

3.40 to 3.59 inclusive for College honor "Cum Laude."
3.60 to 3.84 inclusive for College honor "Magna Cum Laude."
3.85 to 4.00 inclusive for College honor "Summa Cum Laude."

Departmental honors in the student's major field of concentration are awarded at Commencement to any student who has attained the following major quality point average:

3.40 to 3.59 inclusive for Honors in major field.
3.60 to 3.84 inclusive for High Honors in major field.
3.85 to 4.00 inclusive for Highest Honors in major field.

All College and Departmental honors listed in the Commencement program are unofficial and based upon estimated results. Official College honors will appear on the diploma, while both College and Departmental honors will appear on the transcript. Final honors will be based upon all work completed at Grove City College within the degree earned.

Registration

Registration occurs midway through each semester for the following semester. Registration for incoming freshmen is completed before the students' fall entry. Students complete the registration process by following procedures on the designated day and paying tuition and other charges. A student who has a financial balance on his/her student account or who owes more than six (6) chapel credits prior to the start of their priority registration window is not permitted to register for the next semester until such time his/her financial balance is zero or the chapel requirement is met. Only during the designated registration or drop/add periods can students enroll, change class schedules, or switch between audit and credit status.

Although sufficient academic counseling is given through the advising program at Grove City College, the responsibility for proper registration for each semester rests with the student. Each student is ultimately responsible for planning his/her program in order to satisfy graduation requirements. Additional schedule changes take place during a term's drop/add period.

A student desiring to complete independent study/research and/or honors courses must obtain approval from the Faculty Sponsor and the Department Chair, complete the approval form, and, having secured all required signatures, present the form to the Registrar's Office for final approval. Students may take no more than six hours of independent study/research toward graduation requirements and no more than two independent studies during an academic year.

A student desiring an internship experience for academic credit must have prior written approval of the Department Chair of his/her major and the Chair of the department offering the credit, if different than his/her major.

Registration for 2 or more courses that are scheduled at the same time or have a time overlap is prohibited. A time conflict exception is permitted when a student audits MUSI 100, 101, 102, 198, and 199 provided the conflicting course is coded as a designated lab section.

Course Numbering

Course numbers are arranged to show the year in which the course should be taken. Prerequisites are implied by the curriculum sequence if not specifically stated. Freshmen are not permitted to enroll in 400-level courses.

Numbers 100 – 499 are used for dual enrollment and undergraduate courses.
Numbers 500 – 599 are used for post-baccalaureate and graduate courses.
Numbers 190, 290, 390, 490, and 590 are used for Studies courses.
Numbers 260, 360, 460, and 560 are used for independent studies.
Numbers 270, 370, 470, and 570 are used for independent research projects.
Numbers 480, 481, 482, 483, 484, and 580 are used for internships.
Numbers 498 and 499 are used for honors courses.

The College reserves the right to add or delete courses from the schedule of classes, change meeting times, change meeting locations, or change instructors at its discretion.

Prerequisite, Corequisite, and Concurrent Courses

Many courses list course prerequisites, corequisites, and/or concurrent courses. A prerequisite is a course that must be completed prior to the start of a subsequent course. A corequisite is a course that must either be completed prior to the start of a subsequent course or completed at the same time as a subsequent course. Concurrent courses must be taken simultaneously with another course.

Course Loads

The normal course load for students is fifteen to eighteen (15-18) semester hours. Each hour over 18 will incur a per-hour fee. All students must have a minimum cumulative quality point average (CQPA) of at least 3.00 in order to take course loads in excess of nineteen (19) hours. Students should expect that class assignments will take about two hours outside of class for every hour of scheduled class time.

Exceptions to the above will be allowed only with permission of the student's advisor, and in no case shall a student exceed twenty-four (24) semester hours of academic work (including audit hours). The minimum schedule for any regular full-time student is twelve (12) semester hours of academic work. Audit credits may not be used in meeting the minimum of 12.

Eighteen (18) semester hours is the maximum load for freshmen in their first semester of attendance.

Most courses are three credit hours with class periods on Monday, Wednesday, and Friday of fifty (50) minutes each or on Tuesday and Thursday of seventy-five (75) minutes each for fifteen (15) weeks. Laboratory periods with certain courses are from two to three hours in length.

Laboratory Science Courses

Most laboratory science courses at Grove City College are taught in an integrated manner in which class lectures and the laboratory experience are interwoven. Therefore, students should note that most science labs are not separate courses and do not receive separate individual credit. Rather, laboratory science courses receive credit hours and a grade as a unit. Students should use caution when enrolling for laboratory science courses at other institutions. Pre-approval is required for these transfer courses to ensure that any

proposed laboratory science course has an appropriate laboratory or experimental component and that the number of hours is equivalent to the Grove City College graduation requirement. Otherwise, courses taken at other institutions may not count toward meeting the Grove City College general education and/or major requirement.

Credit Hour Policy

In-Person Courses

In-person undergraduate and graduate courses are required to provide students with educational experiences that include:

- 15 contact hours of instruction (e.g., lectures, discussions) per credit hour earned
- 30 hours of student preparation or work outside of class per credit hour earned

For example, a 3-credit course generally meets during a traditional fall or spring semester:

- Three 50-minute sessions per week (MWF) or
- Two 75-minute sessions per week (TR)
- 45 contact hours over a traditional 15-week semester, including final exams

Courses with an associated laboratory will meet for additional instruction above the required contact hours of the course.

Online and Hybrid Courses

Courses delivered fully or partially online, whether undergraduate or graduate, are assigned credit hours based on equivalent learning outcomes and academic engagement. Online courses include:

- Regular and substantive interaction with faculty
- Asynchronous or synchronous instruction (e.g., video lectures, discussion forums, virtual labs)
- Learning activities that equate to at least 45 hours of academic engagement per credit hour

Faculty are required to design online and hybrid courses that ensure equivalent levels of instruction and student effort, verified through syllabi, learning management system data, and course assessment reviews.

Graduate Courses

Graduate-level credit hour assignments follow the same academic time-on-task expectations as undergraduate courses, but are further distinguished by:

- Greater depth of content
- Increased emphasis on independent research and application
- Advanced-level interaction with faculty and peers

Course designs are reviewed to ensure alignment with college and accreditation requirements.

Course Fees

Students enrolled in certain courses may be subject to additional fees as described below. Fees are not necessarily intended to cover the exact cost of the equipment and materials required for the course, but recognize the additional costs associated with offering certain courses. For a list of fees, please refer to the Expenses and Financial Aid section. The College reserves the right to update this list prior to the start of any semester.

Laboratory Materials Fees

Students enrolled in a course with a laboratory component, or those designated as a stand-alone laboratory course, will actively use equipment and/or expendable materials in a direct manner to enhance practical skills or understanding a concept.

Music Classes and Lessons Fees

Students enrolled in group music classes or private music lessons will be subject to additional fees dependent on the course level and hours.

Online Materials Fees

For certain courses, e-books or other online resources will be assigned through a program called Inclusive Access in addition to or in lieu of physical textbooks. By all students buying into the program, the cost is reduced for everyone. Information on how to access the materials is provided by the instructor. The Online Materials Fee varies by course.

Other Course Fees

Internship, Independent Study, Independent Research, and certain exercise science, media and arts, and other courses may be subject to individual course fees.

Auditing Courses

Only full-time, undergraduate students enrolled for at least 12 credit hours may audit courses with the approval of the instructor and the Registrar. Audit credits may not be used to meet the minimum of 12 credit hours. The student must register for the course as an auditor and fulfill class attendance requirements. Upon satisfactory completion of these requirements, the audited course will be entered on the permanent record using the symbol "AU" in lieu of a grade. No credit will be awarded for an audited course and students may not audit a course for which credit was previously earned. The tuition charged for auditing courses is the same as that charged for credit courses.

Courses may not be changed from credit to audit or from audit to credit after the official end of the drop/add period. The course will be graded “NG” (No Grade) if attendance requirements are not satisfied.

Travel and Online Courses

Grove City College offers a select number of courses (course options vary by term/year) from various departments in both a concentrated, two-week format typically during January and May Travel Terms and as online courses over the winter and summer breaks. May travel term courses are taught during the two weeks immediately following Commencement. Online courses are taught during the winter break between the fall and spring semesters and during the summer break starting as early as the Monday following Commencement. These courses vary in duration.

Students wishing to lighten their regular semester loads or who wish to try to graduate in less than four years will find these travel and online courses helpful in meeting their goals. The cost for these courses is listed in the Expenses and Financial Aid section of the *Bulletin*.

Travel and online courses are optional and are not counted as part of a student's regular semester load. Students are cautioned to work closely with their advisors in planning to take travel and/or online courses. Course offerings are dependent upon sufficient enrollment and are subject to cancellation.

The College reserves the right to add or delete courses from the schedule of classes, change meeting times, change meeting locations, or change instructors at its discretion.

Transfer Credit

College Transfer Credit

Grove City College accepts credits for transfer from any college or university that is accredited by a regional accrediting body, provided the grade earned is "C" or higher. Transfer credits are equated to GCC courses and are recorded on the academic record as the GCC transfer equivalent course. Credits for transfer from a non-accredited college or university will be evaluated on an individual basis, depending on course equivalencies and expected learning outcomes. A student currently enrolled at Grove City College who wishes to take courses at another institution for transfer to Grove City must complete the Off-Campus Study Approval Process before the work is begun. Courses that do not have a letter grade (A, B, C or P/Pass) will not be accepted. "Satisfactory" grades are not accepted unless the transcript defines the grade as "C" or higher. An official transcript must be sent directly from the issuing institution to Grove City College. Grades for transfer courses do not enter into the computation of a student's quality point average at Grove City College; however, the credits earned will count toward the total credits required for graduation.

- Transfer students are subject to the curricular requirements in place for the year in which they are admitted to Grove City College.
- Once enrolled at Grove City College, the College does not grant credit for any experience in which a student is paid by the federal government, including ROTC, Officer's Candidate School, internships, and scientific research.
- At a minimum, 64 credit hours are required to be completed at Grove City College, as well as a minimum of one half of all credit hours for any major, minor, certification, or concentration.
- Credits for remedial, developmental, and technical courses are not transferable to Grove City College.
- Credit is not granted for life experience or military service.
- Degree-seeking students may not take courses at other institutions concurrently with classes at Grove City College.
- Transfer courses that do not equate to a specific Grove City College course may be granted departmental or general elective credit at the 100-, 200-, 300- or 400- level.
- Quarter-hour credits (two-thirds of a semester hour) taken at an institution on the quarter hour system will be converted to semester credits at Grove City College (e.g., 6 quarter hours=4.00 semester hours; 5=3.33; 4=2.67; 3=2.00; 2=1.33; and 1=0.67).
- No credit from other institutions is accepted as applying on the last thirty-two (32) semester hours for a degree to be granted from Grove City College, except as approved by the Registrar.
- Freshmen who matriculate with enough Advanced Placement or other college credits to qualify for a higher-class status will be permitted to change their expected graduation year and term but will enter as freshmen and progress to sophomore, junior, and senior class status along with their initial cohort.
- A student who wishes to transfer an internship must meet the internship standards for a typical Grove City College internship experience. The student should provide for evaluation a detailed description about the internship; the company/organization name; the number of hours worked on-site; a description of the job duties and academic requirements; and an evaluation report from the supervisor. The Internship Coordinator of the corresponding Grove City College department will evaluate these materials to determine if the internship will be approved for transfer, and, if approved, the number of credits granted.

College Courses Taken in High School

Transfer credit may be awarded for courses that are equivalent or comparable to those offered by the College and completed with a grade of "C" or better or P/Pass. Any such courses taken before entering Grove City College must be listed in the catalog of the college of transfer as courses offered for degree credit to that college's undergraduates. Individual college courses taken while in high school will be evaluated on an individual basis, depending on course equivalencies and expected learning outcomes. Students are encouraged to earn credit through the AP, CLEP and IB programs, not through College in High School programs.

Examination Scores for Credit

The College may award academic credit to students based on successful completion of courses and an appropriate score on the associated examination. Examples of such examinations include Advanced Placement (AP), College Level Examination Program (CLEP), International Baccalaureate (IB), Higher Level tests, and the Cambridge Assessment International Education (CAIE). Examination tests taken after matriculation to Grove City College will not be considered or transferred.

Equivalency is reviewed annually by each academic department through a review of the exams offered by each provider. Not all exams/scores will meet the criteria for awarding college credit, for example, IB Standard Level tests are not accepted. The range of scores accepted and equivalencies granted for each exam are published annually by the Registrar's Office and can be accessed by visiting www.gcc.edu/registrar and clicking on Program Guides. Credit is granted based on the year the test was taken. Scores sent to Grove City College must be received directly from the assessment provider such as the College Board.

Students who receive examination credit in a subject and choose to repeat that same course at Grove City College, or another college or university, are subject to the College's policy regarding credit restrictions and will lose the examination credit awarded for the course.

Withdrawals

Withdrawal from Individual Courses

- Students may withdraw from a course during the drop/add period without any record of enrollment in that class on their permanent record.
- For any course dropped after the drop/add period and until the "Last Day to Withdraw from a Course" deadline, a 'W' grade will be entered on the permanent record and will not be counted in computing the student's academic average. No refund will be made for any course dropped after the official drop/add period.
- Courses dropped after the authorized withdrawal period will be marked with a 'WF (Withdrawn Failing)' grade which will be counted as a 'F' grade in computing the student's academic average. No course may be dropped after Study Day.
- Dropping courses at any time during the semester may affect a student's academic progress and has the potential to extend the time it takes to complete a degree. Eligibility to receive financial aid during the current semester and for future academic semesters may be impacted. Students should contact the Financial Aid Office regarding these matters.
- Grove City College reserves the right to withdraw a student from any course or from the College.

Withdrawal from the College

If a student finds it necessary to discontinue studies at the College, he/she should notify the Registrar Office's Enrollment Coordinator at (724) 458-2069 to obtain and complete a

withdrawal form for final clearance. If the student is unable to follow this procedure because of illness or emergency, the College will complete the form, but the student must notify the Enrollment Coordinator of his/her intent to withdraw. A student who follows the procedure to withdraw completely from the College will receive "W" grades for all current courses; however, no student will be permitted to withdraw after Study Day. A student who leaves the College without officially withdrawing will forfeit any refund to which he/she might otherwise be entitled and may receive grades of "F" or "WF" in all current courses.

A student who has a financial balance on his/her student account or hold from another office on campus such as admissions, registrar, health center, or financial aid, will not be issued a transcript, official or unofficial, until such time that his/her account balance is zero or the hold is satisfied. A student who withdraws from the college owing more than six (6) chapel credits will not be permitted to re-enroll until the remaining chapel credits are reduced to six (6) or less.

A student withdrawing for medical reasons must provide written documentation from a physician. Students receiving a medical withdrawal will receive a “W” grade for all courses.

Readmission

A student wishing to return to Grove City College after withdrawing in an earlier semester must contact the Enrollment Coordinator at (724) 458-2069 to obtain a "Request of Former Student to Return" form. In order to be considered for readmission, the student must have been in good standing at the time of withdrawal. If the student has attended another school since withdrawing from Grove City College, a record of that work must be submitted to the Registrar before readmission is considered and/or granted. A readmitted student who has been absent for more than one year is subject to the curricular requirements in force at the time of his/her readmission.

Class Standing

A class standing of freshman, sophomore, junior or senior will be assigned to each new, transfer or returning student at the point of entry or reentry to Grove City College. This standing will be rolled forward one class level when appropriate by the Registrar's Office. A student who has completed additional credit hours may request a change in his/her expected graduation date but the class standing will not be changed, as students will progress forward in class standing along with their initial cohort.

Academic Standing

The College expressly reserves the right to dismiss at any time a student whose academic progress is considered to be unsatisfactory.

Good Academic Standing

Each student must maintain a "C" average (2.00 CQPA) or above to remain in good academic standing.

Probation and Dismissal Policy

A student falling below a 2.00 CQPA will either be placed on academic probation or be dismissed from the College. A CQPA of 2.00 or above and an MQPA of less than 2.00 will not result in dismissal; however, a minimum of 2.00 or higher in both is required for graduation. All dismissal decisions are made at the conclusion of each spring semester, and the College considers dismissal a permanent status. Specific probation and dismissal criteria are listed below:

- A student who has earned 35 or fewer local hours from Grove City College (not including transfer credits) will be placed on probation if his/her CQPA is between 1.50 and 1.99. Dismissal will occur at the conclusion of the spring semester if his/her CQPA is 1.49 or lower.
- A student who has earned 36 or more local hours from Grove City College (not including transfer credits) will be placed on probation following any semester his/her CQPA falls below 2.00. A student already on probation will be dismissed, at the conclusion of the spring semester, if his/her CQPA is below 2.00.

Attendance Expectations for Students

Grove City College believes that attendance is essential to the satisfactory completion of a course. If an absence is incurred for any reason, it is the obligation of the student to ascertain from the instructor what is to be done to maintain his/her standing in that course. All faculty members are expected to have their absence policies (and the attendant penalties) stated in writing in their course syllabi, and these policies are to be reviewed with the students at the first meeting of each course. By unanimous vote of the department chairs and the College's Curriculum & Instruction committee, students are not excused to miss one class to meet the obligations of another.

A student may have unexcused absences which total less than or equal to the number of times the class meets per week. In other words, classes meeting four times per week allow four unexcused absences; three times per week allow three unexcused absences, etc.

Excused Absences

The Provost's Office may excuse absences falling under the following categories. The decision to excuse an absence is solely at the discretion of the Provost's Office or one of its designees. Lists of such excused absences are sent to each professor, who must then excuse the absence on his/her record without prejudice to the student. Excused absences from any class or laboratory do not excuse a student from any work required in the course.

- **Authorized College activities**: Representing the College at college-authorized events are excused by the Provost's Office or one of its two designees—the Athletic Department and the Career Services Office. The Athletic Department issues excused absences for varsity athletes participating in sporting events. The Career Services Office excuses absences for seniors in the cases of post-graduation job interviews and graduate, medical, law, and other professional school admission interviews, as well as for students scheduling internship interviews with potential employers.
- **Military:** Students who are active members of the military who are ordered to participate in a military related event are responsible for notifying their professors and the Office of the Provost at provostoffice@gcc.edu.
- **Court Summons:** Student who receive a jury duty order or a court appearance summons are responsible for notifying their professors and the Office of the Provost at provostoffice@gcc.edu.
- **Loss of immediate family member:** Students are responsible for notifying their professors and the Office of Student Life and Learning at studentlife@gcc.edu when there is a death of an immediate family member.
- **Illness/Injury:** In the event of illness or injury, students are to report to the Zerbe Health and Wellness Center for treatment. If the illness or injury results in a class or classes being missed, it is the student's responsibility to notify the instructor and make arrangements for an excuse from class and for make-up work. If it is determined, after examination at the Zerbe Health and Wellness Center, that the illness/injury prevents class attendance or requires the student to be confined, a

representative of the Zerbe Health and Wellness Center will issue a medical reason for absence which the student can present to the instructor. Non-resident students whose illness does not necessitate a visit to the Zerbe Health and Wellness Center must notify their professors. The non-resident student's own health provider may issue a medical reason for absence which the student can present to the instructor.

- **Emergency:** In case of an emergency such as hospitalization, the Office of Student Life and Learning should be contacted prior to 5:00 p.m. at (724) 458-2171 or the College Operator after 5:00 p.m. at (724) 458-2000. Students must make up the work for the classes missed so that absences are without prejudice in determining a grade on the missed work.

Students must make up the work for any classes missed so that absences are without prejudice in determining a grade on missed work. Students will be given reasonable opportunity to make up any graded assignments, including exams and quizzes, missed as a result of an excused absences. Absences other than those which are excused by the Provost's Office above will be handled at the discretion of the professor whose class is missed.

Unexcused Absences

Absences incurred due to disciplinary sanctions are reported to faculty via the Office of Student Life and Learning. Through formal action, the faculty has agreed that students who miss classes due to such sanctions are not permitted to make up any missed academic work, whether prior to, during, or after the stated period of suspension.

The College reserves the right to withdraw a student from any course in which the student, for whatever reason(s), missed or communicates their plans to miss 25% or more of the scheduled class meetings for unexcused reasons. A faculty member who encounters such a situation must alert the Provost; the Provost, in consultation with the faculty member and Deans, will evaluate the situation and make the final decision regarding the student's withdrawal. When a student must be withdrawn from a course under such circumstances, the Provost will also determine whether the student's final course grade will be entered as a "W" (Withdrawn) or "WF" (Withdrawn Failing). *Note: This withdrawal policy is not intended to replace the individual faculty member's own class attendance policy (with attendant penalties), nor to contradict the rest of the guideline outlined in this section but will apply only according to the circumstances and procedure described above.*

Absences other than those which are excused by the Provost's Office above will be handled at the discretion of the professor whose class is missed.

If an unexcused absence occurs on a test or laboratory day, or when an assignment is due, it will be left to the discretion of the professor as to whether the work may be made up.

In summary, students are always encouraged to contact their professors and the appropriate office regarding any class absences and should do so prior to the absence whenever possible.

Study Day

The purpose of the College's Study Day is to provide students with the opportunity to prepare for the start of finals week, which begins later that evening. Therefore, no testing, presentations, laboratory experiences, exams or other graded experiences may be scheduled on Study Day except for those exams officially scheduled by the Registrar's Office during the final exam period at 6:00 p.m. Furthermore, all course assignments must be completed and submitted by the conclusion of the last scheduled class period prior to the College's official Study Day.

Final Examinations

Final examinations are required of all classes and are typically given in-person at the time designated by the Registrar. In some cases, these exams may be oral or in the form of a performance or final project. If a final exam is given in a separate laboratory or discussion component, a final exam for that segment may be given prior to study day. A take-home final exam may not be made due prior to the scheduled final exam time for the course.

Final examination times may not be changed to suit the convenience of either instructor or students. The final examination schedule issued by the Registrar is, therefore, to be followed. It is the responsibility of the students to review the final exam schedule at the beginning of the semester and adjust their travel and work plans accordingly. Final examinations for online courses are coordinated by the faculty instructor. Students scheduled for 3 or more exams in one day may request permission from the Dean of the school of the student's first major to reschedule one exam.

Students with reason to request an excused absence, as set forth in 'Attendance Expectations for Students', may receive permission to reschedule their final exam from the Dean of the school for the course exam they are taking (e.g., a Biology major taking an Economics final would receive permission from the Dean of the Winklevoss School of Business). Students who receive an excused absence should notify their professor as early as possible to discuss options for rescheduling the exam.

Repeat Courses

A course is considered a 'repeat' when a student registers for a class previously completed or a course that shares the same content as a class previously completed. A repeat course is designated as 'repeated' at the point when either course registration or the course add/drop period closes for a semester. A course's repeat designation is noted on both a student's academic record and official transcript.

A student may repeat any course. In the case of a repeated course, only the most recent occurrence of the repeated class will be used in the calculation of the grade point average and count toward hours earned, regardless if the grade is higher or lower than the original grade earned. All occurrences of the course will remain on the academic record.

A student who earns a 'F' (fail) or 'WF' (withdrawal fail) in the same course three times will not be permitted to take the course again or receive transfer credit for that course, unless that course is specifically required for all GCC students. If the course is required for a student's current declared major, the student will be required to switch to a major that does not require that course; academic advisors can help the student select a new major. Exceptional circumstances beyond a student's control may be taken into consideration by the Department Chair and college administration.

A student that repeats a course at an outside institution and transfers that credit to Grove City College the transfer of the grade and course is subject to the transfer credit policy and the repeat course policy regarding earned grade.

Repeating a course may impact degree completion, so students should consult their academic advisor for guidance. Students receiving financial aid should contact the Financial Aid Office (724-458-3300) to determine if they will achieve academic progress for continued aid eligibility. Student athletes should contact the Athletic Department (724-458-2900) for guidance on NCAA eligibility.

Grade Values

The grade values are as follows: A, Excellent; B, Good; C, Satisfactory; D, Poor; F, Failure; W, Withdrawn; WF, Withdrawn Failing; I, Incomplete; and AU, Audit.

Grades have the following quality point numerical equivalencies:

A+/A = 4.00, A- = 3.67, B+ = 3.33, B = 3.00, B- = 2.67, C+ = 2.33, C = 2.00, C- = 1.67, D+ = 1.33, D = 1.00, D- = 0.67, F = 0.

Grade Point Average

The grade point average is computed by dividing the number of semester hours **attempted** at Grove City College into the total number of **quality points earned** at the College, including those for failed and/or repeated courses. In the case of a repeated course, only the most recent occurrence of the repeated class will be used in the calculation and count toward hours earned. No student may receive credit for the same course twice, unless the course is designated as repeatable for multiple credits, such as Music 100—Band.

Incomplete Grade

A grade of Incomplete ('I') is issued only when a student, through no fault of his/her own, is unable to complete his/her work. The student must complete the work for this course by Study Day of the following semester or the 'I' becomes an 'F', even if he/she is no longer enrolled at the College. When the student completes the required work, the faculty member will report the grade earned to the Registrar. At least 80% of a course's meeting duration (for example, 80% of a 15-week course would be 12 weeks) must be completed before an incomplete grade may be issued to a student for a course.

A grade of 'I' may impact a student's eligibility to receive scholarships, grants or loans until the work is completed. The student should contact the Financial Aid Office for clarification.

Honors Courses

All honors courses are designated with course number 498 or 499. Students must submit the "Honors Application" form available on the Registrar tab of myGCC under Applications to register for an honors course. Grades of 'A' or 'B' are required for credit in honors courses. Failure to earn an 'A' or 'B' grade will result in a grade of 'F'.

Dean's List

A Dean's List is published at the end of each semester naming students who earned academic honors for that semester:

3.40 to 3.59 inclusive for Dean's List.
3.60 to 3.84 inclusive for Dean's List with Distinction.
3.85 to 4.00 inclusive for Dean's List with High Distinction.
Eligible students can download their Dean's List letter via myGCC.

Grade Appeals

A student who believes a course's final grade was determined unfairly may appeal the final grade issued. Notice of intent to appeal must be sent to the professor awarding the final grade no later than 30 calendar days after the end of the semester. The grade appeal process must then be initiated within the first twelve business days of the following semester. (Fall/Winter/January term grade appeals occur at the start of the following Spring semester. Spring/May/Summer term grade appeals occur at the start of the following Fall semester.)

GRADE APPEALS PROCEDURE

I. A student accused of violating the Academic Integrity Policy or who claims that a course's final grade was determined unfairly may appeal. The student may withdraw his/her appeal at any point. If an appeal is upheld at any point in the process, the

Grade Appeals Committee, as outlined in Section IV below, determines the new grade. The professor against whom the appeal is upheld may appeal to the Provost.

II. Appeal of a course grade - Notice of intent to appeal must be sent to the professor awarding the grade no later than 30 calendar days after the end of the semester. The grade appeal process then must be initiated within the first twelve business days of the following semester and follow the procedure described in Part III.

III. The appeal process must follow the procedure outlined below. At each step in the process, the decision-making body or the person appealing must lodge an appeal to the next level within six business days.
   A. The student must discuss the matter privately with the professor.
   B. If no satisfactory resolution is reached, the student should appeal in writing to the Chair of the Department in which the course is offered.
   C. If the appeal is denied by the Department Chair, the student may appeal in writing to the Dean of the respective school (Business; Arts and Letters; or Science, Engineering, and Mathematics) in which the course is offered.
   D. If satisfactory resolution still has not occurred, the student may appeal in writing to the Provost.

IV. If the Provost determines that the appeal is not frivolous, the Provost may call a meeting of the Grade Appeals Committee.
   A. Chaired by the Provost, the Grade Appeals Committee consists of two students (the Student Government Association President and Vice President of Academic Affairs); the Dean of the Winklevoss School, the Dean and the Assistant Dean of the Alva J. Calderwood School of Arts and Letters; the Dean and the Assistant Dean of the Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics; the Registrar; two appointed faculty representatives; and six elected faculty representatives (two from each of the three Schools of the College). The elected faculty representatives are chosen by the faculty within each School. In the event an elected faculty representative is unable to attend or the appeal involves a committee member who earlier has been a point of appeal in this process, the Provost will appoint an alternate from the appropriate School.

   The Vice President of Student Life and Learning, the Director of College Counseling, and any members of the College community invited by the Provost can serve as ex-officio members. Terms last for three years with no limit to the number of terms a faculty member may serve. However, no two terms may be served consecutively.

   B. The Grade Appeals Committee is responsible for recommending, by majority decision, either to uphold or to deny the student's appeal. The student and professor may present evidence in writing supporting their positions. In the case of a grade appeal, the professor must present the written grading procedure for the course under appeal.

V. If the appeal is upheld, the Provost, with advice from the Grade Appeals Committee, will appoint a review committee of department personnel who will review the student's work and determine a grade. No further appeals will be permitted.

Transcripts

Grove City College partners with the National Student Clearinghouse (NSC) to provide online ordering of transcripts. Current or former students wishing to order an official transcript may visit the Registrar's webpage (www.gcc.edu/registrar) to access the link to the transcript ordering website (processing time is typically between 3-5 business days). Orders placed for official transcripts to be delivered via mail are $5.90 per transcript

(includes a $2.90 service fee per delivery address) and are delivered via first-class mail through the U.S. Postal Service. Transcripts delivered via electronic PDF are $ 7.65 for one transcript to one email address (includes a $1.75 electronic fee from NSC) and must be ordered online through the NSC.

A student who has a balance on his/her student account, or a hold from another campus office such as admissions, registrar, health center, or financial aid, will not be issued a transcript, official or unofficial, until such time his/her account balance is zero or the hold is satisfied.

Academic Integrity

Grove City College is deeply invested in upholding academic integrity and honesty. Three of the college's five core values, faithfulness, excellence, and community, directly relate to academic integrity because any violation of academic integrity is a form of theft and deceit that affects the one stolen from, as well as the community of students and faculty at the college. In addition, cheating is a violation of three of the Ten Commandments: the prohibitions against stealing, lying, and coveting. However, as the Ten Commandments and the totality of Scripture demonstrate to us, we are fallen creatures who at times do what we ought not do.

Accordingly, the college has created a policy both to define what cheating is and to describe our process for dealing with allegations of cheating in order to discourage cheating and provide an opportunity for meaningful repentance and restoration when students do cheat.

Pledge

All students are expected to affirm this pledge: "As a student of Grove City College, I pledge to do my work faithfully with honesty in accordance with my calling as a student working for Christ's glory."

Cheating and Plagiarism may be present in many areas, including (but not limited to) the following:

1. Completing Papers, Outside Work. Work done out of class, which a student submits as his/her own work to a professor, should be his/her own and should not contain that which has been obtained from another, other than properly credited references, sources, and citations.
2. Taking Exams, Tests, Quizzes. Work done on a test, exam, or quiz, which a student submits to a professor, should be his/her own and should not contain that which has been knowingly obtained from another. By default, no resources are permitted unless explicitly allowed by the instructor.
3. Preparing for Exams. A student should not seek to gain an advantage on an exam he/she is about to take by obtaining advanced access to particular questions or advance copies of a professor's exam, or by giving access to other students. This includes access to exams from prior semesters.
4. Group Work. In courses where group work or teamwork is allowed, the members of the group may collaborate and share resources among themselves, but not with other groups or prior and subsequent classes.
5. A student should not cooperate with, aid, or encourage another student's violation of the above rules, even though he or she receives no direct benefit. Any student who does so is also guilty of cheating and can have their grade from current or past semesters (if relevant) reduced.

6. Instructor-Imposed Limitations. Faculty may add (via syllabus, assignment instructions, or verbal instructions) additional rules and limitations pertaining to cheating in their particular discipline, class, and assignment

Special Note: Plagiarism Includes

1. Any direct quotation of another's words, from simple phrasing to longer passages, without using quotation marks and properly citing the source of those words.
2. Any summary or paraphrase of another's ideas without properly citing the source of those ideas.
3. Any information that is not common knowledge—including facts, statistics, graphics, drawings—without proper citation of sources.
4. Any cutting and pasting of verbal or graphic materials from another source and representing as one's own work—including books, databases, websites, journals, newspapers, etc.—without the proper citation for each of the sources of those materials; this includes any copyrighted artwork, graphics, or photography downloaded from the Internet without proper citation.
5. Any wholesale "borrowing," theft, or purchasing of another's work and presenting it as one's own, whether from the Internet or from another source.
6. Any presentation of "ghost-written" work including—whether paid for or not—as one's own original work, including papers, computer code, visual artwork, and other forms of written and non-written work.
7. Making one's work available for copying by others, as well as copying work posted on the Internet or otherwise made available by another.
8. Self-citation: you cannot submit the same work for two different classes. If you use part of an earlier work, or ideas from an earlier work, you should reference it, as with any other source.
9. Generative AI is forbidden in all classes across campus unless allowed by the professor as specified in one of these modalities on a particular assignment:
    a. On this assignment, generative AI can be used to develop ideas, but not directly copied (must still be credited).
    b. On this assignment, generative AI can be used to revise and improve your final draft, but it must be credited.
    c. On this assignment, generative AI can be quoted directly but it must be credited.
    d. On this assignment, generative AI can be used to develop ideas, revise, and improve your final draft, and/or quoted directly, but it must be credited.

    Any use of generative AI on any assignment must be explicitly described by the student.

The Process: How the Honesty in Learning Policy Works

Reporting a Violation

1. If a student, staff, faculty, or administrator believes he or she observed a violation of the Academic Integrity Policy, he or she must fill out an online report of the violation via myGCC, which is sent both to the professor of that course and the Chair of the Student-Faculty Review Committee (SFRC). This report should be filed within two class days of discovering the alleged violation.
2. The professor of the course may then meet with the student(s) who allegedly committed the violation. If the report was submitted by someone other than the professor, the professor may also meet separately with that person.

   a. If the professor determines no violation has occurred, he or she will submit a resolution to the Chair of the SFRC and the matter will be dropped.
   b. If the professor believes the policy has been violated, he or she will submit a resolution to the Chair with a proposed sanction (which must be at least a failing grade on the assignment and can include up to failure in the course, depending on the severity of the incident).

3. The SFRC Chair will then contact via e-mail the student(s) who have allegedly violated the policy and inform them of the professor's proposed sanction and of their right to either accept the charge and sanction or challenge it. The student(s) must respond to the SFRC Chair within three class days, or the student(s) accept the penalty by default.
   a. If the student(s) accept the charge, the Chair will present the case to the SFRC Committee, which issues the penalty. The SFRC Committee may alter the recommended sanction. The Provost's Office will record the sanction.
   b. If the student(s) reject the charge, the Chair will schedule a contested hearing, where the SFRC will hear from all involved parties and make a determination on the case. The SFRC Committee may alter the recommended sanction. The standard of evidence for the committee is "the preponderance of the evidence."

Note on the SFRC Committee: The committee is made up of approximately 20 students, annually elected to one-year terms, and 30 faculty, who are elected to two-year terms. The SFRC Chair gathers 10 members of the committee to address each case. Decisions require a supermajority of 70% of the votes.

   c. The SFRC chair will inform the students of the SFRC decision within two class days.
   d. After a contested hearing, either party may appeal, via e-mail, the Committee's decision to the Dean of the school in which the alleged violation occurred within two class days. Students may not appeal the SFRC sanction if they accepted the charge of violating academic integrity.
   e. The Dean will meet with the student(s), faculty member, and SFRC chair (separately) before ruling. The Dean's decision is final.
   f. Once the final decision has been rendered and any appeal is exhausted the sanction will be applied and the Provost's Office will record the sanction.
   g. If the student(s) has been involved in two or more violations of the Honesty in Learning policy, the Provost may apply additional sanctions up to and including academic dismissal.

The SFRC Chair will make a concerted effort to conclude the whole process for each case within 30 class days (not counting appeals) but cannot guarantee this timeline. In addition, on occasion, allegations of violations of academic integrity come up at the end of the semester, when it is not possible for the committee to meet. In those instances, the committee will resolve the case at the beginning of the next academic semester, or in the case of a graduating student, with a reduced committee. There is no statute of limitations on cheating.

Information Technology

Grove City College provides comprehensive resources to expand learning and equip students to succeed in college and career. The equipment issued to the students through the No-Fee Technology Package (see above) remains in their hands while they remain enrolled (including break periods and summer months), providing seamless access to resources that

significantly re-shapes the learning environment. In most cases, software required for a course is provided while the student is enrolled in that course. Verification of student identity for online course resources is generally determined by single sign-on through Windows Entra ID.

Computer Services and Support (CSS) manages the Help Desk and Repair Shop who facilitate and troubleshoot the repair of college-supplied equipment. The Help desk is staffed for nearly 100 hours a week by trained student employees who provide level one software and printer support as well as guiding the student through the process of submitting a system for repair. The Repair Shop is open 40-45 hours each week during the semester and employs full-time, certified staff who handle equipment repair. Numerous self-service tools are available to assist students in resolving many issues on their own or with minimal guidance via telephone, email, virtual meetings, or instant messaging channels. If a remote student requires repairs to their GCC-issued equipment, various strategies exist up to and including cross-shipment of a prepared replacement to help minimize delays in issue resolution.

Assistance related to Information technology is available by contacting the Help Desk in the TLC via phone (724) 458-2255, email (helpdesk@gcc.edu), or by visiting the physical site of the Help Desk in the Technological Learning Center.

Grove City College E-mail Accounts

Each student is provided a Grove City College e-mail account. This account facilitates communication between students, professors, and other student support services. It is essential for each student to maintain his/her account since important campus communications are sent only by this means.

Campus Portal

Each student is also provided access to the College's campus portal - myGCC. The campus portal enables students to review campus news, search online for course schedules, register for classes, review financial accounts, obtain unofficial transcripts, and more. Mid-term and final grades are also posted via the campus portal.

Students may provide a parent access to myGCC by requesting a parent/guardian login. The "Request Parent Access" form located in myGCC is where students can grant access choosing all or select permission options- Academic, Financial Aid, Student Accounts, and Housing. Once the form is complete and access is selected, the parent/guardian will receive an email notification with login details within 7-10 business days.

Institutional Learning Management System

Faculty use an institutional Learning Management System (LMS) for posting course syllabi, assignments, grades, and other relevant information. Additionally, some courses may have other software platforms integrated into the course LMS for homework, lab work, presentation/portfolio work, etc. Faculty will notify students of any additional software used for a course.

Undergraduate Students Taking Graduate-Level Courses

Grove City College undergraduate students, if approved, may enroll in a maximum of twelve credit hours of the College's graduate school coursework; however, only six of these graduate-level credit hours may count towards the student's 128-credit hour minimum for the completion of an undergraduate degree or the 160-credit hour minimum for the completion of an undergraduate dual/second degree at the College. Graduate credit hours earned above six credit hours will be applied to the student's graduate course division. All twelve graduate-level credit hours will count towards the student's graduate degree if he/she is accepted into one of the College's graduate programs.

GENERAL EDUCATION AND DEGREE PROGRAMS

Since its founding in 1876, Grove City College, committed to Christian principles, has sought to provide liberal and professional education of the highest caliber. Long recognized for its academic quality, Grove City College insists that all its graduates possess, in addition to specialized knowledge in major or professional fields, a high level of cultural literacy and communication skills. Students are required to complete thirty-six (36) to forty-nine (49) credit hours of general education courses with emphasis in the humanities; science, faith, and technology; social sciences; quantitative and logical reasoning; laboratory sciences; and foreign language. This program of studies in a broad range of liberal arts and sciences, consistent with many national recommendations for excellence, helps to ensure that Grove City College graduates have the marks of educated persons, whatever their profession.

General Education Requirements

	BA and BS (non-science)	BM, BS, BSEE, BSME, and BSN (science)
Humanities Core	18 hours	18 hours
Writing Requirement	3 hours	3 hours
Foundations of the Social Sciences	3 hours	3 hours
Natural Science with laboratory	4 hours	4 hours
Quantitative/Logical Reasoning	3 hours	3 hours
Third Nat Sci or Q/LR course	3-4 hours	3-4 hours
Studies in Science, Faith, and Technology	2 hours	2 hours
World Language	6-12 hours	0 hours
	42-49 hours	36-37 hours

NOTE: In many cases, courses that students take to satisfy the requirements for a major will also satisfy general education requirements. For example, engineering students are already required to take more than the minimum natural science courses, and business program students already take math and statistics courses. Students are required to fulfill the total credit hours in both general education and major requirements (minimum 128).

Each student is required to fulfill the general education and major-specific requirements listed in the Grove City College *Bulletin* for the year in which the student matriculates to the College as a full-time freshman, or in the case of a transfer student, the initial year of transfer to the College. If a student withdraws from the College and returns within one year, the student may continue to follow the original Bulletin requirements. However, if a student is away from the College for over one year, the student must follow the requirements listed in the Bulletin for the year of return to the College. A student may choose to follow the requirements of a later Bulletin but is required to fulfill both the major and general education requirements outlined and required in that Bulletin edition.

WRITING INTENSIVE (WI) / SPEAKING INTENSIVE (SI) / INFORMATION LITERACY (IL) STUDIES

Recognizing that an essential component of academic preparation and lifelong learning consists of the ability to locate, evaluate, and present information, the College requires all

students to complete a sequence of courses that provide instruction in information literacy, writing, and speaking.

The Writing Intensive/Information Literacy (WI/IL) expectations are met through two curriculum tracks which are designed to provide a general across-the-curriculum introduction plus additional major-specific instruction. First, a foundation is laid for all students through our general education curriculum. Writing 101 initiates students into college Writing, as well as Information Literacy through general library, database, and internet use.

Building upon the general instruction received through Writing 101, each department provides discipline-specific instruction to its majors either within a single course or across several courses, concluding in a research paper and frequently an oral presentation. Students receive exposure to major databases, library resources, internet resources, and scholarly research techniques employed by professionals.

The Speaking Intensive (SI) component of our General Education curriculum is fulfilled through major related courses where students learn both basic and advanced public speaking skills.

HUMANITIES CORE

The Humanities Core (HUMA) discusses the origins, merit, and influence of history's most decisive ideas, literary works, and artistic products in seven courses. Students study the leading thinkers, books, and ideas in religion, philosophy, history, political science, economics, literature, art, and music. Reflecting the vision of the founders of Grove City College, these seven courses encourage intellectual, moral, spiritual, and social development grounded in Christian ideas of truth, morality, and freedom. Although these 18 hours in the humanities examine many different points of view and consider other nations and cultures, they emphasize America's religious, political, and economic heritage of individual freedom and responsibility and their part in the development of Western civilization.

HUMA 100. THE HUMANITIES: CHRISTIAN WISDOM FOR LEARNING AND LIVING. This course is an introduction to the Humanities core at Grove City College. It introduces students to the biblical story of creation, fall, and redemption, and it reflects on the role that liberal arts education plays in the Christian Life. *One hour.*

HUMA 200. WESTERN CIVILIZATION: HISTORICAL AND INTELLECTUAL FOUNDATIONS. This course explores the intellectual, cultural, political, and religious foundations of Western Civilization from the ancient Greeks to the modern world, with special emphasis on great thinkers, crucial events, and significant ideas. *Three hours.*

HUMA 202. CIVILIZATION AND LITERATURE. A study of great works of literature that represent the major periods in the history of Western civilization. The course explores the nature of God and humanity, the nature of good and evil, the meaning of moral choice, the purpose of life, and the meaning of salvation. *Three hours.*

HUMA 204. CIVILIZATION AND THE ARTS. An examination of outstanding works of visual art and music that represent the major periods in the history of Western civilization. The course examines the nature of God, the ways people have expressed their understanding of God's nature in the arts, the ways people have seen themselves throughout Western history, and the purpose of life. *Three hours.*

HUMA 261. SCRIPTURE AND THEOLOGY FOR THE CHRISTIAN LIFE I. This course builds on HUMA 100, exploring the content of significant biblical texts, their

theological themes, and their contributions to the Christian life in the contemporary world. The content of the course and its learning outcomes revolve around three key questions: Who is God? What does it mean to be human? More specifically, what does it mean to be the people of God? And what is God's mission and my role within it? Corequisite: Humanities 100. *Three hours.*

HUMA 271. SCRIPTURE AND THEOLOGY FOR THE CHRISTIAN LIFE II. This course builds on HUMA 261, exploring the content of significant biblical texts, their theological themes, and their contributions to the Christian life in the contemporary world. The content of the course and its learning outcomes revolve around three key questions: Who is Jesus? What is a Christian? And what is the shape of the Christian life in the world? Corequisite: Humanities 100. *Three hours.*

HUMA 300. THE GOSPEL AND THE GOOD LIFE: A CHRISTIAN VISION FOR ETHICS. This course is the capstone to the Humanities core at Grove City College. It casts a Christian vision for ethics and the good life, offers critical responses to alternative ethical frameworks, and equips students to address some of the most pressing ethical issues of contemporary life. Focal ethical topics may vary. Prerequisites: Humanities 261 and 271. *Two hours*.

HUMA 303.* CHRISTIANITY AND CIVILIZATION: MODERN AND POSTMODERN CHALLENGES. An examination of the theological and philosophical underpinnings of Christianity, historical and contemporary challenges to Christianity, resources for developing Christian responses to these challenges, and the enduring relevance of the Christian vision of the good life to contemporary life, including vocation. This course is the Humanities capstone. Prerequisites: Humanities 200; and Humanities 202 or 204. *Three hours.*

* This course is not required for students whose matriculation year is 2025 or after.

WRITING REQUIREMENT

Foundations of Academic Discourse introduces students to the fundamentals of academic writing. Students explore informative, analytical, evaluative, and persuasive writing, learning how to develop their writing using various rhetorical strategies. The course also introduces students to the basics of critical thinking, providing opportunities for students to discover ways in which good thinking produces good writing and how writing is itself a mode of thinking. Students develop a practical understanding of writing as a process, and they develop productive writing strategies that can be adapted to various academic and professional writing contexts. In preparation for research writing required in many other courses, this course introduces students to the fundamentals of information literacy.

WRIT 101. FOUNDATIONS OF ACADEMIC DISCOURSE. A course introducing students to the fundamentals of college composition. Topics include the writing process, rhetorical strategies, basics of critical reading and thinking, and key forms of writing such as informative, evaluative, argumentative, and synthesis. This course serves as a foundation to prepare students to succeed in other academic writing contexts. This course is designated Writing Intensive (WI) and Information Literacy (IL). *Three hours.*

FOUNDATIONS OF THE SOCIAL SCIENCES

All students are required to choose one course from the following:

- Economics 120—*Foundations of Economics*
- History 120—*Foundations of History*
- History 204—*Historical and Philosophical Foundations of Education*
- Political Science 101—*Foundations of Political Science*
- Psychology 101—*Foundations of Psychological Science*
- Psychology 200—*Cross-Cultural Psychology*
- Social Work 101—*Foundations of Social Work*
- Sociology 101—*Foundations of Sociology*
- Sociology 103—*Foundations of Cultural Anthropology*

All nine foundations courses, in addition to providing overviews of their respective fields, are fashioned to give each Grove City College graduate a distinctive stamp, for they embrace a strong Christian worldview and provide a grounding in critical analysis of the questions and issues that have animated Western thought as applied to each specific field of study.

NATURAL SCIENCE AND QUANTITATIVE/LOGICAL REASONING

This category ensures that all students have a foundational background in science and mathematical/logical reasoning. It requires three courses, as described below, for a total of 10-12 hours.

To complete this requirement, all students must complete:

1. One Natural Science course with laboratory (4 hours)
2. One Quantitative Reasoning course (3-4 hours)
3. One additional course in natural science, quantitative reasoning, or logical reasoning (3-4 hours)

1. ONE NATURAL SCIENCE COURSE WITH LABORATORY

The Natural Science with laboratory requirement (4 hours), which must be completed by the end of the junior year, must be fulfilled by taking a four-credit lab science with the prefix SCIC, BIOL, CHEM, or PHYS.

SCIC 201. FUNDAMENTALS OF THE UNIVERSE. This course covers major ideas concerning the physical universe, including applications of those ideas, past and present. Coverage includes philosophy of science, motion, energy, electricity, light, and other selected topics and applications. *No credit will be given to students who have already received credit for Physics 101 or 121.* This course is designed to meet general education science requirements for liberal arts students. Three lectures and one lab per week.

Four hours.

SCIC 202. LIFE SCIENCE. This course discusses the contribution of a scientific approach to our understanding of life, with a focus on fundamental ideas and their historical development and impact on society. Topics include aspects of molecular, genetic, cellular, organismal, and population biology. *No credit will be given to students who have already received credit for Biology 101.* This course is designed to meet general education science requirements for liberal arts students. Three lectures and one lab per week. *Four hours.*

SCIC 203. ATOMS, MOLECULES AND THE MATERIAL WORLD. This course is designed to make chemistry accessible to anyone with the desire to understand the chemical world in which we live. A strong emphasis on chemical reactions as well as on the basic theoretical principles that underlie chemistry are presented. An integral part of this course is the development of problem-solving skills. *No credit will be given to students who have already received credit for Chemistry 111.* This course is designed to meet general education science requirements for liberal arts students. Three lectures and one lab per week. *Four hours.*

SCIC 204. ENVIRONMENTAL SCIENCE. This course gives emphasis to a scientific approach to environmental awareness including contributions from ecology, biology, geology and chemistry. Historical worldviews that impact attitudes, ethics, and policies toward the environment will be discussed. The consequences of environmental pollution and strategies for resource management will be explored with particular attention to policies that impact future sustainability of our planet. The laboratory will include both field and lab hands-on experiences. This course is designed to meet general-education science requirements for liberal arts majors. Three lectures and one lab per week. *Four hours.*

2. ONE QUANTITATIVE REASONING COURSE

All students are required to take one three- or four-credit course from this list of Quantitative Reasoning courses:

- Any course offered by the Department of Mathematics (MATH or STAT), except MATH 110.
- Psychology 201—*Statistical Methods** or Psychology 401—*Advanced Statistics*

**Students may not receive earned credit for both Statistics 131 and Psychology 201.*

3. ONE ADDITIONAL COURSE IN NATURAL SCIENCE, QUANTITATIVE REASONING, OR LOGICAL REASONING

All other courses listed above in Natural Science and Quantitative Reasoning will fulfill this requirement for most students (see note below). In addition to the courses listed above in (1) and (2), any three- or four-credit course with the prefix of BIOL, CHEM, PHYS, or ASTR or a Logical Reasoning course from the following list:

- Computer 111—*Python Programming*
- Computer 141—*Computer Programming I*
- Music 103—*Music Theory I*
- Philosophy 201—*Symbolic Logic*
- Philosophy 211—*General Logic*

will fulfill the requirement.

Note: Students pursuing the following majors must take a quantitative reasoning course for this category to fulfill Pennsylvania Department of Education certification requirements: English Secondary Education, English and Communication Secondary Education, History and Social Studies Secondary Education, French K-12 Education, and Spanish K-12 Education.

STUDIES IN SCIENCE, FAITH, AND TECHNOLOGY (SSFT)

To complete this requirement, all students must complete:

- One Studies in Science, Faith, and Technology (SSFT) course (2-3 hours)

Among other things, courses in this category explore the relationship between science and religion, technology and faith, technology and ethics, the guidance which ethical analysis brings to scientific and technological endeavors, and the basic presuppositions and underpinnings of science and Christian faith. All students must take one course from the following choices:

COMP 205 or SSFT 205—*Ethics, Faith, and the Conscious Mind*
PHIL 243—*Science and the Human Inquiry, Design and the Person*
SSFT 212—*Science, Faith, and Technology*

Most Arts and Letters majors, as well as Mathematics and Computer Science majors should complete the SSFT requirement by the end of the sophomore year. Biology, Chemistry, Physics, Engineering, and Entrepreneurship majors should complete the SSFT requirement by the end of the junior year.

COMP 205 / SSFT 205. ETHICS, FAITH, AND THE CONSCIOUS MIND. This course focuses on three components of ethics, faith, and philosophy from a computer science perspective. First, it examines the Christian theological and philosophical foundations of science and the ethical role of computer science in areas such as globalization, autonomous systems, and intellectual property. Second, it considers perspectives on the origins, nature, and future of human cognition and consciousness, including intersections of artificial intelligence and consciousness. Third, it reviews ethical systems, cybernetical professional codes, ethical problem-solving techniques, and specific ethical cases, again from a computer science perspective and building on an informed Christian response to technology. This course is designated Information Literacy (IL). Students may only receive credit for one of Computer Science 205 or Science, Faith, & Technology 205. Prerequisites: Humanities 261 or Humanities 271; and a lab science. The lab science course and Humanities 261 or 271 may be taken concurrently with this course. This course satisfies the SSFT General Education requirement. *Spring semester, three hours.*

PHIL 243. SCIENCE AND THE HUMAN: INQUIRY, DESIGN AND THE PERSON. This course will examine historical and contemporary discussions of the nature of scientific inquiry and scientific knowledge, and related questions in the philosophy of science. It will also examine philosophical issues connected with design in nature, origins, and current technological development. Prerequisites: Humanities 261 or Humanities 271; and a lab science. The lab science course and Humanities 261 or 271 may be taken concurrently with this course. *Three hours*.

SSFT 212. SCIENCE, FAITH, AND TECHNOLOGY. This course is designed to give a theological, philosophical, and historical rationale for why Christians do science. What science is, how and why it developed in the context of Western Christianity, and how Christians are to respond to scientific information and theory will be considered. Particular emphasis will be given to biblical and scientific perspectives on the origin of the universe, the origin of organic life, and human origins. Selected topics in modern science and technology, such as cloning, stem cell research, chimeras, cosmology, quantum physics, and artificial intelligence, will also be addressed. Prerequisites: Humanities 261 or Humanities 271; and a lab science. The lab science course and Humanities 261 or 271 may be taken concurrently with this course. *Two hours*.

WORLD LANGUAGE

Grove City College believes the language requirement helps promote a high level of cultural literacy and communication skills that are necessary for students to serve and lead in a global context.

All B.S. graduates in the Calderwood and Winklevoss schools *and* all B.A. graduates in all schools are required to complete the language requirement. Double majors are subject to the language requirement for their first major only.

Degree Type	Language Requirement Fulfillment[1]
BA	101, 102, 201, 202
Calderwood and Winklevoss Schools BS	101, 102
BSCE, BSEE, BSME, BSN, BM, and Hopeman School BS	N/A

[1]approved 100-level or 200-level transfer or study abroad language courses may also count toward the language requirement.

Modern or classical/biblical languages may fulfill the requirement. Students should plan to begin language coursework in the fall of their freshman year. **Languages offered at GCC:** French, Spanish, Biblical Greek and Biblical Hebrew. [Note that Latin is currently offered very irregularly at the introductory level; students with a background in Latin or another language not on this list should consult the information below if they are interested in proficiency testing and/or transfer credit.]

Information on Language Placement

Language Placement and Completion for Languages Regularly Offered at GCC

The standard for determining the world language course needs for each student is based on the following:

1. Students who have had prior exposure to the language they wish to take will need to **complete the language placement exam within the first year of matriculating at GCC if their first major has a language requirement.** If they change from a first major without a language requirement to a first major with a language requirement, then they need to take the placement test within a year of changing majors.
    a. **For French and Spanish:** Exam information can be found on the Modern Language department's language placement website. The exam will determine placement into a course in the language sequence (101, 102, 201 or 202) based on the student's knowledge and skill level. Classes below the student's skill level are waived. If a student can demonstrate proficiency beyond the highest required language course for the sequence required for their degree, the student must also complete an oral interview or proctored assessment with the department to validate their results and qualify for a full waiver to the language requirement. Note: the department may require a

follow-up oral interview to confirm any student's placement, regardless of placement level.

b. **For Greek and Hebrew:** Contact the chair of Biblical and Theological Studies to arrange a placement exam.

2. Once students have started language coursework, they may not skip a course in the sequence unless they receive express permission from the department chair (Modern Languages or Biblical and Theological Studies) of the language they are studying. Upon successful completion of highest course in the requirement sequence in the same language, the student will have met the language requirement.

Other World Languages Not Regularly Offered at GCC (including Latin)

If a student has had substantial high school coursework or experience in a language not regularly offered at GCC (including American Sign Language and Latin), the student may be able to show proficiency beyond the 102 level (for relevant BS degrees) or 202 level (for BA degrees) through:

a. Approved AP, IB, or CLEP scores
b. Approved transfer coursework (including study abroad)
c. Testing from an outside organization authorized and approved in advance by the Modern Languages Department chair. Students are responsible for paying any required assessment fees. Sufficient scores may waive the language requirement, but they will not grant academic credit. **Evidence of proficiency through testing must be submitted within the first year of matriculation at GCC (or within the first year of switching to a major with a language requirement) to waive the language requirement.**

If the student's skill level does not meet or exceed the required standard, the student may choose to study a language available at GCC. A student who wishes to pursue a language not offered at GCC may pursue coursework in a language via approved transfer credit outside of the GCC fall and spring semesters *or* the student may complete required coursework in the language through an approved study abroad program.

Advanced Placement, CLEP and IB Credit

Students who receive credit for a modern or classical language through an Advanced Placement, CLEP or IB modern language exam may fulfill part or all of the language requirement. If the requirement is only partially fulfilled by the AP, CLEP or IB credit, the student may take additional courses in that language to complete the requirement. The AP, CLEP and IB policy defining the course credits is published on the Registrar's website.

TOEFL / Native Speaker Policy

Students who submit a TOEFL report which indicates a native language other than English will have met the world language requirement.

Other students with native-speaker level skills in reading, writing, listening, and speaking may consult the chair of Modern Languages to determine whether they have met the world language requirement.

When a student changes from a major that does not require a world language to one which does require it, the student will have to complete the requirement according to the above guidelines.

The following majors require the completion of a 101-102 modern or classical language course sequence: Accounting; Business Analysis; Business Economics; Business Statistics; Design and Innovation; all Elementary and Middle Level Education majors; all Special Education majors; Entrepreneurship; Finance; Human Resource Management;

International Business; Management; Marketing; Psychology (B.S.); Social Work; and Supply Chain Management.

The following majors require the completion of a 101-202 modern or classical language course sequence: Biblical and Theological Studies; Christian and Classical Education; Communication Arts; Economics; all B.A. Secondary Education majors; English; French; French K-12 Education; History; Philosophy; Political Science; Psychology (B.A.); Spanish; and Spanish K-12 Education.

Refer to the "Modern Languages" section for more information regarding placement.

Chapel Attendance Requirement

Grove City College provides a chapel program to promote each student's spiritual and moral development during the student's College educational experience. This program is comprised of diverse services and activities, and while it is designed to encourage Christian growth, the College understands that ultimately Christian maturity is the responsibility of the individual student and not the consequence of a requirement. Chapel services are the common expression of our Christian faith as members of the campus community. Thus, chapel attendance is a core component of the student's experience at Grove City College. Objectives of individual chapel events include the following:

1. To provide occasions where all members of the academic community can express a common faith in Jesus Christ.
2. To allow members of the campus community to utilize their talents and gifts in ministry to other members of the community.
3. To challenge students theologically and spiritually from an Evangelical biblical perspective.
4. To affirm students in their particular Christian tradition and experience spiritual maturity in their individual faith expression.
5. To promote student appreciation and respect for other Christian traditions and expressions different from their own.
6. To provide a context in which prayer can be offered on behalf of those in the campus community who are experiencing tragedy or special need.
7. To develop student sensitivity and responsiveness to the needs of others in the world.

There are many chapel options available to students, and each student is free to select from these options according to his/her own interests as long as the student meets the following **per semester attendance requirements (fall/spring terms only)**:

1. Full-time students (12 or more credits) must attend twelve (12) chapels.
2. Students enrolled at least half-time but less than full-time (6 to 11 credits) must attend six (6) chapels.
3. Students enrolled less than half-time (5 or fewer credits) are not required to attend chapel. Graduate students are not required to attend chapel regardless of course load.

Students receive chapel credit when they arrive on time, scan their own ID card, and remain for the entirety of the chapel event. Any attempt to cheat the system is considered a violation of the campus commitment to honesty and integrity and leads to disciplinary action. Student Life and Learning, Academic Advisors, and Coaches are informed of a student's violation and a meeting with the College Chaplain is required.

Chapel attendance requirements are determined at the conclusion of the College's course drop/add period when official enrollment status is recorded. Withdrawing from courses after that date will not affect the number of chapels owed during a semester.

A student studying abroad through an external program; attending as a non-degree, post-baccalaureate or second-degree student; or full-time student teaching will not be required to attend chapel during the semester of that experience. Students enrolled in the Nursing Program will be required to attend six (6) during their second and third years at Grove City College due to their concurrent enrollment at Butler County Community College. Nursing Program students will not be required to attend chapel during their final year due to off-campus clinical studies. There is no additional chapel requirement for a student who graduates early.

Chapel requirements not fulfilled during semester-offered chapel events must be made up (this includes any unfulfilled chapel requirements from previous semesters). A student who owes more than six (6) chapel requirements at the time of their priority course registration window will not be permitted to register for the next year until such time the requirement is met, and they have reduced their remaining chapel credits to owing zero (0). A student who withdraws from the College owing more than six (6) chapel requirements will not be permitted to re-enroll until they have reduced their remaining chapel credits to owing zero (0). Students owing more than six (6) chapel requirements on Study Day of the semester they are to graduate will not be permitted to participate in the College's commencement ceremony. A diploma is released by the Registrar's Office upon successful completion of both academic and chapel requirements.

Degree Programs

Bachelor of Arts (B.A.)

The courses leading to the Bachelor of Arts degree offer the student an opportunity to specialize in the field of his/her particular interest and to obtain enriching contacts with other fields of liberal culture. The majors provide preparation for graduate work, teaching, business, law, ministry, and other professions.

MAJORS AVAILABLE IN THE B.A. PROGRAM

Majors offered in the general liberal arts are Biblical and Theological Studies, Christian and Classical Education, Communication Arts, Economics, English, French, History, Philosophy, Political Science, Psychology, and Spanish.

Certification for grades K-12 is available in French and Spanish and for grades 7-12 in the following areas: English, English/Communication, and History (Social Studies).

Students may undertake to fulfill the requirements of a second major (not a second degree) subject to availability of space in the classes. The College cannot, however, assure students that they can in all instances complete a second major. Students earning two majors in different degrees may select which baccalaureate degree they wish to be awarded.

REQUIREMENTS FOR THE B.A. DEGREE

1. **The General Education requirements.**
2. **Major requirements.** Listed under the department in the Courses of Instruction section. A status sheet for every major will be provided listing specific course and hour requirements and should be maintained by the student; however, the *Bulletin* is the authoritative document regarding requirements. At least one-half of all hours required for the major must be earned at Grove City College. The major requirements determine the Major Quality Point Average (MQPA) calculation.
3. **Major-related requirements.** These courses, though required for the major, do not count toward the major QPA.

4. **Electives.** Sufficient elective hours to complete the total of 128 hours required for the degree. To take advantage of the benefits of a liberal education and avoid overly narrow specialization, a significant portion of these electives should be chosen from fields not directly related to the student's field of concentration.
5. **Chapel.** Chapel attendance is a requirement for graduation from Grove City College.

Bachelor of Music (B.M.)

The courses leading to the Bachelor of Music degree offer students an opportunity to specialize in the fields of music and fields of liberal culture. The majors provide preparation for graduate work, teaching, business, performance and religious professions.

MAJORS AVAILABLE IN THE B.M. PROGRAM

The Department of Music offers majors in Music, Music/Business, Music Ministry, and Music Performance.

The Department also offers a Music Education major with certification in grades PreK-12 that leads to the Bachelor of Music degree. Definite music development and completion of all requirements are necessary for graduation. The course is approved by the Pennsylvania Department of Education for the preparation of music teachers.

Candidates for the B.A. or the B.S. degree may present a maximum of eighteen semester hours in the field of music as electives in their courses. If applied music is taken, a maximum of eight hours will be accepted with the remaining ten hours to be elected from the music curriculum and ensemble.

The Department of Music offers opportunities to all students of the College to participate in music ensemble activities, which are directed by members of the music staff. These activities include the College choirs, the orchestras, the bands, and the jazz bands.

Students will be granted one credit hour per semester for membership in the band, orchestra or choir. Credit may be received for membership in two of these organizations per semester for non-music majors. Three rehearsal hours are held each week. More than three absences from rehearsals, performances or public appearances during a semester will cancel the credit.

REQUIREMENTS FOR THE B.M. DEGREE

1. **The General Education requirements.**
2. **Major requirements.** Listed under the Department of Music in the Courses of Instruction section. A status sheet for every major will be provided listing specific course and hour requirements and should be maintained by the student; however, the *Bulletin* is the authoritative document regarding requirements. At least one-half of all hours required for the major must be earned at Grove City College. The major requirements determine the Major Quality Point Average (MQPA) calculation.
3. **Major-related requirements.** These courses, though required for the major, do not count toward the major QPA.
4. **Electives.** Sufficient elective hours to complete the total of 128 hours required for the degree. To take advantage of the benefits of a liberal education and avoid overly narrow specialization, a significant portion of these electives should be chosen from fields not directly related to the student's field of concentration.
5. **Chapel.** Chapel attendance is a requirement for graduation from Grove City College.

6. **NOTE:** Minimum piano and vocal proficiency is required of all music majors. All Bachelor of Music candidates must have eight semester hours of applied music in voice or one instrument to complete requirements for their public senior recital.

Bachelor of Science (B.S.)

The courses leading to the Bachelor of Science degree offer the student an opportunity to specialize in the fields of science and enriching contacts with other fields of liberal culture. The majors provide preparation for graduate work, teaching, business, industry and the various health-related professions.

MAJORS AVAILABLE IN THE B.S. PROGRAM

The majors include Accounting, Applied Science and Engineering, Applied Statistics, Biochemistry, Biology, Biology/Health, Business Analysis, Business Economics, Business Statistics, Chemistry, Computer Engineering, Computer Programming, Computer Science, Conservation Biology, Data Science, Design and Innovation, Elementary Education, Entrepreneurship, Exercise Science, Finance, Human Resource Management, International Business, Management, Marketing, Mathematics, Middle Level Math/English Education, Middle Level Math/History Education, Middle Level Science/English Education, Middle Level Science/History Education, Middle Level Science/Math Education, Middle Level Math/English and Elementary Education, Middle Level Math/History and Elementary Education, Middle Level Science/English and Elementary Education, Middle Level Science/History and Elementary Education, Middle Level Science/Math and Elementary Education, Molecular Biology, Physics, Physics/Computer, Psychology, Social Work, Special Education, Special Education with Elementary Education, and Supply Chain Management.

Teacher certification in Elementary Education; Special Education; middle level in Math/English, Math/History, Science/Math, Science/English, or Science/History. Certification for grades 7-12 is available in the following areas: Biology/General Science, Chemistry, Chemistry/General Science, Mathematics, Physics, and Physics/General Science.

Students may choose to fulfill the requirements of a second major (not a second degree) subject to the availability of space in the classes. The College cannot, however, assure students that they can in all instances complete a second major. Students earning two majors in different degrees may select which baccalaureate degree they wish to be awarded.

REQUIREMENTS FOR THE B.S. DEGREE

1. **The General Education requirements.**
2. **Major requirements.** Listed under the department in the Courses of Instruction section. A status sheet for every major will be provided listing specific course and hour requirements and should be maintained by the student; however, the *Bulletin* is the authoritative document regarding requirements. At least one-half of all hours required for the major must be earned at Grove City College. The major requirements determine the Major Quality Point Average (MQPA) calculation.
3. **Major-related requirements.** These courses, though required for the major, do not count toward the major QPA.
4. **Electives.** Sufficient elective hours to complete the total of 128 hours required for the degree. To take advantage of the benefits of a liberal education and avoid overly narrow specialization, a significant portion of these electives should be chosen from fields not directly related to the student's field of concentration.
5. **Chapel.** Chapel attendance is a requirement for graduation from Grove City College.

PRE-HEALTH PROFESSIONS

Students who wish to meet the requirements for admission to medical college or other health-related colleges normally follow programs of study offered by either the biology or chemistry departments. Other departmental majors are possible, but students should be sure to complete required prerequisites in their desired fields.

Bachelor of Science in Computer Engineering (B.S.C.E.)

The Department of Electrical and Computer Engineering offers an undergraduate program leading to the degree Bachelor of Science in Computer Engineering. The major provides preparation for graduate work and employment in industry.

REQUIREMENTS FOR THE B.S.C.E. DEGREE

1. **The General Education requirements.**
2. **Major requirements.** Listed under the Department of Electrical and Computer Engineering in the Courses of Instruction section. A status sheet for this major will be provided listing specific course and hour requirements and should be maintained by the student; however, the *Bulletin* is the authoritative document regarding requirements. At least one-half of all hours required for the major must be earned at Grove City College. The major requirements determine the Major Quality Point Average (MQPA) calculation.
3. **Major-related requirements.** These courses, though required for the major, do not count toward the major QPA.
4. **Electives.** Sufficient elective hours to complete the total of 128 hours required for the degree.
5. **Chapel.** Chapel attendance is a requirement for graduation from Grove City College.

Bachelor of Science in Electrical Engineering (B.S.E.E.)

The Department of Electrical and Computer Engineering offers an undergraduate program leading to the degree Bachelor of Science in Electrical Engineering. The electrical engineering program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org. The field of concentration provides preparation for graduate work and employment in industry.

CONCENTRATIONS FOR THE B.S.E.E. DEGREE

The electrical engineering program provides selective concentration options in Automation, Communications, and Technical Entrepreneurship. Reflecting the fundamental objectives of a liberal education, the program requires, in addition to mathematics, a number of hours in the liberal arts as well as the General Education requirements. Students are well prepared to enter the engineering field, as well as the civic and cultural activities where they live and work.

REQUIREMENTS FOR THE B.S.E.E. DEGREE

1. **The General Education requirements.**
2. **Major requirements.** Listed under the Department of Electrical and Computer Engineering in the Courses of Instruction section. A status sheet for this major will be provided listing specific course and hour requirements and should be maintained by the student; however, the *Bulletin* is the authoritative document regarding requirements. At least one-half of all hours required for the major must be earned at Grove City College. The major requirements determine the Major Quality Point Average (MQPA) calculation.

3. **Major-related requirements.** These courses, though required for the major, do not count toward the major QPA.
4. **Electives.** Sufficient elective hours to complete the total of 128 hours required for the degree.
5. **Chapel.** Chapel attendance is a requirement for graduation from Grove City College.

Bachelor of Science in Mechanical Engineering (B.S.M.E.)

The Department of Mechanical Engineering offers an undergraduate program leading to the degree Bachelor of Science in Mechanical Engineering. The mechanical engineering program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org. The course of study provides preparation for graduate work and employment in industry.

The Mechanical Engineering program provides an extensive offering of required foundational courses as well as elective courses in the mechanical and thermal systems areas. Reflecting the fundamental objectives of a liberal education, the program requires, in addition to mathematics and the sciences, a number of hours in the liberal arts as well as the General Education requirements. The use of computers and discipline specific software is an integral part of the Mechanical Engineering curriculum. Students are well prepared to enter the engineering field, as well as the civic and cultural activities where they live and work.

REQUIREMENTS FOR THE B.S.M.E. DEGREE

1. **The General Education requirements.**
2. **Major requirements.** Listed under the Department of Mechanical Engineering in the Courses of Instruction section. A status sheet for this major will be provided listing specific course and hour requirements and should be maintained by the student; however, the *Bulletin* is the authoritative document regarding requirements. At least one-half of all hours required for the major must be earned at Grove City College. The major requirements determine the Major Quality Point Average (MQPA) calculation.
3. **Major-related requirements.** These courses, though required for the major, do not count toward the major QPA.
4. **Electives.** Sufficient elective hours to complete the total of 128 hours required for the degree.
5. **Chapel.** Chapel attendance is a requirement for graduation from Grove City College.

Bachelor of Science in Nursing (B.S.N.)

The Charles Jr. and Betty Johnson School of Nursing at Grove City College opened in the Fall of 2020. Grove City College partners with Butler County Community College to provide a robust nursing program that includes an Associate Degree in Applied Science achieved after the third year of study from Butler County Community College and a Bachelor of Science in Nursing degree from Grove City College achieved after the fourth year of study upon completion of all graduation requirements.

REQUIREMENTS FOR THE B.S.N. DEGREE

1. **The General Education requirements.**
2. **Major requirements.** Listed under the department in the Courses of Instruction section. A status sheet for the nursing major provides a list of specific courses and hour requirements and should be maintained by the student; however, the *Bulletin*

is the authoritative document regarding requirements. At least one-half of all hours required for the major must be earned at Grove City College. The major requirements completed at Grove City College determine the Major Quality Point Average (MQPA) calculation.

3. **Major-related requirements.** These courses, though required for the major, do not count toward the major QPA.
4. **Electives.** Sufficient elective hours to complete the total of 128 hours required for the degree. To take advantage of the benefits of a liberal education and avoid overly narrow specialization, a significant portion of these electives should be chosen from fields not directly related to the student's field of concentration.
5. **Chapel.** Chapel attendance is a requirement for graduation from Grove City College.

CHANGING DEGREE PROGRAMS

A student may change to a different major or degree program, with the permission of the appropriate Department Chair, when space is available within that major or program. In some cases, the Dean of the appropriate school (Arts and Letters, Business, or Science, Engineering, and Mathematics) must also approve the change. Forms to change majors are available on the Registrar's website (www.gcc.edu/registrar).

Any student changing from a program which does not require world language proficiency to one that does (i.e., all B.A. programs and non-science B.S. programs) will be required to demonstrate proficiency according to the guidelines regarding "World Language" under "General Education Requirements."

DOUBLE MAJOR

A double major is the completion of work in two academic majors. Undergraduates are responsible for meeting all the requirements for each major while adhering to the General Education requirements from the first declared major. When the degree requirements for both majors are satisfied, one diploma is granted with both majors recorded on the permanent record and transcript.

DUAL DEGREE PROGRAM

A student may earn two degrees simultaneously from Grove City College in two different degree programs pending availability of space in the majors selected and by meeting the following requirements:

- At least 32 additional credit hours must be applied to the second degree beyond the 128 required for the first degree, with a minimum total of 160 hours earned.
- Majors must be completed in two different degree programs, e.g. Bachelor of Science/Bachelor of Arts (BS/BA), Bachelor of Science in Electrical Engineering/Bachelor of Arts (BSEE/BA), etc.
- Satisfy all requirements for both degrees, including general education and major requirements.
- Students must complete all requirements in force for the chosen majors at the time of matriculation to the College.
- Minimum career QPA required: 2.00.
- Minimum QPA in both majors: 2.00.
- Chapel requirement: No additional chapels are required.
- College and departmental honors will be recognized for both degrees since the full body of work is completed within the dual degree program.

- A student must notify the Registrar's Office in writing of an intent to pursue two degrees simultaneously, listing both degrees and majors, total credits earned to the current date, and intended date of completion of all requirements.

SECOND DEGREE PROGRAM

A student holding a baccalaureate degree from Grove City College or another accredited four-year college or university may earn a second baccalaureate degree in a different program as outlined. To earn a second baccalaureate degree, the student must:

- Have completed all requirements for the first baccalaureate degree.
- Satisfy all requirements for the second degree, including major and general education requirements.
- Students who have earned their first baccalaureate degree from Grove City College must earn a minimum of 32 credit hours at Grove City College beyond the 128 hours required for the first degree, with a minimum total of 160 hours earned and a minimum CQPA of 2.00.
- Students who have earned their first baccalaureate degree from another college must earn a minimum of 64 credit hours from Grove City College and a minimum total of 128 earned hours for their second baccalaureate degree. The Registrar's Office and the student's department chair will evaluate the student's transcript and determine transfer course equivalents.
- Majors must be completed in two different degree programs, e.g. Bachelor of Science/Bachelor of Arts (BS/BA), Bachelor of Science in Electrical Engineering/Bachelor of Arts (BSEE/BA), etc.
- A student must complete all requirements in force at the time of matriculation to the College for the start of the second degree program unless the student graduates from the College and returns within one year, he/she may then continue to follow the catalog requirements in force of his/her original undergraduate matriculation.
- Minimum career QPA required: 2.00.
- Minimum QPA in both majors: 2.00.
- No college or departmental honors or class ranking will be recognized for a second baccalaureate degree since students do not complete the full body of work within the second-degree division.
- Any student who repeats an undergraduate course within his/her second-degree program that counted toward the first degree may not count those hours toward completion of the second degree, however, any repeated hours earned will be included when calculating the second degree QPA.
- Students completing a second degree may participate in Commencement.

Students interested in pursuing a second degree should contact the Registrar's Office for information regarding program details and requirements.

POST-BACCALAUREATE

Grove City College offers individuals the opportunity to study as a post-baccalaureate student. These students enroll in courses taken after earning a bachelor's degree and are not pursuing either an additional undergraduate degree or graduate degree program. Instead, post-baccalaureate status allows students to complete coursework for personal enrichment, a possible career change, or in preparation for a professional school or graduate school program.

MINORS

Minors are available in Accounting, AI and Machine Learning, Astronomy, Biblical and Theological Studies, Biology, Business, Business Analysis, Chemistry, Christian

Ministry, Christian and Classical Education, Classical Studies, Communication Arts, Computer Game Design and Development, Computer Science, Creative Writing, Criminal Justice Studies, Cybersecurity, Data Science, Design, Digital Entrepreneurship, Digital Marketing, Economics, English, Entrepreneurship, Exercise Science, Family Studies, Finance, Financial Planning, French, History, Human Resource Management, International Business, International Studies, Management, Marketing, Mathematics, Medical Physics, Medieval Studies, Missional Entrepreneurship, Music, Musical Theatre, National Security Studies, Nutrition, Philosophy, Physics, Political Philosophy and Theology, Political Science, Pre-Law, Psychology, Redemptive Entrepreneurship, Robotics, Sales, Social Enterprise, Social Entrepreneurship, Social Work, Sociology, Spanish, Special Education, Sports Management, Statistics, Studio Art, Supply Chain Management, Theatre, Worship Arts, Writing, and Youth Ministry.

Students may fulfill the requirements of a minor, subject to availability of space in the classes. At least one-half of all hours required for the minor must be earned at Grove City College and a minor QPA of 2.00 for all coursework completed in each declared minor. The College cannot, however, assure students that they can in all instances complete a minor.

INDEPENDENT/RESEARCH/HONORS STUDY

A student may pursue areas of interest not available through regular course offerings as listed in the Grove City College *Bulletin* by registering for an independent study (260, 360, 460), independent research (270, 370, 470) or honors course (498, 499) in the department of choice, provided a faculty sponsor is available and the study experience is approved by the appropriate Department Chair, Dean, and the Registrar's Office.

The following policies apply:

- Independent study, research, and honors experiences are available to full-time students during the fall and spring semesters only.
- A maximum of six hours of independent study, independent research, or honors courses combined may count within the 128 hours required for graduation (course numbers 260, 270, 360, 370, 460, 470, 498 and 499). A maximum of six additional hours of independent study/research/honors courses may be taken beyond the 128 hours required for graduation, but these hours may not count toward any requirement for graduation.
- Independent study must be completed on campus; however, an off-campus course may be approved, but only when done in conjunction with an approved 12-credit internship program.
- No more than two independent study, research, or honors courses may be taken by a student during a single academic year.
- Independent study, research, and honors courses may not substitute for required courses in the general education, major, minor or concentration areas.
- The established time involved for each credit hour awarded should be equal to fifteen hours of equivalent in-class time plus a minimum of thirty hours outside preparation time.
- Independent study, research, and honor courses must be added or dropped during the normal semester registration period or during the College's drop/add week at the beginning of each semester.
- Individual departments may have minimum CQPA restrictions to qualify for independent work.
- Faculty may supervise no more than a total of nine credit hours of independent experiences and/or five students each semester.

Registration Process:

- A student should first work with a faculty sponsor to design an appropriate program of study. All requirements for the experience must be outlined in the course syllabus. The faculty sponsor will show his/her approval of the study by signing the application.
- Next, the application and completed course syllabus is reviewed by the Department Chair in which the proposed study will occur and then by the Dean of the corresponding School. The study form and syllabus will then be submitted to the Registrar's office for final review. Students will not be enrolled in the class until this form has been approved by the Registrar's Office.

INTERNSHIPS

Grove City College recognizes that an internship can be one of the more valuable experiences a student can have during his or her college career. Practical experience in the workplace is not only an education in itself; it is also increasingly demanded by potential employers in today's marketplace. Students need the opportunity to take advantage of the education, practical experience, and resume potential which only internships can provide. An extensive variety of internship opportunities, therefore, are provided across the curriculum, and all eligible students are encouraged to participate in them whenever possible. Individual internship experiences may range between one to six credit hours. Students must work a minimum of 60 hours for each credit earned, and some departments may require more for each credit. As part of hours earned, students are not permitted in any instance to double count hours or include hours outside of scheduled time with the host site.

Students should contact the department chair or internship coordinator for specific working hour requirements. Internships are listed in the course descriptions under the number "480."

Internships must be approved and registered prior to the start of the experience. Hours completed prior to approval or the start of the internship do not calculate toward the overall number of hours earned. An Internship Fee will be charged for each internship experience on a per-semester basis. (See Expenses and Financial Aid) However, if the internship credit hours extend the total credit hours over 18, then no additional credit hour fee will be charged.

While students may do internships purely for the purpose of gaining experience and not for academic credit, the College can certify only those internships done for academic credit under the established programs and guidelines. A maximum of six hours of internship credit may be used toward graduation requirements. A maximum of six additional hours of internship may be earned beyond the 128 total hours required for graduation.

The College does not grant internship credit for any experience in which a student is paid by the federal government, for whatever reason. Conversely, if credit is granted by the College for an internship, then a federal stipend may not be accepted by the student. In no situation may a student accept federal money related to participation in an internship and receive academic credit, as this is prohibited by College policy.

INTERNATIONAL EDUCATION

Study Abroad

Semester or year-long study abroad programs are available to Grove City College students of any major who meet the following requirements:

- Students must be in good academic standing and enrolled full-time.
- Students must have completed GOBL 150 (Cross-Cultural Training for Study Abroad, 1-credit) with a C average or higher. Students who cannot take the 1-credit course should speak with the Office of Global Programs about alternative options.

- Students must complete the application process managed by the Office of Global Programs, meet all relevant deadlines and submit all required documents. The Office of Global Programs will guide students through all additional Grove City College requirements including those of the offices of the Registrar, Financial Aid, and Student Accounts.
- Students must complete any requisite application procedures of the host institution abroad following guidance from the Office of Global Programs.
- Students must attend the Pre-departure Orientation before departing and the Re-Entry Workshop upon return.

Students studying abroad for a semester or year must choose an approved program. Students will pay their regular Grove City College tuition plus a study abroad fee for the term in which they study abroad. Students will retain access to all of their financial aid the term they are abroad. Any non-tuition expenses will be paid directly to the program provider or host institution and not paid through Grove City College. Students who wish to participate in a non-approved study abroad program will need to take a leave of absence. They will not remain enrolled at Grove City College, they will not be charged Grove City College tuition, they will not be eligible for financial aid, and they will not have priority housing registration.

Selection of a program and of specific courses takes place in consultation with the department chair of the student's major, the Office of Global Programs, and the Registrar. All inquiries regarding program options, application forms, deadlines, and other matters related to study abroad should be directed to the Office of Global Programs. The Registrar's Office is responsible for transfer course evaluation as well as the official transfer of credits upon course completion with receipt of an official transcript. Although sufficient academic counseling is given throughout the process, the responsibility for proper registration for each semester rests with the student. Each student is ultimately responsible for planning his or her program in order to satisfy graduation requirements.

Travel Courses

Grove City College faculty-led travel courses are also available to students in good academic standing who are enrolled full-time. Most travel courses are held during summer and winter intersessions and average 10-14 days. Travel courses will typically offer several class options, often including a Humanities option open to all majors. Students will earn Grove City College credit (not transfer credit) and as such, their grade will affect their GPA. Students must follow the application procedures of the Office of Global Programs and follow any stated requirements. Travel courses will have comprehensive program fees charged to student accounts, but students are not able to access Grove City College financial aid for intersession programs.

Summer Programs

Summer study abroad and international programs are also available. Students will pay all costs directly to the program provider and will not have access to Grove City College financial aid.

MEDICAL OPTION PLAN

Under certain conditions Grove City College will waive the senior year in residence and may approve the transfer of the first year of graduate courses from an accredited medical school toward the baccalaureate degree. Students considering this option must petition the faculty for approval and must meet the following provisions:

- During residence at Grove City College, the student must attain a career quality point average of 3.00 or higher and have earned no less than ninety-six semester hours of credit.

- Academic credits earned must include all specific general education and major requirements for the degree.
- Certification of the successful completion of the first year's work in the professional school must be presented for approval and evaluation before the baccalaureate degree may be conferred.
- Students who do not complete their approved first-year medical school courses may petition the faculty of Grove City College for the awarding of the baccalaureate degree at the time the professional diploma is awarded.
- Students will not be considered enrolled at Grove City College and will be subject to all policies governing withdrawal from the College. Therefore, participating in the Medical Option Plan will affect the student's enrollment status, financial aid and retention of the College-issued computer system.

Students interested in pursuing this option should contact the Registrar's Office for information regarding program details and requirements.

Grove City College does not accept any funds that derive in any part, directly or indirectly, from federal sources (including scholarship or loan funds). Students who receive any federal financial assistance during their first year of a graduate program will be ineligible to receive credit from Grove City College, and thus ineligible to continue in the Medical Option Plan.

ADULT EDUCATION

Adults living in the local community may attend a class for no credit during a semester for a small fee, pending consent of the professor and seat availability in the classroom. Grove City College will maintain a permanent record of enrollment for participants, but no grade or credit will be recorded by the Registrar.

ACADEMIC SCHOOLS

The academic programs at Grove City College are divided into three schools – the Alva J. Calderwood School of Arts and Letters, the Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics, and the Winklevoss School of Business. These three schools encompass all departments of instruction and provide students with a choice of numerous majors, minors, certifications, concentrations, and pre-professional programs.

Alva J. Calderwood School of Arts and Letters

Dr. Seulgi Byun, Dean; Dr. Lisa Hosack, Assistant Dean.

Alva J. Calderwood
1873-1949

Alva J. Calderwood grew up on a farm outside of New Bedford, Pennsylvania, and was tending the crops one day when a journeyman teacher by the name of Dr. Isaac Ketler visited his home in search of students to enroll in the newly formed Grove City College. Dr. Calderwood subsequently enrolled and graduated from the College in 1896, continued his education at Harvard, and earned both a Master of Arts and a Doctor of Philosophy degree. He eventually returned to his alma mater and served as a professor for 53 years and as Dean of the College for 35 years. He was honored for his many years of outstanding service when Calderwood Hall, erected in 1956, was named for him. Calderwood Hall was torn down in February 2003 and replaced by the new Hall of Arts and Letters, and in November 2002, the Alva J. Calderwood School of Arts and Letters was named in his honor.

The *Alva J. Calderwood School of Arts and Letters* is comprised of the Departments of Biblical and Theological Studies; Communication and Design; Education; English; History; Modern Languages; Music, Theatre, and Art; Philosophy; Political Science; and Psychology, Social Work, and Sociology.

Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics

Dr. Joshua Snyder, Dean; Dr. Erik Bardy, Assistant Dean.

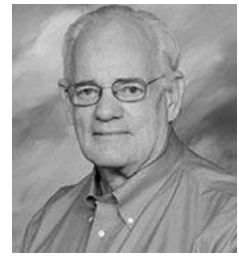
Albert A. Hopeman, Jr.
1911-1998

Albert A. Hopeman, Jr. became the fifth president of the Grove City College Board of Trustees in 1972, joining the Board in 1953 and serving till his death in 1998. He was a firm advocate of excellent education in a Christian environment at a low cost. He led the College during the years of the well-known 1984 U.S. Supreme Court case *Grove City College vs. T. H. Bell, Secretary of the U.S. Department of Education*, which resulted in Grove City College's withdrawal from the federal Pell Grant program. Grove City College also withdrew from federal student loan programs in 1996 and developed a competitive private student loan program under his leadership. The School of Science, Engineering, and Mathematics was named in his honor in May of 1997.

The *Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics* is comprised of the Departments of Biology; Chemistry; Computer Science; Electrical and Computer Engineering; Exercise Science; Mathematics; Mechanical Engineering; Physics; and the Charles Jr. and Betty Johnson School of Nursing.

The Winklevoss School of Business

Dr. Michelle McFeaters, Dean.


Dr. Howard E. Winklevoss '65

Dr. Howard E. Winklevoss '65 is a renowned academic and business technology entrepreneur. After teaching for more than a decade, Dr. Winklevoss entered the private sector, founding multiple ventures, including Winklevoss Consultants, a financial consultant to over 125 major corporations, and Winklevoss Technologies, a company that builds software for the actuarial consulting community to model and administer defined benefit pension plans. The Winklevoss School of Business prepares students to succeed in a variety of roles in organizations of all types. With ACBSP-accredited programs, highly accomplished faculty mentors, interdisciplinary emphasis, and diverse internship opportunities, the School equips students to pursue their unique callings to business, preparing them to become effective and ethical Christ-inspired leaders in business and society as a whole.

The curriculum is based on a Christian perspective and ethical framing, and it provides business knowledge while developing communication and analytical skills within major-specific learning immersed in a global perspective.

The *Winklevoss School of Business* is comprised of the Departments of Accounting and Finance; Economics; Entrepreneurship; and Management and Marketing.

COURSES OF INSTRUCTION

The following sections are arranged in alphabetical order by department and include the requirements for each major, course descriptions, and all faculty members within each department.

Accounting and Finance

Prof. Stone, Chair; Prof. Graybill, Dr. Grimm, Dr. McFeaters, Prof. Shultz, Dr. Truitt. Additional Instructional Faculty: Prof. Dick.

The Department of Accounting and Finance provides ACBSP accredited Accounting and Finance majors, preparing students for entry-level careers in all arenas of accounting and finance, including public accounting; corporate, partnership, or sole proprietorship accounting; governmental and NGO accounting; corporate finance; financial services; financial planning; and various positions in the non-profit sector, including areas such as education and health care. The majors offered within the department include:

- Accounting
- Accounting with CPA concentration
- Accounting with Corporate and Not-for-Profit Concentration
- Finance
- Double Major in Accounting & Finance (150 credit hours)
- Double Major in Accounting & Business Analysis (150 credit hours)
- M.S. in Accounting (included in the graduate handbook)

The mission of the Winklevoss School of Business at Grove City College is to equip students to pursue their unique calling to business, preparing them to be effective and ethical

leaders in business and society as a whole. This mission incorporates the following learning outcomes:

1. General Business Knowledge and Analytical Skills: Students will demonstrate appropriate level of knowledge, analytical skills, and information literacy necessary in business.
2. Communication Skills: Students will demonstrate the written and verbal skills needed to communicate effectively within the business environment.
3. Ethics: Students will demonstrate a Christian understanding of business, which reflects their moral and ethical responsibilities to all potential stakeholders.
4. Global Perspective: Students will demonstrate an understanding of the global and multicultural issues in the current business environment.
5. Accounting Knowledge and Skills: Our students will demonstrate the ability to prepare and analyze financial information used in managerial decision-making and external reporting, including non-profit organizations. Our students will understand accounting systems and their related internal controls and will be able to audit financial statements that are generated from these accounting systems. Our students will be able to apply federal tax law in the preparation of individual tax returns.
6. Finance Knowledge and Skills: Our students will demonstrate knowledge and skills that meet or exceed requirements to compete for entry-level positions in corporate finance and the financial services industry. This includes knowledge of finance principles, investments, and advanced topics in corporate finance.
7. Financial Planning Knowledge and Skills: Our students will demonstrate knowledge and skills that meet or exceed requirements to compete for entry-level positions in the financial planning sector. This includes the ability to apply comprehensive financial planning principles to develop client-centered strategies across the CFP Board's Principal Knowledge Topics, including the ability to integrate and apply these concepts to practical financial planning problems.

Course Requirements for a Bachelor of Science Degree in Accounting— 69 hours

Accounting Core (24 hours):
Accounting 201, 202, 301, 302, 303, 310, 321, and 402.

Business Core (33 hours):
Economics 101 and 102; Finance 202; International Business 205; Management 103, 110, 214, 303, 486; Marketing 104; and Statistics 131.

Students will also complete one of the following concentrations:

Accounting Electives (12 hours):
Choose either Accounting 403 or 407, plus nine additional hours from any 200-, 300-, 400-, or 500-level courses in Accounting, Entrepreneurship, Finance, International Business, Management, or Marketing. A minimum of three hours must be from Accounting, excluding Accounting 460 and 480. A maximum of three hours of internship credit can count in this area; or choose to complete one of the following concentrations:

CPA concentration (12 hours)
Students majoring in accounting and who choose to pursue their CPA licensure after graduation can earn a CPA concentration by completing twelve hours in Accounting 403 and 407; plus one of these course pairings, Accounting 510 and 515, Accounting

520 and 525, or Accounting 545 and 550. (Please see additional information later in this section under "CPA Licensing Requirements".)

Corporate & Not-for-Profit concentration (12 hours)
Students majoring in accounting who choose to pursue a career in corporate accounting or working for a not-for-profit can earn a Corporate & Not-for-Profit concentration by completing twelve hours in Accounting 403 or 407, 550, and 553; plus one of Communications 303, Management 457, 458, or 475.

Courses that count in the Accounting major quality point average (MQPA):
All courses with "ACCT", "ENTR", "FNCE", "INBS", "MARK", "MNGT" (excluding MNGT 106) prefix, STAT 131, and 300- or 400-level "ECON" courses. A minimum MQPA of 2.00 is required to graduate.

It is recommended that students planning to enter the field of public accounting take additional accounting courses to satisfy some of their major electives.

Course Requirements for a Bachelor of Science Degree in Finance—69 hours

Business Core Courses (39 hours):
Accounting 201, 202; Economics 101, 102; Finance 202; International Business 205; Management 103, 110, 214, 303, 486; Marketing 104; and Statistics 131.

Finance Major Core Courses (15 hours):
Accounting 310; Finance 302, 332, 336, and 437.

Finance Major Elective Courses (15 hours):
Pick one course from Accounting 301, 302 or 502; and choose twelve additional hours, with a minimum of three Finance hours, from the following: Economics 401 or 456, Entrepreneurship 430, Management 433, or any 300-, 400-, or 500-level Finance courses. A maximum of three hours of independent study and a maximum of three hours of internship may count as finance electives; any remaining internship credits will count as general electives.

Courses that count in the Finance major quality point average (MQPA):
All courses with "ACCT", "ENTR", "FNCE", "INBS", "MARK", and "MNGT" (excluding MNGT 106) prefix, STAT 131, and 300- or 400-level "ECON" courses. A minimum MQPA of 2.00 is required to graduate.

Writing, Speaking and Information Literacy Intensive Courses
It is essential for students majoring in the Department of Accounting and Finance to possess strong writing, speaking, and information literacy (knowing how to locate, analyze, and use information in decision-making) skills in preparation for careers in accounting and finance and/or graduate studies. The curriculum requirements specifically designed to develop these skills include Management 214 *Business, Ethics, and Society* and Management 486 *Business Policy and Strategy.* Please see course descriptions that follow for more information.

CPA Licensing Requirements: 150-Credit Hour, 4-Year Double Majors:
The Department of Accounting and Finance prepares students to take the CPA exam and become a licensed CPA after graduation. We work with students to customize a course plan specific to them and guide them in their approach to studying and sitting for the exam. Select states still require 150 credit hours to be a licensed CPA. The department currently

offers two specific undergraduate programs and graduate program options (see graduate handbook) to assist students with obtaining at least 150 credit hours. One of the undergraduate degrees leads to a 150-credit hour double major in Accounting and Finance with a CPA concentration and the second leads to a 150-credit hour double major in Accounting and Business Analysis with a CPA concentration. Both programs satisfy the CPA licensing requirements of the Commonwealth of Pennsylvania as well as most other states, and are designed for students to enroll in summer, travel, and/or winter term coursework, to be completed in four years. Students entering Grove City College as freshmen with Advanced Placement (AP) credits or other college credits will find this program particularly of interest.

The traditional 128-credit hour Accounting major with a CPA concentration is available as a degree option and it is the foundation of the 150-hour double majors. In addition to completing the requirements for the Accounting major with a CPA concentration, students choosing a double major option also need to satisfy the following requirements:

- Accounting-Finance Dual Major with CPA concentration
  - Finance 302, 332, 336, and 437 (12 hours); plus twelve additional hours towards finance major elective courses, selecting from ECON 401, ECON 456, ENTR 430, MNGT 433, or any 300-, 400-, or 500-level FNCE courses, which must include a minimum of three finance hours towards these finance electives. A maximum of three hours of independent study and a maximum of three hours of internship may count as FNCE electives.
- Accounting-Business Analysis Dual Major with CPA concentration
  - Computer Science 141; Management 204, 210, 307; Statistics 132; and six hours from Computer Science 111 and Management 220, or Computer Science 220 and 244 (21 hours).

Students interested in a dual major program will be on record with Accounting as their first major and either Finance or Business Analysis as their second major. Students may enter Grove City College declaring the double major or may add the second major after matriculation. Please contact the Accounting and Finance Department Chair for more information.

Students pursuing 150-hours have a variety of options to meet the CPA licensing requirements and are not limited to these double major programs. Contact the chair of the Accounting and Finance Department for assistance.

Course Requirements for a minor in Accounting (18 hours)
(Restricted to non-Accounting majors only)

A minor in Accounting will consist of Accounting 201, 202, 301, 321; one course from either Accounting 403 or 407; and one course from Accounting 302, 303, 310, or 402.

Course Requirements for a minor in Finance (18 hours)
(Restricted to non-Finance majors only)

A minor in Finance shall consist of Finance 202, 302, 332; three hours from Finance 336 or Economics 456; and six hours from Accounting 310, Economics 401, Entrepreneurship 430, Management 433, or any Finance 300- to 500-level course.

Course Requirements for a minor in Financial Planning (21 hours)

A minor in Financial Planning shall consist of Finance 250, 332, 350, 351, 352, 450, and Management 433.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Accounting (ACCT)

ACCT 201. PRINCIPLES OF ACCOUNTING I. This introductory course focuses on the preparation and use of accounting information in the financial reporting environment. Emphasis is placed on the understanding and application of steps involved in the accounting cycle as well as on the recognition, measurement, and reporting issues associated with various financial statement accounts for sole proprietorships using the accrual basis of accounting. The course also exposes the student to career opportunities in the accounting profession. *Three hours.*

ACCT 202. PRINCIPLES OF ACCOUNTING II. Course topics include accounting financial statement analysis and the statement of cash flows, as well as introductions to managerial accounting techniques including cost-volume-profit analysis, budgeting, product costing, standard costs, and decision-making analysis. Prerequisite: Accounting 201. *Three hours.*

ACCT 260. INDEPENDENT STUDY. Individual study of specialized topics in accounting. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ACCT 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in accounting. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ACCT 301. INTERMEDIATE ACCOUNTING I. A study of the financial statements with an emphasis on the income statement and asset section of the balance sheet. This course also focuses on accounting theory and the interpretation of financial accounting standards associated with the income statement and balance sheet. Prerequisite: Accounting 202. *Three hours.*

ACCT 302. INTERMEDIATE ACCOUNTING II. A continued study of the financial statements with an emphasis on the liabilities and stockholder's equity sections of the balance sheet. Includes topics such as accounting for investments, current and long-term debt, earnings per share (EPS), accounting for income taxes, leases, post-retirement benefits, accounting changes and the statement of cash flows. This course also focuses on accounting theory and the interpretation of current financial accounting standards. Prerequisite: Accounting 202. *Three hours.*

ACCT 303. COST ACCOUNTING. A study of cost flows in a manufacturing environment and the assignment of direct and indirect manufacturing costs to a company's cost of goods sold and inventory accounts by the application of job order, process, and standard costing systems. The course also focuses on the ways in which accounting information is used in operational decision-making. Prerequisite: Accounting 202. *Three hours.*

ACCT 310. DATA ANALYTICS FOR ACCOUNTING. This course will study data analytics and its applications in accounting contexts, with an emphasis on data preparation, modeling, analysis and interpretation, and visualization. Students will complete hands-on activities using data analysis software. Topics will include data analytics for accounting and identifying the questions, mastering the data, performing the testing plan and analyzing the

results, communicating the results and visualizations, the modern accounting environment, and financial statement analytics. Prerequisite: Accounting 202. *Three hours.*

ACCT 321. ACCOUNTING INFORMATION SYSTEMS. A study of the use of a variety of resources designed to transform financial and other data into financial information for decision-making. Consideration of these systems must deal with issues such as the flow of transactions and related procedures, summarizing the financial data into meaningful formats for both internal and external reporting and documentation for audit trail purposes. The course will emphasize the role of transaction processes and accounting information systems, data analytics and presentation, business processes, systems controls, and accounting software and internal controls. Prerequisite: Accounting 202. *Three hours*.

ACCT 360. INDEPENDENT STUDY. Individual study of specialized topics in accounting. Prerequisites: Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ACCT 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in accounting. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ACCT 390. STUDIES IN ACCOUNTING. Studies in areas of accounting not fully covered by regular departmental offerings. Prerequisite: Accounting 202. *Three hours.*

ACCT 401. ADVANCED ACCOUNTING I. A study of the financial accounting effects on business entities involved in mergers, consolidations, and divestitures with an emphasis on the proper recognition and recording of acquisition, the elimination of inter-company transactions, and the preparation of consolidated financial statements. Prerequisite: Accounting 202. *Three hours.*

ACCT 402. ADVANCED ACCOUNTING II. A study of the financial accounting principles used in the preparation of general-purpose financial statements for state and local governmental units, partnerships, private not-for-profit organizations, including colleges and universities, health care entities, and voluntary health and welfare organizations. Foreign exchange transactions and other special topics, such as SEC Reporting requirements, are also covered. Prerequisite: Accounting 202. *Three hours.*

ACCT 403. AUDITING. A study of the duties and responsibilities of professional auditing, including types of audits and audit programs, audit planning, evidence, risk assessment, preparation of audit working papers, and audit reports. Prerequisites: Accounting 302 and 321. *Three hours.*

ACCT 404. ADVANCED AUDITING. Additional auditing issues are explored, including substantive and analytical procedures based on audit programs, information technology auditing, data and analytics, as well as explore other types of assurance and attestation engagements, other audit professions, and discuss professional considerations for the practitioner, such as professional ethics and legal liability. Prerequisites: Accounting 403 and senior standing. *Three hours.*

ACCT 407. INDIVIDUAL AND CORPORATE TAX ACCOUNTING. A study of the provisions of the federal tax laws and the proper practices in preparing tax reports as it relates to individuals, partnerships, S corporations, and corporations. Prerequisite: Accounting 202. *Three hours*.

ACCT 410. CONTEMPORARY ACCOUNTING THEORY AND PRACTICE. A capstone course that stresses contemporary financial accounting issues and theory and that familiarizes the student with an interpretation of current accounting standards, in preparation for the CPA exam. Other non-financial topics are briefly covered. Prerequisites: Accounting 302 and senior standing. *Three hours.*

ACCT 460. INDEPENDENT STUDY. Individual study of specialized topics in accounting. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ACCT 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in accounting. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ACCT 480-481. INTERNSHIP IN ACCOUNTING. This is an opportunity for accounting majors to participate in a meaningful learning experience under the supervision of both an employer and department faculty member. Students will be graded based on an employer performance evaluation along with a written paper and journal. Prerequisites: Good academic standing and completion of the freshman year of study. *One to six hours.*

ACCT 502. FINANCIAL & MANAGERIAL ACCOUNTING. This course provides a foundation for organizational leaders to engage with accounting as the language of business in order to understand the financial consequences of business activities. This course will provide students with considerable financial statement, financial analysis, and financial management expertise to enhance their decision-making capabilities as a manager within an organization. Consisting of two complimentary components, financial accounting and managerial accounting, the course will provide perspectives for both external and internal decision making. This course will be taught from the perspective of the user of the accounting information, as opposed to the preparer of the information. Financial accounting topics include basic accounting concepts and principles, the structure of the financial statements and an overview of external financial reporting. Managerial accounting topics emphasize the development and use of accounting information for internal decision making, covering topics such as cost behavior and analysis, product and service costing and relevant costs for internal decision making. Prerequisites: Graduate standing or permission of instructor. *Three hours.*

ACCT 510. INDIVIDUAL TAX COMPLIANCE & PLANNING. This course will focus on the planning aspect of individual taxes. Students will develop tax planning skills by considering how various transactions can be structured to minimize current or future individual taxes. *Three hours.*

ACCT 515. ENTITY TAX COMPLIANCE & PLANNING. This course will focus on the planning aspect of entity taxes. Students will develop tax planning skills by considering how various transactions can be structured to minimize current or future entity taxes. *Three hours.*

ACCT 520. INFORMATION SYSTEMS & CONTROLS I. This course will give students the knowledge and tools necessary to implement and maintain effective information technology control frameworks, identify control activities and evaluation application controls while assessing risks and processes. *Three hours.*

ACCT 525. INFORMATION SYSTEMS & CONTROLS II. This course will give students the knowledge and tools necessary to implement and maintain effective information technology control frameworks, identify control activities and evaluation application controls while assessing risks and processes. *Three hours.*

ACCT 545. ADVANCED DATA ANALYTICS. This course will give students the knowledge and tools necessary to apply advanced analytical skills and analysis on both financial and non-financial data. Students will diagnose issues, analyze relevant information, apply ethical decision-making techniques, report the results and provide a recommendation. *Three hours.*

ACCT 550. BUSINESS CONSOLIDATIONS & REPORTS. A study of the financial accounting effects on business entities involved in mergers, consolidations, and divestitures with an emphasis on the proper recognition and recording of acquisition, the elimination of inter-company transactions, and the preparation of consolidated financial statements. The study also includes an in-depth look at state and local government financial statements. *Three hours.*

ACCT 553. COST MANAGEMENT. This course provides a foundation for leaders to engage in critical business decisions associated with cost management practices, strategically applying them across various functions of a business organization to improve organizational performance. Students will identify major contemporary issues in managerial accounting, with an emphasis on decision-making and applications. Issues presented may be the design and implementation of strategic, marketing, value analysis and other management models. Prerequisites: Graduate standing and ACCT 502 or permission of instructor. *Three hours.*

Finance (FNCE)

FNCE 202. PRINCIPLES OF FINANCE. This course is an introduction to the theory and application of corporate finance, geared toward both finance and non-finance majors, and is the foundation of all subsequent courses in finance. The purpose of this course is to provide an overview of corporate finance, the valuation of future cash flows, and a foundation of how to utilize financial statements in a finance setting. This course is the key building block for upper-level finance courses; as such, Finance Majors should complete the course by the end of the fall semester sophomore year. Prerequisites: Accounting 201. *Three hours.*

FNCE 250. PRINCIPLES OF FINANCIAL PLANNING. This course is designed as an introductory course, exposing students to the personal financial planning profession. Students will gain an understanding of how to conduct themselves within professional and regulatory boundaries, learn the ethical environment of financial planning, and gain an understanding of the fiduciary responsibility as a financial planner. Students will explore the psychology of financial planning, gaining insight into client behavior and motivation, biases, and explore effective communication. Students will develop a practical perspective on the field of financial planning as they learn to analyze personal financial statements, understand time value of money concepts, advise clients regarding the management of debt, gain an understanding of federal and state regulatory requirements, and explore education planning. *Three hours.*

FNCE 302. INTERMEDIATE FINANCE. The purpose of this course is to provide additional context for students regarding corporate finance and continue to build on the foundation obtained in principles of finance. This course provides coverage of risk and return, cost of capital, long-term financial policy, and short-term financial planning and management. This course is a key building block for upper-level finance courses; as such, Finance majors should complete the course by the end of the spring semester sophomore year. Prerequisite: Finance 202. *Three hours.*

FNCE 332. INVESTMENTS. This course examines a variety of topics commonly associated with investment in publicly traded securities and mutual funds. It examines ways in which financial market data is utilized as inputs into models for asset pricing and portfolio management. It also explores topics such as index construction, portfolio performance assessment, and risk management techniques using derivatives. Prerequisite: Finance 202 or 250. *Three hours.*

FNCE 334. INVESTMENT VALUATION. This course covers techniques used to assess the investment merit of publicly traded debt and equity instruments. The course focuses on various applications of fundamental and technical analysis. Students will use these techniques to construct research reports and investment recommendations. They will also provide a presentation based upon the results of their analysis. Prerequisites: Finance 202 and 332. *Three hours.*

FNCE 336. FINANCIAL MARKETS. This course will study global financial markets, discussing common techniques employed in the market as an advisor. This course will provide students with the opportunity to explore how markets work, including market efficiencies, discuss ways to trade and invest, including the exploration of what works in financial markets and what does not. The course includes a term project in which students develop a philosophy as to how markets work and then identify and implement an investment strategy that is consistent with their beliefs. Prerequisite: Finance 332. *Three hours.*

FNCE 337. APPLIED PORTFOLIO MANAGEMENT AND DESIGN. This course provides students with a hands-on approach to the analysis and management of an investment portfolio. Students will utilize methods advocated by the CFA Institute. Students will evaluate the performance of the portfolio and propose recommendations of investments for the portfolio while collaborating, researching, and analyzing. Prerequisite: Finance 202. *One hour.*

FNCE 338. PORTFOLIO MANAGEMENT AND DESIGN. This course provides students with an in-depth look at the management of an investment portfolio. Students will explore techniques for investment portfolio construction, management, and performance evaluation. Students will utilize methods advocated by the CFA Institute. Students will work in small groups to create and implement portfolios and demonstrate various techniques to manage them as demonstrated in lectures and other demonstrations. Prerequisite: Finance 332. *Three hours.*

FNCE 341. FINANCIAL MODELING. This course equips students with knowledge of fundamental financial models and ability to apply them using Excel. Such models cover time value of money and stock valuation, portfolio management, option pricing, and bond pricing. After this course, students are expected to use these models using Excel to solve financial problems in these areas. Prerequisites: Finance 202 and 332. *Three hours.*

FNCE 350. TAX PLANNING. This course is designed as an introduction to various aspects of income tax planning. Students will explore how to establish client investment strategies while considering the implications of taxation. Students will gain an understanding of how tax laws affect the investment environment and client investment decisions. Students will develop fundamental income tax planning and management concepts that are essential for effective comprehensive financial planning, maintaining consistency with the client's resources, needs, and goals. *Three hours.*

FNCE 351. RETIREMENT SAVINGS AND INCOME PLANNING. This course provides a comprehensive introduction to the basics of retirement planning. Students will explore retirement plan design, selection, and administration for employers. Students will gain an understanding of the many types of retirement planning arrangements that Congress has approved. Students will gain an understanding of how to plan for eldercare, types of retirement plans, factors affecting plan selection for businesses, distribution rules and strategies, and business succession planning. *Three hours.*

FNCE 352. ESTATE PLANNING. This course is designed as an introduction to the process of transferring assets and managing end-of-life decisions for clients and the role estate planning takes in the financial planning process. Students will gain an understanding of estate planning and the actions clients can take to ensure assets pass as they intend for them to pass, as well as plans for healthcare as the client ages. Students will learn the various strategies that can be employed so that a client's wishes are carried out. *Three hours.*

FNCE 435. FINANCIAL PLANNING. This course provides a comprehensive exploration of financial planning topics (in conjunction with the recommendation of the Academy of Financial Services and the CFP Board of Standards) including the financial planning process, client interactions, time value of money applications, personal financial statements, cash flow and debt management, asset acquisition, education planning, risk management, investment planning, retirement planning, special circumstances, plan integration, ethics, and the business of financial planning. Prerequisites: Finance 202 and junior standing. *Three hours.*

FNCE 437. FINANCE CAPSTONE. This course is a capstone course for those pursuing a finance major. The course emphasizes application of acquired knowledge through case study analysis. The course will cover a variety of case studies applicable to corporate finance and investments. In addition to case study analysis, each student will identify a topic of specific interest, write a research paper on the identified topic, and then present on the topic. Prerequisites: Finance 302 and 332, and Senior Standing or approval of instructor or department chair. *Three hours.*

FNCE 442. ADVANCED TOPICS IN FINANCE. The purpose of this course is to build upon the foundation gained in both principles of finance and intermediate finance, providing context for a variety of finance careers. This course provides coverage of advanced finance topics, as well as incorporates current finance events, topics, and case studies. Prerequisite: Finance 302. *Three hours.*

FNCE 450. FINANCIAL PLAN DEVELOPMENT CAPSTONE. This course is designed as the capstone course for financial planning. Through this course, students will integrate and apply the six major areas of personal financial planning through the utilization of case studies and ultimately the completion of a comprehensive financial plan. The case-study format will allow students to take a more active role in the learning process. This course will enable students to use this course as a model for application as a personal

financial planning professional. Prerequisites: Finance 250, 332, 350, 351, 352, and Management 433 or department chair approval. *Three hours.*

FNCE 462. INTERNATIONAL FINANCE. Knowledge of international finance is essential as markets become increasingly globalized. This course focuses on financial issues faced by both multinational corporate financial managers and individual investors with a global perspective. Among these issues covered are foreign currency exchange, cultural and regulatory differences between countries, international balance of payments, and international financial markets. Prerequisites: Finance 202, International Business 205 (Global Business Issues), and one of the following: Finance 332, 334, or 442. *Three hours.*

FNCE 480-481. INTERNSHIP IN FINANCE. This is an opportunity for finance majors to participate in a meaningful learning experience under the supervision of both an employer and department faculty member. Most internships take place during the summer months. Students will be graded based on an employer performance evaluation along with a written paper and journal. Prerequisites: Good academic standing and completion of the freshman year of study. *One to six hours.*

Applied Science and Engineering

Dr. M. Clauss, Director; Dr. Kohler.

Applied Science and Engineering is an inter-disciplinary program that emphasizes the integration and application of engineering, scientific, and mathematical principles. It focuses on the general application of mathematical and scientific principles to the analysis and evaluation of engineering problems, including applied research in biomechanics, statistics, and technology management.

Course Requirements for Bachelor of Science Degree in Applied Science and Engineering—87-88 hours

Engineering Science Core Requirements (54 hours)
Biology 101; Chemistry 105; Engineering 120, 156, 216, 304, 401, 402, 451, 452; Mathematics 161, 162; Mechanical Engineering 107, 109, 201, 211; Physics 101, 102; Statistics 131.

Biotechnology Concentration (33 hours)
Biology 233, 234; Engineering 274, 340, 413, 414; Exercise Science 253, 258, 309; Mechanical Engineering 251, 252.
*other plans of study must be approved by the Interdisciplinary Study Review Committee

Technology Management Concentration: (34 hours)
Management Core (16 hours): Accounting 201, Management 103, 204, 214; Entrepreneurship 303, 304.

Electives (18 hours): Accounting 202; Communication Arts 104; Entrepreneurship 302, 312, 467; Finance 202; Management 210, 302, 307, 311, 424, 561; Marketing 104; Statistics 132.
*other plans of study must be approved by the Interdisciplinary Study Review Committee

Courses that count in the Applied Science and Engineering major quality point average (MQPA):

All courses with "ENGR"; "BIOL"; "CHEM"; "PHYS"; "ELEE"; "MECE"; "MATH" prefix. A minimum MQPA of 2.00 is required to graduate.

Engineering Core Courses (ENGR)

ENGR 120. NUMERICAL COMPUTING FOR ENGINEERS. This course introduces students to applied numerical computation, with an emphasis on solving typical engineering problems. Sequential logic programming is taught using MATLAB. Topics include array and scalar operators, program control elements, graphic and text I/O, internal and user-defined functions. Students are introduced to numerical methods such as root finding, solutions to systems of linear equations, linear regression, and numerical integration and differentiation. Basic understanding of high school physics is highly recommended. Corequisite: Mathematics 161. *Three hours*.

ENGR 156. INTRODUCTION TO ENGINEERING. Introduces students to the engineering profession and the design process. Course lectures and assignments include the design process; problem definition and solution; oral and written communications; group dynamics; public responsibility; current global engineering challenges; and engineering ethics. A group design project is required. *Two hours.*

ENGR 209. SOLIDWORKS: MODELING AND SIMULATION. An introduction to Solidworks Design and Engineering Software. The primary objective is to adequately utilize Solidworks for parametric modeling. Instruction will include parametric modeling and simulation to validate student designs. Additional modules will be included as an overview; specifically Electrical Design and Visualization/Animation. Projects will utilize both Additive and Subtractive Manufacturing methods to test modelling accuracy.
Spring semester, two hours.

ENGR 216. MECHATRONICS I. A survey for non-electrical engineering majors covering the basic principles of circuit analysis, electronics, instrumentation, and electromechanical energy conversion, with computer applications. Prerequisites: Mathematics 162, Physics 102, and Engineering 120 or Computer Science 141. *Three hours.*

ENGR 274. MATHEMATICAL METHODS IN ENGINEERING. A course for engineering and science majors covering selected topics in probability and statistics, linear algebra, discrete mathematics, and numerical methods as applied to the solution of problems in engineering and science. Students who receive credit for Mathematics 213, 222, and Statistics 331 may not receive credit for Engineering 274. Prerequisite: Mathematics 162.
Three hours.

ENGR 290. SPECIAL ENGINEERING TOPICS. Special topics in the areas of new engineering development based on student demand and faculty interest. Specific subject matter varies each semester with prerequisites and credit hours announced in advance of registration. *One, two, three or four hours.*

ENGR 301. ETHICS IN ENGINEERING. This course investigates ethical decision-making from a Christian perspective as it applies to engineering and robotics. It includes an overview of approaches to ethical decision-making, as well as particular issues raised by the robotics field, such as robots making military decisions, privacy issues with in-home robots, issues with emotional bonds, etc. Prerequisite: Engineering 156. *One hour.*

ENGR 304. DESIGN OF EXPERIMENTS. Design of experiments for engineering design optimization and analysis. An introduction to the statistically designed experimental techniques commonly used by engineers for design and process optimization, including ANOVA, factorial, CCD, Taguchi, and I-optimal designs. Prerequisite: Junior status or permission of instructor. *One hour.*

ENGR 305. INTRODUCTION TO LABVIEW. Introduction to LabVIEW. Presents the fundamentals of the LabVIEW graphical programming environment. This visual programming language is from National Instruments and is commonly used for data acquisition, instrument control, and industrial automation. Students will gain a basic understanding of LabVIEW programming practices and will develop LabVIEW applications for data acquisition, data analysis, and real-time control. *One hour.*

ENGR 317. MECHATRONICS II. An introduction to the field of mechatronics for Mechanical, Electrical, and Computer Engineering majors. Topics include sensors and instrumentation, power electronics and motor drives, actuators and motion systems, and digital control using sensor feedback. Prerequisites: Engineering 216 or Electrical Engineering 201. *Spring semester, three hours.*

ENGR 340. FUNDAMENTALS OF BIOMEDICAL ENGINEERING. This survey course will provide students with a broad overview of the interdisciplinary field of biomedical engineering. Students will learn to apply principles of mechanics of materials, fluid mechanics, circuits, optics, and chemistry to solve problems associated with the medical field. The course is organized into 4 modules that each explore a major area of biomedical engineering including, but not limited to: rehabilitation devices, instrumentation and sensors, medical imaging, and pharmaceutical engineering. Module topics may vary from year to year. Students will explore cutting-edge innovation in weekly journal clubs and learn about a specific Biomedical Engineering topic in a semester-long research project. Prerequisites: Mathematics 162, Physics 102 or 122, and Chemistry 105 or 111.
Spring semester, three hours.

ENGR 390. SPECIAL ENGINEERING TOPICS. Special topics in the areas of new engineering development based on student demand and faculty interest. Specific subject matter varies each semester with prerequisites and credit hours announced in advance of registration. *One, two, three or four hours.*

ENGR 401. ENGINEERING DESIGN. A study of the principles and methods of designing engineering systems in today's society including the design process; decision making in design; data analysis and verification of performance; ethical and environmental impact. The early stages of the design process are emphasized, including identifying needs, requirements specification, planning, and evaluating design alternatives. Prerequisite: Senior standing in Engineering or applied science and engineering. *Fall semester, one hour.*

ENGR 402. ENGINEERING SENIOR SEMINAR. A study of engineering practice topics to include intellectual property, risk management, reliability, managing people, and project economics. Principles and methods for analyzing the economic feasibility of engineering projects including interest, depreciation, rate-of-return, economic life, replacement costs, and comparison of alternative designs. Prerequisites: Senior standing in Engineering or applied science and engineering. *Spring semester, one hour.*

ENGR 411. CONTROL SYSTEMS. A study of the design and analysis of feedback control systems using classical techniques. Topics include modeling of mechanical and

electrical dynamic systems, a review of Laplace transform techniques, steady-state error, transient response, stability, root locus design methods, Bode analysis/stability margins, and Bode compensator design. Includes MATLAB/Simulink simulations and hands-on projects. Prerequisite: Electrical Engineering 201 or Engineering 216; Mechanical Engineering 316 or Electrical Engineering 221; and Engineering 274, Mathematics 214, or Mathematics 222. *Fall semester, three hours.*

ENGR 412. MODERN CONTROL THEORY. Analysis and design of feedback control systems using modern control modeling and design techniques. Topics include state space modeling of mechanical and electrical systems, design of state-space controllers and observers, Kalman filtering, and an introduction to advanced topics such as robust control, optimal control (LGR/LQG), and others. Includes MATLAB/Simulink simulations and hands-on projects. Prerequisite: Engineering 411. *Spring semester, three hours.*

ENGR 413. BIO-FLUID MECHANICS. This course explores fluid mechanics in the context of the human physiological systems including blood flow and respiratory systems. Principal equations are derived from differential analysis of fluid flow, and models of characteristic flow conditions will be analyzed. Biofluid mechanics, vessel biomechanics, and hemodynamic analysis of the circulation system will be discussed. *Three hours.*

ENGR 414. BIOMEDICAL ENGINEERING DESIGN AND REGULATIONS. This course covers the many aspects of medical device development, from idea inception to its delivery to the marketplace. Students will learn about the US FDA regulatory system governing the use of medical devices in the United States, including regulatory pathways and device classifications. Students will analyze and discuss management of risk and the impact of ethics on technology development. Students will evaluate how the regulatory process is involved in device design and clinical studies. *Three hours.*

ENGR 451. CAPSTONE DESIGN LABORATORY I. An advanced lab course requiring the student to complete their senior design project. The capstone design project is initiated, defined and documented. Extensive technical writing and oral presentation skills are employed. For electrical/computer engineering majors, this will include performing experiments in control systems, digital communication systems, and initiation of work with the senior design team. For mechanical engineering majors this will include 3-D computer-aided design and manufacturing techniques and experiments related to their senior project. For applied science and engineering majors, this will include a bio-technology project or project management element. Written reports and oral presentations are required. This course is designated Writing Intensive (WI) and Speaking Intensive (SI). Prerequisites: Senior standing in Engineering or applied science and engineering. *Fall semester, three hours.*

ENGR 452. CAPSTONE DESIGN LABORATORY II. An advanced lab course requiring student teams to complete their group design project. Written reports and oral presentations are required. This course is designated Speaking Intensive (SI). Prerequisites: Senior standing in Engineering or applied science and engineering; Engineering 451. *Spring semester, three hours.*

ENGR 480. INTERNSHIP IN ENGINEERING. An opportunity for junior or senior engineering majors to participate in an extended work experience (six months or more) under the supervision of an on-site manager and a department faculty member. Products of the internship will include an evaluation by the on-site manager, a journal of the internship experience, and a paper describing the experience and relating it to academic theory. This

course may be repeated a maximum of three times. Prerequisite: Permission from the department chair. *One to six hours.*

ENGR 482. CROSS CULTURAL INTERNSHIP FOR ENGINEERS. The Cross-Cultural Internship for Engineers provides students with an opportunity to apply engineering knowledge and professional skills in a cultural context different from their own home culture. This course provides an opportunity for international students to gain credit for working at an internship in the United States, while domestic students gain credit for working outside of the United States. Students are expected to demonstrate effective communication, professional and ethical responsibility, teamwork, and adaptability in diverse cultural and organizational settings. Required components include an on-site manager evaluation, a reflective journal documenting technical tasks and cultural observations, and a final paper analyzing the experience in relation to academic theory, engineering practice, and global and cultural factors. Credit may be received a maximum of two times. A minimum of 320 work hours (8-week experience with 40-hour work weeks) is necessary. Permission of the department chair is required. *One hour.*

Biblical and Theological Studies

Dr. Ansberry, Chair; Dr. Bibza, Dr. Byun, Dr. Campbell, Dr. Cotherman, Dr. Hall, Dr. Hubbard, Dr. Kemeny, Dr. I. McCray, Dr. Moeller, Dr. Robbins, Dr. Shepson, Dr. Trueman. Additional Instructional Faculty: Prof. Snoke, Dr. Thrasher.

Course Requirements for Bachelor of Arts Degree in Biblical and Theological Studies—36-51 hours

Core Requirements (12 hours)
Bible 100, 120, 130, and 240.

Biblical and Theological Studies Concentration:
Choose one of the following five options:

- **Biblical Exegesis concentration (36 hours):**

  Concentration Requirements (27 hours):
  - Choose one of the following Biblical language course sequences (12 hours): Greek 101, 102, 201, and 202; or Hebrew 101, 102, 201, and 202.
  - Bible 210
  - Choose one course from Bible 230, 231, or 331.
  - Choose one course from Bible 235 or 335.
  - Choose one course from Bible 236 or 336.
  - Bible 488

  Concentration Electives (9 hours):
  - **Biblical Exegesis:** Choose one course from Bible 335 or 336 (the same biblical book may not be repeated).
  - **Doctrine:** Choose one course from Bible 220, 221, 320, 321, or 322.
    Departmental Elective: Choose any additional three-credit course with a BIBL prefix.

- **Biblical Studies concentration (24 hours):**

  Concentration Requirements (12 hours):
  - Choose one course from Bible 210, 211, or History 349.
  - Choose one course from Bible 235 or 335.
  - Choose one course from Bible 236 or 336.
  - Bible 488

  Concentration Electives (12 hours):
  - **Biblical Studies:** Choose one course from Bible 230, 231, 331, 333, or 337.
  - **Doctrine:** Choose one course from Bible 220, 221, 320, 321, or 322.
  - **Ministry:** Choose one course from Bible 140, 241, 242, or 243.
  - **Global Christianity:** Choose one course from Bible 250, 251, or 350.

- **Christian Ministry concentration (27 hours):**

  Concentration Requirements (18 hours):
  - Choose one course from Bible 140 or 141.
  - Bible 241, 243, 245, and 480 (3 hours).
  - Choose one course from Bible 343 or 486.

  Concentration Electives (9 hours):
  - **Ministry:** Choose two courses from Bible 246, 247, 340, 342, or 345.
  - **Departmental Elective:** Choose any additional three-credit course with a BIBL prefix.

- **Global Christianity concentration (27 hours):**

  Concentration Requirements (15 hours):
  - Bible 211, 250, 251, 350, and 488.

  Concentration Electives (12 hours):
  - **Biblical Studies:** Choose one course from Bible 230, 231, 235, 236, 331, 333, 335, 336, or 337.
  - **Doctrine:** Choose one course from Bible 220, 221, 320, 321, or 322.
  - **Ministry:** Choose one course from Bible 241, 242, 243, or 245.
  - **Interdisciplinary:** Choose one course from Communication 225, Psychology 200, Sociology 103 or 308, or Spanish 318.

- **Pastoral and Theological Studies concentration (39 hours):**

  Concentration Requirements (27 hours):
  - Choose one of the following Biblical language course sequences (12 hours): Greek 101, 102, 201, and 202; or Hebrew 101, 102, 201, and 202.
  - Choose one course from Bible 210, 211, or History 349.
  - Choose one course from Bible 235 or 335.
  - Choose one course from Bible 236 or 336.
  - Bible 245 and 488.

  Concentration Electives (12 hours):
  - **Biblical Studies:** Choose one course from Bible 230, 231, 331, 333, or 337.
  - **Doctrine:** Choose one course from Bible 220, 221, 320, 321, or 322.
  - **Ministry:** Choose one course from Bible 241, 342, 343, or 345.
  - **Global Christianity:** Choose one course from Bible 250, 251, 350, or Spanish 318.

Courses that count in the Biblical and Theological Studies major quality point average (MQPA):

All courses with "BIBL", "GREK", and "HEBR" prefix. A minimum MQPA of 2.00 is required to graduate.

*Students pursuing the BA/MA program should consult the graduate handbook for further degree requirements.

The Department intends that Biblical and Theological Studies majors develop information literacy as well as speaking and writing skills to be best prepared for graduate school and/or a vocation. To this end, Bible 130 Interpreting the Bible, Bible 335 Exegesis of Old Testament Books, Bible 336 Exegesis of New Testament Books, and Bible 488 Senior Seminar are designated as Writing Intensive (WI) courses; Bible 488 Senior Seminar, Bible 240 Spiritual Formation; Bible 241 Discipleship & Evangelism; Bible 245 Communicating the Gospel, and Bible 345 Homiletics are designated Speaking Intensive (SI) courses; and Bible 130 Interpreting the Bible and Bible 488 Senior Seminar are designated Information Literacy (IL) courses.

Biblical Languages:

The Department offers courses in New Testament Greek (GREK) and Biblical Hebrew (HEBR). These courses fulfill the college's foreign language requirement and are available to non-majors. Students who have had prior exposure to either Greek or Hebrew may take an in-person placement exam to determine if a student should be placed in a more advanced course. This includes incoming freshmen, transfer students, and current students. To take a placement exam, please contact the Chair of the department. NB. Language study is progressive and sequential. For example, 101 must be followed by 102, 102 by 201, and 201 by 202. See the General Education section for details.

Course Requirements for a minor in Biblical and Theological Studies (18 hours)
(Restricted to non-Biblical and Theological Studies majors only)

A minor in Biblical and Theological Studies will consist of any eighteen hours of Bible, Greek and/or Hebrew courses.

Course Requirements for a minor in Christian Ministry (21 hours)
(Restricted to non-Christian Ministry concentration students only)

A minor in Christian Ministry will consist of Bible 120, 140, 240, 480 (3 hours); and nine additional hours from the following: Bible 235, 236, 241, 242, 243, 245, 250, 251, 335, 336, 340, 342, 343, or 345.

Taken in conjunction with any major**,** the Christian Ministry minor aims to help students prepare for vocational opportunities oriented toward "people-service." The Christian Ministry plan can accompany any college major and requires a specialized group of Christian Ministries courses in addition to those courses required for the major which the student chooses.

Course Requirements for a minor in Worship Arts (19 hours)

A minor in Worship Arts will consist of Bible 240, 247, and either 140 or 340 (9 hours); Music 103 and 105, one course from Music 151-156 or 163-192, and one course from Music 161-162 (7 hours); and three additional hours from Bible 248, 347, Music 101, 219, or 221.

Course Requirements for a minor in Youth Ministry (21 hours)
(Restricted to non-Christian Ministry concentration students only)

A minor in Youth Ministry will consist of Bible 120, 141, 240, 245, 480 (3 hours); and six additional hours from the following: Bible 140, 235, 236, 241, 242, 243, 250, 251, 335, 336, 340, 342, 343, or 345.

Pre-Theological Concentration

Pre-theological students should plan their program with the help of the Chair of the Department of Biblical and Theological Studies.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Bible (BIBL)

BIBL 100. SCRIPTURE, TEXT, AND CANON. This course explores the historical and theological dimensions of canon formation, the contributions of textual criticism to biblical interpretation, as well as different conceptions of the inspiration of Scripture to provide students with a solid foundation for understanding Scripture historically and theologically. *Three hours.*

BIBL 120. CHRISTIAN DOCTRINE. An introduction to the methods of systematic theology in terms of narrative, covenant and creed, and an examination of the central doctrines of historic Christianity, including Revelation and Scripture, the being and attributes of God, Humanity, the Person and Work of Christ, the Person and Work of the Holy Spirit, the Christian Life, the Church and the Sacraments, and the Last Things. *Three hours.*

BIBL 130. INTERPRETING THE BIBLE. An introduction to the skills necessary for understanding a Biblical passage's meaning in each Bible genre. Skills addressed will range from establishing the text, comparing translations and observing the text, to rules for proper interpretation, to applying the text to Christians today accurately. Advanced skills will also be taught, including mastering a Bible book, legitimately finding Christ in (even Old Testament) Biblical texts, typology, and dealing with difficult texts. This course is designated Writing Intensive (WI) and Information Literacy (IL). *Three hours.*

BIBL 140. INTRODUCTION TO CHRISTIAN MINISTRIES. This course will introduce the student to the principles of Christian Ministry in contemporary society. Particular attention will be placed on biblical foundations of Christian education, Youth Ministry, para-church ministries, the local church, history of Christian education, and the educator as the agent of change. *Alternate years, three hours.*

BIBL 141. INTRODUCTION TO YOUTH MINISTRY. This course will offer a broad overview of the field of youth ministry. This will include vocational questions, a brief study of ecclesiology, a survey of adolescent developmental issues, a consideration of ministry philosophies and programming approaches, and some important practical questions related to pastoral ethics and spiritual health. *Alternate years, three hours.*

BIBL 210. HISTORY OF CHRISTIANITY I. This course examines the history of the church from the close of the apostolic age to the end of the seventeenth century, covering figures, movements, and events that span from the ancient church to the early modern age. Particular attention will be paid to the development of the church, theological creeds and confessions, and her relationship to wider cultural and political developments. A central part

of the course will also examine the personalities and debates of the Reformation as providing the background for understanding the church in the modern world.
Alternate years, three hours.

BIBL 211. HISTORY OF CHRISTIANITY II. This course examines the history of the church from the immediate post-apostolic era to the end of the 'long reformation' of the sixteenth and seventeenth centuries. Particular attention will be paid to the doctrinal disputes that shaped the church's thinking and to the relationship between the church and wider society. Themes will include worship, persecution, Christendom, church-state relations, monasticism, medieval scholasticism, the papacy, the Reformation, and Puritanism.
Alternate years, three hours.

BIBL 215. CONTEMPORARY AMERICAN RELIGION. This course seeks to examine and explore the prominent place of religion in this religiously pluralistic nation by describing and analyzing current American religious developments in historical, sociological, and theological perspective. Institutional and non-institutional developments within and outside the Judeo-Christian tradition will also be examined.
Offered periodically, three hours.

BIBL 220. CREEDS, CONFESSIONS, AND FAITH. This course will study the creeds, confessions, and catechisms of the Christian faith in historical and doctrinal context. It will move from the earliest attempts to formulate the Christian faith in the second century rule of faith through the work of the Seven Ecumenical Councils to the Reformation (Lutheran, Reformed, Anglican) and then to the contributions of the Synod of Dordt and the Westminster Assembly. It will also examine how creeds, confession, and catechisms have functioned within the church, how they are used today, and how they can enrich contemporary Christianity. *Offered periodically, three hours.*

BIBL 221. GREAT DOCTRINES OF THE CHRISTIAN FAITH. This course examines deeply a single key doctrine of Christian faith in biblical, theological, and historical perspective. It sets the doctrine in its dogmatic location and then expounds the doctrine in through an investigation of key scriptural passages and the significant theological texts drawn from major church traditions – Protestant, Catholic, and Eastern – up to and including how to evaluate and respond to contemporary critiques of confessional positions. In doing so the class frames the pastoral import of the doctrine for contemporary Christian life and the church's worship and witness. *Alternate years, three hours.*

BIBL 230. ISSUES IN OLD TESTAMENT STUDIES. This course seeks to examine the historical, geographical, cultural, social, and religious context of the Old Testament World, and to survey and analyze the history of Old Testament interpretation, including modern critical approaches. *Offered periodically, three hours.*

BIBL 231. THE LIFE OF CHRIST. This course aims to give the student a good understanding of the person, work, and teachings of Christ as presented in the Gospels. It also seeks to introduce the student to some of the important literature on the subject.
Three hours.

BIBL 235. OLD TESTAMENT BIBLICAL BOOKS. This course will examine the genre, themes, theology, and practical application of one Old Testament book. The Old Testament book studied will differ each semester. *Three hours.*

BIBL 236. NEW TESTAMENT BIBLICAL BOOKS. This course will examine the genre, themes, theology, and practical application of one New Testament book. The New Testament book studied will differ each semester. *Three hours.*

BIBL 240. SPIRITIUAL FORMATION. This course serves as a core course for the Biblical and Theological Studies major. It is designed to be a reflective, interactive, and deeply shaping course in our lives as we pursue an understanding of holistic spiritual formation. The purpose of this course is to equip students in both the theory and practice of spiritual growth and development. This course focuses on our personal relationship with God. We will seek to develop an understanding of the necessary aspect of personal spirituality for ourselves through evaluation of Scripture and through self-reflection and discipline. Particular attention will be given to the psychology of faith and religion and to the influences of home and family on the development of faith. This course is designated Speaking Intensive (SI). *Three hours.*

BIBL 241. DISCIPLESHIP AND EVANGELISM. The course will address the theology, ministry, and implementation of biblical evangelism and discipleship. There will be various exposures to evangelism and discipleship methodology which will require the integration of various projects, guest lecturers, small-group assignments, and possible field trips. Emphasis will be placed on strategies for contemporary culture, youth culture, and other ministry contexts such as urban ministry and the mission field. This course is designated Speaking Intensive (SI). *Three hours.*

BIBL 242. DEFENDING THE FAITH. This course will investigate evidential, presupposition, postmodern, and other approaches to apologetics. The emphasis will be on the epistemological stance one should take in apologetic encounters. A portion of this course will focus on responses to various objections and concerns that one is likely to face in apologetic encounters. *Three hours.*

BIBL 243. CHRIST AND CULTURE. This course will survey some of the broad contours of culture as well as how these cultural realities impact the way we "live and move and have our being…" (borrowed from Acts 17:28). Aside from exploring the cultural landscape, this course will focus on these essential questions: 1. What is the nature of our engagement as Christians with a culture that is not Christian? 2. How are we to exegete and respond to products and artifacts produced by the culture? 3. How do we communicate the gospel into the language and context of another culture not our own? *Three hours.*

BIBL 245. COMMUNICATING THE GOSPEL. This course is designed to train students in the concepts and skills necessary to effectively communicate from the scripture. This phase of the Christian Ministry curriculum will focus on general communication skills, sermon design, preaching technique, with special emphasis on teaching and preaching the Word of God. This course is designated Speaking Intensive (SI). *Three hours.*

BIBL 246. CAMP PROGRAMING AND OUTDOOR LEADERSHIP. In this experiential Christian Ministry course we will travel to various facilities within two hours of The College. This will allow us to think about camp programming and ministry theoretically and, at the same time, practically. Students will be oriented to every area of camp – programming, operations, administration, activity areas, and service. Parts of the course will include: a two-day camping experience, service in one or more area of ministry at a camp, leadership development as we host a retreat group of students, lectures, reading, writing, reflecting, and engagement with camp programing and leadership professionals. We will pursue an understanding of key values (philosophical, biblical, theological, and practical) related to experiential Christian education, develop ministry leadership skills, and

formulate viewpoints of ministry that are unique to a camp environment. Grove City College does not have a camp facility enabling students to learn in this manner, therefore traveling to various camps will present significant experiential and academic benefit to the course instruction. *Alternate years, three hours.*

BIBL 247. WORSHIP AND CONGREGATIONAL SONG. Worship and congregational song is designed to prepare students for ministry in the local church by encouraging greater participation in worship through congregational singing. Students will evaluate songs for worship theoretically, practically, and spiritually. They will survey the biblical and liturgical context for singing, investigate a diversity of resources, and develop their personal song catalogs for worshiping communities. Perspective from professional music ministry leaders will be provided by three guest lectures from artists from Getty Music. This class is required to complete the Worship Arts minor and is vital for the Christian Ministries department to prepare students for Kingdom-building service.
Alternate years, three hours.

BIBL 248. CHAPEL WORSHIP ENSEMBLE. The chapel worship ensemble is designed to prepare students for local church ministry by giving students experience leading songs for worship and developing professional skills as musicians in a ministry setting. Students must pass the Christian Formation Office chapel worship application and musical audition before registering for this ensemble. Students must complete two semesters of chapel worship ensemble to fulfill the worship arts minor requirement. May be taken up to two times. *One hour*.

BIBL 250. WORLD RELIGIONS. An introduction to the major living religions, to the leading problems of religious thought, and to the alternative approaches of world religions to ultimate questions concerning the meaning of human life. *Alternate years, three hours.*

BIBL 251. THEOLOGY OF MISSIONS. A survey of the greatest evangelistic and mission movements in history, the Biblical-theological basis for missions, and contemporary developments in mission strategy. *Alternate years, three hours.*

BIBL 260. INDEPENDENT STUDY. Individual study of specialized topics in biblical studies or theology. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

BIBL 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in biblical studies or theology. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

BIBL 290. STUDIES IN BIBLICAL AND THEOLOGICAL STUDIES. The subject matter for this course will vary each semester to allow for the introduction of new courses in the field of biblical or theological studies. The aim of such a course is in-depth study of some specific facet of biblical or theological studies with particular emphasis on the relationship of biblical studies or theology and contemporary life. *Three hours.*

BIBL 311. SHADOWS OF THE ANTICHRIST: ATHEISM AND THEISM IN THE 19TH CENTURY. This course will study the issue of Christian belief in the 19th century looking particularly at reactions to the Enlightenment such as that offered by Mary Shelley, the criticism of the Christian faith by Karl Marx and Friedrich Nietzsche, and the various defenses of the faith by Friedrich Schleiermacher, Soren Kierkegaard, Fyodor Dostoevski, Leo Tolstoy, John Henry Newman, and Herman Bavinck. The focus of the classes will be on expounding key texts in their historical contexts. *Offered periodically, three hours.*

BIBL 312. A SECULAR AGE. This course will study the issue of Christian belief in the 19th century looking particularly at reactions to the Enlightenment such as that offered by Mary Shelley, the criticism of the Christian faith by Karl Marx and Friedrich Nietzsche, and the various defenses of the faith by Friedrich Schleiermacher, Soren Kierkegaard, Fyodor Dostoevski, Leo Tolstoy, John Henry Newman, and Herman Bavinck. The focus of the classes will be on expounding key texts in their historical contexts.
Offered periodically, three hours.

BIBL 313. C.S. LEWIS: CHRISTIAN APOLOGIST. A study of one of contemporary Christianity's greatest apologists. The primary subject of study is Lewis' unique contributions to apologetics including his epistemology, view of myth, and defense of supernaturalism. Various examples of Lewis' writings are examined from selected essays and theological articles and the *Chronicles of Narnia*. *Offered periodically, three hours.*

BIBL 314. LUTHER AND CALVIN. This course focuses on the Reformation leaders whose work and ideas shaped Protestantism. Primary sources will be used.
Offered periodically, three hours.

BIBL 320. CONTEMPORARY THEOLOGY. A study of major themes in contemporary theology including such topics as religious language, views of God, meaning of man and redemption, and the problem of evil. These topics are discussed as they relate to contemporary cultures and worldviews. *Offered periodically, three hours.*

BIBL 321. CHRISTOLOGY. This course will look at the person and work of Christ from biblical, theological, and historical perspectives. It will place Christ within Trinitarian context and examine his role as prophet, priest, and king as developed in his birth, life, death, resurrection, ascension and return. Each topic will be explored using both the relevant biblical passages and classic texts from church history drawn variously from all the major orthodox traditions, Catholic, Eastern, and Protestant. *Three hours.*

BIBL 322. DOCTRINE OF GOD. This course examines how the church formulated the classical, creedal doctrine of God, and how this was subsequently developed. Particular attention will be paid to primary texts and to the manner in which theology proper (the doctrine of God) also had implications both for Christology and for the way in which the church read the Bible. It will also address the reasons why classical theism has been challenged in recent times, and will culminate in a discussion of the importance of the recovery of classical theism in the church today. Above all, the course's watchword will be the notion lex credendi est lex orandi – the rule of believing is the rule of praising – and will seek to connect doctrine with praise. *Three hours*.

BIBL 331. THE LIFE AND WORK OF PAUL. A study of the life and work of the apostle Paul, author of almost one-half of the New Testament. Attention is given to both the descriptive material in the book of Acts and the thematic material from the Pauline Epistles. Students are introduced to current issues in the study of Paul. *Three hours.*

BIBL 333. BIBLICAL THEOLOGY OF WORSHIP. This course will discuss the sacred places, people, offerings and festivals of the Old Testament and their relation to the New. The class traces the redemptive-historical development of forms of worship from the Garden of Eden to the exilic period and beyond into the New Testament. The focus of the course will be primarily exegetical, interacting with the Biblical materials rather than with historical-critical approaches. The goal of the course is to form a solid Biblical basis from which to address the issues of worship which face the contemporary church.
Offered periodically, three hours.

BIBL 335. EXEGESIS OF OLD TESTAMENT BOOKS. This course will equip students to exegete (i.e., understand and explain) Old Testament books with due attention to their genre, themes, theology, and practical application. This course is designated Writing Intensive (WI). Prerequisite: Bible 130; or Corequisite: Humanities 261 and 271.
Three hours.

BIBL 336. EXEGESIS OF NEW TESTAMENT BOOKS. This course will equip students to exegete (i.e., understand and explain) New Testament books with attention to the book's genre, themes, theology, and practical application. This course is designated Writing Intensive (WI). Prerequisite: Bible 130; or Corequisite: Humanities 261 and 271.
Three hours.

BIBL 337. BIBLICAL IDEAS. This course will draw together Biblical, systematic, and pastoral/practical theological styles and methods. In doing so, the class will expose students to some of the great concepts of the Bible such as the fear of the Lord, the call to care for the elderly, fasting, tithing and the Sabbath. Along with this, the class will equip students with basic Biblical studies skills needed for their own continuing theological reflection in the years to come. *Three hours.*

BIBL 340. WORSHIP AND PRAYER MINISTRY. This course examines corporate and private worship and prayer, following the Bible's story-line concerning subjects from Genesis to the book of Revelation. We will establish biblical and theological principles which inform the practice of worship and prayer in the modern church and personal piety.
Alternate years, three hours.

BIBL 342. BIBLICAL COUNSELING. This course equips the student with pastoral care and counseling methods and skills within a ministry context, including counseling various generations (children, youth, adults, and family). It covers an overview of psychological disorders, adolescent and family developmental and crisis issues, pre-, inter-, and post-marital counseling, family counseling, and methods of spiritual direction.
Alternate years, three hours.

BIBL 343. LEADERSHIP AND MINISTRY ADMINISTRATION. This course will focus on some of the nuts and bolts areas of every-day ministry in the parish and parachurch setting. It is a course about ministry behind the scenes. So often we think of ministry as what happens "in the front of the room." But authentic leadership has to extend to, and attend to, the "dirty work" that makes possible what happens "in the front of the room." This course explores that "dirty work," and attempts to prepare students for precisely those behind-the-scene tasks that help define the role of a servant-leader. Topics will include leadership, decision-making, staff relationships, budgeting, legal issues, team leadership, evaluation.
Alternate years, three hours.

BIBL 344. MENTORED MINISTRY. Students will serve in a local church placement under the supervision of a seasoned minister. In addition to supervision and mentorship in a local church, the student will receive supervision and mentorship by a B&RS faculty member. The placement seeks to provide students with the opportunity to set practical ministry goals, with support, for growth in knowledge and skills; and it creates the occasion for students to learn practical ministry skills by observation, engagement, and theological reflection in a local ministry setting. *One hour.*

BIBL 345. HOMILETICS. In this practical laboratory course, designed to give students repeated practice in the skill of communicating the truths of Scripture, students will investigate and develop teaching and preaching skills. The course will review biblically-

based and ministry related communication approaches to discern appropriate goals for biblical instruction, and work to understand how people learn in order to build a strong foundation in both the theory and practice of communication. Students will be offered numerous opportunities to sharpen their skills in teaching, sermon preparation and delivery. This course is designated Speaking Intensive (SI). *Alternate years, three hours.*

BIBL 346. THEOLOGY OF THE SPIRITUAL LIFE. This course examines writings on spiritual formation from an historical, theological, and Biblical perspective. Key topics include the holiness of God, the person and work of the Holy Spirit, prayer, Bible Study, and the discernment of God's will. *Alternate years, three hours.*

BIBL 347. WRITING AND ARRANGING SONG FOR WORSHIP. Writing and arranging songs for worship is designed to prepare students for church ministry by giving them skills to lead songs that engage local congregations to sing in words, styles, and cultures that enable full and active participation. Song leaders must learn to contextualize biblical worship as sung prayers and empower their congregations to sing with an authentic voice. Studying the craft of songwriting and arranging will equip song leaders to better serve the church with contextualized arrangements and original songs that give heartfelt voice to God's people. Industry professional instruction and feedback will be provided by two sessions from Getty Music. *One hour.*

BIBL 350. GLOBAL THEOLOGY. This course seeks to equip students to understand how Christians around the globe interpret and apply the Christian scriptures and reason theologically to discern how to live as faithful Christian disciples in response to distinctive cultural pressures and concerns. *Alternate years, three hours.*

BIBL 360. INDEPENDENT STUDY. An opportunity for junior and senior students with previous background in Biblical and Theological Studies to do intensive independent study of specialized topics. Prerequisites: Twelve hours of Biblical and Theological Studies coursework, permission of the department chair, and a faculty sponsor.
One, two or three hours.

BIBL 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Biblical and Theological Studies. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

BIBL 390. ADVANCED STUDIES IN BIBLICAL AND THEOLOGICAL STUDIES. The subject matter for this course will vary each semester to allow for the introduction of new courses in the field of biblical or theological studies. The aim of such courses is in-depth study of some specific facet of biblical or theological studies with particular emphasis on the relationship of biblical studies or theology and contemporary life. *Three hours.*

BIBL 460. INDEPENDENT STUDY. An opportunity for junior and senior students with previous background in Biblical and Theological Studies to do intensive independent study of specialized topics. Prerequisites: Twelve hours of Biblical and Theological Studies coursework, permission of the department chair, and a faculty sponsor.
One, two or three hours.

BIBL 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Biblical and Theological Studies. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

BIBL 480. INTERNSHIP IN BIBLICAL AND THEOLOGICAL STUDIES. This course offers practical experience appropriate for the Christian Ministries auxiliary field. Prerequisites: Consent of the department chair. *One to six hours.*

BIBL 486. ISSUES IN CONTEMPORARY MINISTRY. This course will examine various topics related to ministry preparedness: calling, ministry readiness and leadership, current cultural/biblical exegesis, and caring for one's own soul. We will review biblical and theological principles which inform the practice of ministry.
Alternate years, three hours.

BIBL 488. SENIOR SEMINAR. This course is designated Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL), and will be taken in the fall of the senior year. Topics will focus on a major issue in biblical studies, church history, or systematic theology. *Three hours.*

BIBL 499. HONORS COURSE IN BIBLICAL AND THEOLOGICAL STUDIES. Advanced research in Biblical and Theological Studies is available to students on an individual basis and by prearrangement with the department. *One, two or three hours.*

Greek (GREK)

GREK 101. INTRODUCTION TO NEW TESTAMENT GREEK I. A study of the grammar and syntax of New Testament Greek. *Three hours*.

GREK 102. INTRODUCTION TO NEW TESTAMENT GREEK II. Continuation of Greek 101. Prerequisite: Greek 101 or permission of the instructor. *Three hours.*

GREK 201. READINGS IN NEW TESTAMENT GREEK I. Portions of the Gospels will be read. Vocabulary, grammar, and syntax are reviewed. Prerequisites: Greek 101 and 102; or permission of the instructor. *Three hours.*

GREK 202. READINGS IN NEW TESTAMENT GREEK II. Portions of the Pauline Epistles will be read. Vocabulary, grammar, and syntax are reviewed. Prerequisites: Greek 101, 102, and 201; or permission of the instructor. *Three hours.*

GREK 260. INDEPENDENT STUDY. Individual study of specialized topics in Greek. Sophomore standing, permission of the department chair, and a faculty sponsor are required.
One, two or three hours.

GREK 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Greek. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

GREK 360. INDEPENDENT STUDY. An opportunity for third and fourth-year students to do independent projects in basic New Testament exegesis, word study, or classical Greek. Prerequisites: Greek 201 and 202; or consent of instructor. *Two or three hours.*

GREK 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Greek. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

GREK 460. INDEPENDENT STUDY. An opportunity for third and fourth-year students to do independent projects in basic New Testament exegesis, word study, or classical Greek.

Prerequisites: Greek 201 and 202, permission of the department chair, and a faculty sponsor are required. *Two or three hours.*

GREK 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Greek. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

Hebrew (HEBR)

HEBR 101. INTRODUCTION TO BIBLICAL HEBREW I. A study of the grammar and syntax of the Hebrew Bible. *Three hours*.

HEBR 102. INTRODUCTION TO BIBLICAL HEBREW II. Continuation of Hebrew 101. Prerequisite: Hebrew 101 or permission of the instructor. *Three hours.*

HEBR 201. READINGS IN BIBLICAL HEBREW I. Portions of Narrative Literature will be read. Vocabulary, grammar, and syntax are reviewed. Prerequisites: Hebrew 101 and 102; or permission of the instructor. *Three hours.*

HEBR 202. READINGS IN BIBLICAL HEBREW II. Portions of the Prophets will be read. Vocabulary, grammar, and syntax are reviewed. Prerequisites: Hebrew 101, 102, and 201; or permission of the instructor. *Three hours.*

HEBR 260. INDEPENDENT STUDY. Individual study of specialized topics in Hebrew. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

HEBR 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Hebrew. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

HEBR 360. INDEPENDENT STUDY. An opportunity for third- and fourth-year Hebrew students to do independent projects in basic Old Testament exegesis. Prerequisite: Hebrew 201 and 202; or permission of the instructor. *Two or three hours.*

HEBR 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Hebrew. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

HEBR 460. INDEPENDENT STUDY. An opportunity for third- and fourth-year Hebrew students to do independent projects in basic Old Testament exegesis. Prerequisite: Hebrew 201 and 202; or permission of the instructor. *Two or three hours.*

HEBR 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Hebrew. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

Biology

Dr. Stauff, Chair; Dr. Dudt, Dr. Farone, Dr. Luong, Dr. MacFawn, Dr. Pazehoski, Dr. Snyder, Dr. Wood, Dr. Yowler. Additional Instructional Faculty: Prof. Gwynn, Prof. Hillebrand, Prof. Lytle, Prof. McDowell, Prof. A. Wolfe.

Course Requirements for Bachelor of Science Degree in Biology—59 hours

Biology Core (18 hours):
Biology 101, 102, 180 or 182, 233, 234, and 488.

Groups (25 hours):
Choose one course from *each* of the four following groups, as well as any three additional courses from the selections below to reach a total of seven courses (25 credits minimum). Your course selections must include a minimum of four 4-credit courses. Biology 331 and 332 together count as a 4-credit course, as do Biology 302 and 307.

Group 1: Molecular Mechanisms and Physiology
Biology 301, 302, 307, 322, 325, 334, 346, 401, 404, 406, 407, and 416.

Group 2: Vertebrate Systems
Biology 310, 313, 314, 341, and 471.

Group 3: Natural History
Biology 105, 210, 305, 326, 335, and 343.

Group 4: Environmental and Ecological Diversity
Biology 212, 320, 328, 331, 332, 403, and 421.

Additional Group Courses
Complete three additional courses from the groups outlined above.

Biology Electives (4 hours):
Choose four hours from any additional Biology offerings, Chemistry 330, Engineering 340, Philosophy 271, Physics 401 or 402, or Public Health 101, 102, or 201. Note: Independent or honors research requires a minimum two-credit commitment.

Major-related requirements (12 hours):
Chemistry 111, 112, 113, 114; and Mathematics 161.

Courses that count in the Biology major quality point average (MQPA):
All courses with "BIOL" prefix. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Science Degree in Biology and General Science Secondary Education Certification—102 hours

Biology Core (17 hours):
Biology 101, 102, 233, 234, and 486.

Groups (18 hours):
Choose one course from *each* of the following groups, as well as additional courses from any group to reach a minimum of 18 hours. Your group course section must

include a minimum of three 4-credit lab courses (the Biology 331 and 332 course combination counts toward this minimum, as do Biology 302 and 307).

Group 1: Molecular Mechanisms and Physiology
Biology 301, 302, 307, 322, 325, 334, 346, 401, 404, 406, 407 and 416.

Group 2: Vertebrate Systems
Biology 310, 313, 314, 341, and 471.

Group 3: Natural History
Biology 105, 210, 305, 326, 335, and 343.

Group 4: Environmental and Ecological Diversity
Biology 212, 320, 328, 331, 332, 403, and 421.

Additional Group Course
Complete one additional course from the groups outlined above.

Biology Electives (3 hours):
Choose three hours from any additional Biology offerings, Chemistry 330, Engineering 340, Philosophy 271, Physics 401 or 402, or Public Health 101, 102, or 201. Note: Independent or honors research requires a minimum two-credit commitment.

Major-related requirements (24 hours):
Astronomy 206 or 207; Chemistry 111, 112, 113, 114; Geology 201; Mathematics 161, and an additional course of two or more hours of Mathematics; and Science 201 and/or Physics 121 (both are recommended, but Science 201 may *not* follow Physics 121).

Education requirements (40 hours):
Education 102, 202*, 203, 204, 215, 271, 317, 375, 450, 488; and Special Education 102 and 103. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Biology and General Science Secondary Education Certification major quality point average (MQPA):
All courses with "BIOL" prefix. A minimum MQPA of 2.00 is required to graduate. The minimum QPAs to be certified are 3.00 for the cumulative CQPA and 2.75 for the MQPA. Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

Course Requirements for Bachelor of Science Degree in Biology/Health—74 hours

Biology Core (18 hours):
Biology 101, 102, 182, 233, 234, and 488.

Groups (21-22 hours):
Health Group 1: Biology 334, 341, 346, and 407.
Health Group 2: Complete two courses from Biology 301, 310, 313, 314, 322, 325, 416, or 471.

Biology Electives (9-10 hours):
Choose nine hours minimum from any additional Biology offerings, Chemistry 330, Engineering 340, Philosophy 271, Physics 401 or 402, or Public Health 101, 102, or 201. Note: Independent or honors research requires a minimum two-credit commitment.

Major-related requirements (26 hours):
Chemistry 111, 112, 113, 114, 241; Mathematics 161; Physics 121; Psychology 201; and one of Psychology 101 or Sociology 101.

Courses that count in the Biology/Health major quality point average (MQPA):
All courses with "BIOL" prefix. A minimum MQPA of 2.00 is required to graduate.

This major is designed for those students interested in careers in medicine or allied health fields, including medical doctor, doctor of osteopathy, physical therapy, physician's assistant, nursing, veterinary medicine, optometry, dentistry, and others, while retaining strong general biology training. This major requires courses that are prerequisites for many allied health graduate programs.

Course Requirements for Bachelor of Science Degree in Conservation Biology—71 hours

Biology Core (18 hours):
Biology 101, 102, 180, 233, 234, and 488.

Groups (28-29 hours):
Conservation Group 1: Biology 305, 320, 326, 328, and 331 and 332.
Conservation Group 2: Complete three courses from Biology 210, 212, 335, 343, 403, 406, or 421.

Biology Electives (13-14 hours):
Choose thirteen hours minimum from any additional Biology offerings, Chemistry 330, Engineering 340, Philosophy 271, Physics 401 or 402, or Public Health 101, 102, or 201. Note: Independent or honors research requires a minimum two-credit commitment.

Major-related requirements (12 hours):
Chemistry 111, 112, 113, 114; and Mathematics 161.

Courses that count in the Degree in Conservation Biology major quality point average (MQPA):
All courses with "BIOL" prefix. A minimum MQPA of 2.00 is required to graduate.

This major is designed to serve those students interested in careers in wildlife and natural resource management, or graduate study in the ecological, environmental, organismal or science fields, and others. This major requires courses that are prerequisites for many environmental, conservation biology, resource management, or other field-oriented career paths.

Course Requirements for Bachelor of Science Degree in Molecular Biology—72 hours

Biology Core (18 hours):
Biology 101, 102, 180 or 182, 233, 234, and 488.

Groups (15 hours):
Molecular Group 1: Biology 301, 407, and 302 and 307 or 404.
Molecular Group 2: Biology 314, 322, 325, or 416.

Biology Electives (11 hours):
Choose eleven hours minimum from any additional Biology offerings, Chemistry 330, Engineering 340, Philosophy 271, Physics 401 or 402, or Public Health 101, 102, or 201. Note: Independent or honors research requires a minimum two-credit commitment.

Major-related requirements (28 hours):
Chemistry 111, 112, 113, 114, 241, 242, 351, and 352; and Mathematics 161.

Courses that count in the Molecular Biology major quality point average (MQPA):
All courses with "BIOL" prefix. A minimum MQPA of 2.00 is required to graduate.

This major is designed to serve those students interested in careers in biochemical, molecular, genetic, or cellular biology fields. This major requires courses that are prerequisites for many graduate programs in biochemistry, molecular biology, and related graduate programs.

Course Requirements for a minor in Biology (22 hours)
A minor in Biology will consist of Biology 101, 102, 233, and 234 plus six hours from Biology 301, 302, 305, 307, 308, 310, 313, 314, 320, 322, 323, 325, 326, 327, 328, 331, 332, 334, 341, 343, 346, 372, 390, 403, 407, 409, and 421.

The Biology curriculum seeks to develop academic competency and professional awareness, to encourage meaningful integration between the biological sciences and other dimensions of life, and to promote lifelong learning skills in problem solving, research, and communication. Writing-intensive, speaking-intensive, and information literacy skills are developed by special assignments in core and seminar courses.

Departmental policy limits students to one major within the Department of Biology. Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Biology (BIOL)

BIOL 101. GENERAL BIOLOGY I. The first course in a year-long introduction to the unifying principles of biology. This semester includes discussion of the chemistry of life, cells structure, energy, genetics, and physiology. Three lectures and one lab per week.
Fall semester, four hours.

BIOL 102. GENERAL BIOLOGY II. A continuing discussion of the unifying principles of biology. Topics presented include: the diversity of life, kingdom plantae, animal reproduction and behavior, evolution, and ecological interactions. Three lectures and one lab per week. *Spring semester, four hours.*

BIOL 105. THE SECRET LIFE OF MUSHROOMS. An exploration of fungi and how they impact our everyday life. Fungi provide sources of food, medicine, building, and clothing materials, have a major role in ecosystems, and are important symbionts or diseases of plants, insects, and people. This course aims to introduce students to the hidden and not-so-hidden world of fungi and their roles in nature and human society. The topics to be

covered include the classification and identification of major fungi, interactions with other organisms as pathogens or beneficial symbionts, the significance of fungi as decomposers of organic matter, their impact on the environment and climate, and how humans use fungi. Course activities include lectures, in-class discussions, informal labs, and trips. This course is intended to be an introductory science course for non-science majors as well as mushroom enthusiasts, providing important general science knowledge and specific details about fungal biology. *Fall semester, three hours.*

BIOL 175. THE BIOLOGY OF DIVING. This elective course will focus on the biology and biological applications of underwater diving utilizing a Self-Contained Underwater Breathing Device (SCUBA). Areas of study will include: the physiological effects of diving on the body, diving safety, common aquatic environments, ecosystems, and geography (both fresh water and marine) encountered during diving, common aquatic life encountered during diving, and the application of diving in various career fields. The course will prepare the student to pursue a life-time certification as an Open Water Diver through a dive school of their choice and at their own cost. *Online, three hours.*

BIOL 180. INTRODUCTION TO BIOLOGY (NON-HEALTH). This course is designed to prepare freshman, biology (non-health) students for their careers. Students will develop a professional portfolio, explore career options with their degree, learn about the importance of internships, discuss memberships in professional organizations and ways to optimize attendance at professional meetings/conferences. Furthermore, students will learn about ways to balance their spiritual and professional life. Prerequisites: Biology 101; and freshman status or permission from instructor. *Spring semester, one hour.*

BIOL 182. INTRODUCTION TO BIOLOGY – HEALTH. This introductory course is designed to provide students with an understanding of the requirements and tools necessary to succeed as a biology major who is looking forward to a career in any health field. This course will cover a variety of topics designed to prepare students to be a competitive candidate when applying to graduate health fields. Prerequisites: Biology 101, Freshman status only or permission from instructor. *Spring semester, one hour.*

BIOL 190. STUDIES IN BIOLOGY. Intensive examination of an area of biology not fully covered by regular departmental offerings. Subject matter varies each semester. Prerequisite: Biology 101. *One, two, three or four hours.*

BIOL 207. GENERAL MICROBIOLOGY. This course will provide students with the basic concepts and principles within the field of Microbiology, especially as they relate to microorganisms and viruses that cause disease. Topics include an introduction to the major classes of microorganisms and viruses, microbial nutrition and metabolism, the control of microbial growth, and innate and adaptive immunity. Special emphasis will be placed on a subset of medically important pathogens as a way of illustrating the importance of understanding microbial physiology and pathogenesis as well as the prevention and control of infection. The course is designed specifically for students who are interested in pursuing a career in nursing. Prerequisite: Nursing Program majors only. *Fall semester, four hours.*

BIOL 208. INTRODUCTION TO ENVIRONMENTAL EDUCATION. This course introduces the scope of environmental education. Topics addressed will include history and current trends, issue articulation and methodology, and development of problem-solving and communication skills to address environmental issues. Learning competencies K-12 will be emphasized and reinforced by environmental teaching opportunities and project-based learning experiences. *Offered periodically, fall semester*, *two hours.*

BIOL 210. INTRODUCTION TO APICULTURE. This introductory course will offer the student an opportunity to learn about the amazing world of honeybees. Bee biology, principles of beekeeping, bee diseases, and bee ecology will all be discussed. Students will also have the unique opportunity to see our bees at work at our college-associated apiary. A single and a two-hour time block will allow for lecture and hands-on time in the bee yard and lab. Note: While close exposure to live honey bees will be limited in this course, if you have a known severe allergic (anaphylaxis) reaction to honey bees, you should not take this course (this is extremely rare). Prerequisites: Biology 101 and 102.
Spring semester, three hours.

BIOL 212. LIMNOLOGY. A study of the structural and functional relationships of inlands waters. This will include, but not be limited to the biotic, chemical, and physical relationships that exist within aquatic environments. Prerequisites: Biology 102, Chemistry 112 and 114. *Alternate years, spring semester, three hours.*

BIOL 233. GENETICS. An exploration of modern genetics that begins with the molecular biology of gene function. Emphasis is placed on DNA structure, replication, and the regulation of gene expression. This is followed by a discussion of Mendelian genetics, including the fundamental principles of inheritance and the effects of mutation. The course concludes with topics related to genetic variation including genome architecture and how genomes change over time. Three lectures and one recitation per week. Prerequisite: Biology 101. *Fall semester, four hours.*

BIOL 234. CELL BIOLOGY. A focus on the organization and physiology of living cells using a problem-solving approach to learning. Topics will include transcription and translation, energy conversion, cell division, membranes, organelles, cytoskeleton, and cell communication among others. The lab provides core experience with model cellular systems and basic tools of biomolecular research. Three lectures and one lab per week. Prerequisite: Biology 233. *Spring semester, four hours.*

BIOL 260. INDEPENDENT STUDY. Individual study of specialized topics in biology. Sophomore standing, permission of the department chair, and a faculty sponsor are required.
One, two, or three hours.

BIOL 270. BIOLOGY RESEARCH. An opportunity to conduct supervised research in biology. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

BIOL 290. STUDIES IN BIOLOGY. Intensive examination of an area of biology not fully covered by regular departmental offerings. Subject matter varies each semester.
One, two, three or four hours.

BIOL 301. MEDICAL GENETICS. This course focuses on the genetic causes of disease. A variety of diseases will be discussed, ranging from those caused by a single gene to very complex polygenic diseases. Furthermore, genetic testing will be covered, along with newly emerging therapeutic approaches to treating genetic diseases. The lab portion of the course will involve the use of current DNA-analysis techniques, as well as off-campus visits to clinical labs and lectures from practicing professionals. Three lecture hours and one lab per week. Prerequisites: Biology 233 and 234. *Spring semester, four hours.*

BIOL 302. DEVELOPMENTAL BIOLOGY. Investigates major events in embryonic development in animals including fertilization, cleavage, axis specification, gastrulation, neurulation, and organogenesis. Classical and modern developmental techniques and

experiments will be discussed. Three lectures per week. Prerequisites: Biology 233 and 234. *Alternate years, spring semester, three hours.*

BIOL 305. PLANT TAXONOMY. A study of plants in relation to their habitats, including aspects of plant geography and taxonomy in the lecture portion and methods of plant identification, collection, and preservation with emphasis on local flora in the lab portion. Three lectures and one lab per week. Prerequisite: Biology 234. *Fall semester, four hours.*

BIOL 307. DEVELOPMENTAL BIOLOGY LABORATORY. This laboratory will allow students to apply the principles of developmental biology to a research project. Students will participate in a semester-long research experience that will involve conducting experiments with unknown outcomes and communicating their results in writing. One lab per week. This course must be taken concurrently with Biology 302. This course is designated Writing Intensive (WI) and Information Literacy (IL). Prerequisites: Biology 233 and 234; Corequisite Biology 302. *Alternate years, spring semester, one hour.*

BIOL 308. NEUROBIOLOGY. An investigation of a broad array of topics in neurobiology, building on foundations of the Hodgkin-Huxley model of action potential, synaptic transmission, and neuromodulation. Studies include processing of sensory information in visual and auditory systems, the chemical senses, and others. The connections between sensory integration and motor behaviors in diverse animals will be explored. Neural mechanisms of learning and memory, sleep/wakefulness, and reward and decision-making also will be addressed. Recommended for students considering a career in research, health sciences, or psychology. Prerequisite: Biology 234.
Offered periodically, three hours.

BIOL 310. PUBLIC HEALTH AND INFECTIOUS DISEASE. This course offers a unique opportunity to explore the pathological relationships that affect the health of animals and man within the global community. General virology, bacteriology, parasitology, and mycology will be discussed with special focus on the history, ecology, pathology, and epidemiology of specific zoonotic diseases of current importance. Preventative medicine, population and global health, and "One-Health" concepts will be discussed. This course has special and timely importance in preparation for all pre-health professional careers. Laboratory sessions may include field trips to local areas of public health interest as well as guest speakers from the community. Three lectures and one lab per week. Prerequisite: Biology 234. Biology 233 is suggested. *Alternate years, spring semester, four hours.*

BIOL 313. HISTOLOGY. This course offers a focused study of the normal tissues of mammals from both a morphological and a functional view at a microscopic level. Selected common tissue pathologies will also be introduced, discussed, and observed. Each student gets experience in the preparation of fresh slides, as well as identifying all major body tissues under the light microscope and utilizing virtual technology. Prerequisite: Biology 234. *Fall semester, three hours.*

BIOL 314. IMMUNOLOGY. An exploration of the mammalian immune system on a cellular and molecular level. Beginning with a broad overview of concepts in immunology, the course will explore in detail topics including pattern recognition, clonal selection and deletion, immunological recognition at the molecular level, and lymphocyte development. Special topics include the etiology of autoimmune disease and immunoevasive strategies employed by pathogens. Prerequisite: Biology 234. *Summer online, three hours.*

BIOL 320. CONSERVATION AND WILDLIFE BIOLOGY. A comparative study of representative vertebrates with emphasis on population dynamics, biodiversity,

morphological adaptation, wildlife conservation, and resource management. The lab involves field identifications, aging, and morphological adaptations of representative vertebrates. Three lectures and one lab per week. Prerequisite: Biology 102.

Spring semester, four hours.

BIOL 322. THE BIOLOGY OF CANCER. This course focuses on the causes of cancer and progression of the disease. The common features of all cancers will be discussed in addition to the distinguishing characteristics of a subset of cancers. Throughout the course, the linkage of molecular aberrations with therapeutic targets will be emphasized and novel therapeutic approaches will be considered. Prerequisites: Biology 233 and 234.

Spring semester, three hours.

BIOL 323. INVERTEBRATE ZOOLOGY. This course will provide students with a comprehensive presentation to the major invertebrate phyla through a combination of lectures and workshops. But because invertebrates comprise roughly 97% of animal species on the planet, we will emphasize terrestrial invertebrates, especially live ones locally available. Prerequisite: Biology 234. *Offered periodically, three hours.*

BIOL 325. VIROLOGY. An exploration of the theoretical and experimental basis of virology, with emphasis on mechanisms of virus replication, similarities and differences among virus groups including medically important viruses, how viruses ensure their own survival, and virus-host interactions including disease and host defenses. Two lectures per week. Prerequisite: Biology 234. *Alternate years, fall semester, three hours.*

BIOL 326. EVOLUTIONARY BIOLOGY. The objectives of this course are to introduce students to the theory of evolution, from the production and maintenance of genetic variation to the formation of new species, to present a summary of the history of life on earth, to familiarize students with the mechanisms of evolution, and the concepts of speciation and of major innovations. The material explanation for the origins of life and biological diversification will be examined in light of the Biblical doctrine of God's sovereignty in creation and process. Prerequisite: Biology 234 or permission of instructor.

Spring semester, three hours.

BIOL 327. ESSENTIAL LITERATURE FOR BIOLOGISTS. This course is designed to introduce students to the seminal works that serve as the foundation for the broad sub-fields of biology. Students will read twelve to fourteen books (or excerpts from books) and critique those works in terms of their contribution to both modern biology and contemporary society. Prerequisite: Biology 101 and 102; or permission of instructor.

Offered periodically, three hours.

BIOL 328. FOUNDATIONS OF GEOGRAPHIC INFORMATION SCIENCE. This course offers an introduction into geographic information science (GIS). The course will focus on the foundational elements of spatial data analysis with students learning and applying essential mapping skills within the ArcGIS® software, specifically demonstrating the ability to acquire, manage, and analyze spatial data. The course will meet three times a week and consist of both lecture and in-class software analysis. Prerequisite: Biology 102.

Fall semester, four hours.

BIOL 331. ECOLOGY. A study of responses of living systems to a changing environment in relation to selected ecosystems with emphasis on the interrelations of individual, population, community, and habitat. Two lectures per week. Prerequisite: Biology 234.

Fall semester, three hours.

BIOL 332. ECOLOGY LABORATORY. The application of ecological principles through both field and lab investigations which quantify the dynamic relationships at an individual, population, and community level. One lab per week. Course must be taken concurrently with Biology 331. Prerequisite: Biology 234, Corequisite: Biology 331.
Fall semester, one hour.

BIOL 334. BIOCHEMISTRY FOR BIOLOGY. This course covers all the major principles in the field of biochemistry. Proteins, lipids, carbohydrates, and nucleic acids are studied within the themes of macromolecule structure & function, metabolic pathways, and gene expression. Specific topics include oxygen binding proteins, enzyme catalysis, membrane transport, synthesis/degradation pathways of carbohydrates, lipids, & amino acids, and the informational pathways of DNA replication, transcription, & translation. Prerequisites: Biology 101, 102, and Chemistry 241. *No credit will be given to students who have already received credit for Chemistry 351 or 352.* Biology 334 does not fulfill the biochemistry requirement for Biochemistry majors. *Spring semester, three hours*.

BIOL 335. BOTANICAL BATTLEFIELD: PLANT PATHOLOGY. A survey of plant pathogenic microorganisms and their mechanisms of survival, pathogenesis, and spread. Human society relies on the food, fiber, medicine and beauty that plants provide. Therefore, plant disease epidemics in agricultural systems to natural landscapes can cause devastating impacts on our society and economy. This course will focus on the biological and environmental factors that drive plant diseases and the development of strategies to improve plant health and combat disease at the local and global scales. Students will learn about important plant pathogenic fungi, bacteria, viruses, phytoplasmas, and nematodes. Labs will focus on techniques used in diagnostics and plant-microbe interaction research. Grades will be based on student performance in a variety of activities including lecture participation, labs, in-class activities, group projects, and exams. Prerequisite: Biology 102.
Alternate years, fall semester, four hours.

BIOL 341. HUMAN/MAMMALIAN ANATOMY. Gross and microscopic anatomy of mammals will be explored with emphasis on humans. These holistic studies of the body will include 11 major systems: integumentary, skeletal, muscular, circulatory, respiratory, renal, digestive, reproductive, neurologic, endocrine, and lymphatic. This course illustrates normal form and function principles and has special importance in preparation of the health-related careers. Three lectures and one lab per week. Prerequisite: Biology 234.
Fall semester, four hours.

BIOL 343. ICHTHYOLOGY. A study of the taxonomy, diversity, physiology, anatomy, and evolution of fishes across the globe with field specimen identification focused on fishes in the northeastern United States. Three lectures per week. Prerequisite: Biology 234.
Alternate years, fall semester, three hours.

BIOL 346. HUMAN/MAMMALIAN PHYSIOLOGY. A study of the cellular basis for vertebrate organ system function with emphasis on human physiology. Systems discussed include muscle, nervous, endocrine, reproductive, urinary, digestive and cardiopulmonary. Laboratory exercises will utilize physiology simulations, problem sets and hands-on investigation. Three lectures and one lab per week. Prerequisite: Biology 234.
Spring semester, four hours.

BIOL 360. INDEPENDENT STUDY. An opportunity for individual study of specialized topics in the biological sciences. Prerequisite: Completion of at least eight credits in biology, permission of the department chair, and a faculty sponsor. *One, two, or three hours.*

BIOL 370. INDEPENDENT RESEARCH. Course providing independent opportunity in biological research under the supervision of a faculty mentor. Prerequisites: Completion of at least eight credits in biology, permission of the department chair, and a faculty sponsor. *One, two or three hours.*

BIOL 372. CONTEMPORARY TOPICS. This course presents an opportunity for students to study a topic of particular interest to the faculty member offering the course. Heavy focus will be placed on reading primary literature, understanding the history of the field and discussing specific experiments and techniques which led to major findings in the field. Prerequisite: Biology 234. *Offered periodically, one hour.*

BIOL 390. STUDIES IN BIOLOGY. Intensive examination of an area of biology not fully covered by regular departmental offerings. Subject matter varies each semester. *One, two, three or four hours.*

BIOL 401. INTRODUCTION TO BIOLOGICAL LABORATORY TECHNIQUES. This repeatable course will introduce students to laboratory techniques and/or model organisms that are important in biological research. While each section will have a different focus, a combination of lectures and hands-on activities will be used to develop student proficiency. Prerequisites: Biology 233 and 234. *Fall semester, two hours.*

BIOL 403. BASIS OF WILDLIFE BEHAVIOR. A comparative study of the physiological and ecological basis of animal behaviors and its interaction in the ecology and management of wildlife populations. Emphasis is placed on the innate and learned behaviors in disease transmission, and in the evolution and management of rural and urban wildlife populations. Prerequisite: Biology 234. *Alternate years, fall semester, three hours.*

BIOL 404. ADVANCED TOPICS IN GENETICS. This research-based, repeatable course will provide students with the opportunity to gain valuable experience in experimental design, develop critical thinking skills by troubleshooting experiments, improve writing and speaking skills, and participate in the collaborative nature of science. Each section of this course will be offered by a different faculty member in the Biology Department and will have a distinct research focus. Prerequisites: Biology 233, 234, and 401. *Alternate years, spring semester, four hours.*

BIOL 406. PLANT PHYSIOLOGY. A study of the processes that contribute to the development, growth, and reproduction of plants. This course will focus on plant physiological processes from the molecular to whole-plant scales. Topics to be covered include plant structure and function, control of growth and development, plant-water relations, photosynthesis, plant respiration, plant nutrition, stress physiology, response to various environmental conditions, and plant communication and behavior. Prerequisites: Biology 101, 102, 233, and 234. *Alternate years, spring semester, four hours.*

BIOL 407. MICROBIOLOGY. An introduction to microorganisms, primarily bacteria that cause disease in humans, which focuses on microbial structures, genetics, and life cycles, and also delves into molecular pathogenesis mechanisms and interactions between pathogens and the mammalian immune system. Two lectures and two labs per week. Prerequisites: Biology 234 and Chemistry 111 and 113. *Fall semester, four hours.*

BIOL 409. ENTOMOLOGY. A study of the class Insecta, including insect diversity, life histories, morphology, physiology, behavior, ecology, and impact on human society. The course includes a combination of lecture and lab components. The lab component includes field excursions for collecting insects for display and anatomical/taxonomic investigation.

Course traditions include a black-light party and a bug feast. Three lectures and one lab per week. Prerequisite: Biology 234. *Offered periodically, four hours.*

BIOL 414. INTRODUCTION TO BIOINFORMATICS. This research-based course will provide an introduction to the fundamental bioinformatics tools used in the analysis of genes and genomes. Following an introduction to the genome browser and BLAST searches, students will complete a guided annotation of the coding exons of a unique gene. Upon completion, research data will be submitted for consideration of publication. Prerequisite: Biology 233. *Spring semester, one hour.*

BIOL 416. BIOMEDICAL SCIENCE OF THE GENOME AGE. An introduction to the field of biomedical sciences; the application of scientific principles to understand disease and improve human health. Topics include genomic/epigenomic basis of health and disease, accession of large transcriptomic databases, tools for production and analysis of largescale biological imaging datasets, and introduction to basic bioinformatics tools. The lab will be computer-based: testing hypotheses using large public datasets using TCGA, cBioPortal, QuPath image analysis and others. Aimed at biology majors, no previous programming skills required. Prerequisite: Biology 233. *Alternate years, spring semester, four hours.*

BIOL 421. AQUATIC AND FISHERY BIOLOGY. A study of freshwater and marine ecosystems, including the impact of pollution on aquatic environments, water chemistry, taxonomy of aquatic organisms, fisheries, and management of aquatic systems. Prerequisite: Biology 234. *Alternate years, spring semester, three hours.*

BIOL 460. INDEPENDENT STUDY. An opportunity for individual study of specialized topics in the biological sciences. Prerequisites: Completion of at least eight credits in biology, permission of the department chair, and a faculty sponsor.
One, two, or three hours.

BIOL 470. INDEPENDENT RESEARCH. Course providing independent opportunity in biological research under the supervision of a faculty sponsor. Prerequisites: Completion of at least eight credits in biology, permission of the department chair, and a faculty sponsor.
One, two or three hours.

BIOL 471. INTRODUCTION TO PATHOLOGY. This introductory course is designed to provide students with an understanding of the basic mechanisms of pathological processes. The course is designed to build on the basic knowledge of normal anatomy, physiology, and histology, and to satisfy and stimulate the curiosity of pre-health students in the study of disease. The course will begin with a review of medical terminology associated with the pathogenesis of diseases. Degenerative, metabolic, neoplastic, infectious, immune, traumatic processes will then be explored from an anatomical, physiological, and histological perspective. Pathophysiology will be examined using anatomical and histological images, which will include advanced imaging comparisons within the body's eleven organ systems. Case studies will be utilized to help students develop a systematic, investigative approach to accessing the cause/s of abnormal anatomy and physiology. Proper specimen collection, proper pathology laboratory techniques, and telemedicine will also be discussed. Prerequisites: Biology 341, highly recommend Biology 346 and 313 prior to taking the course. *Online, three hours.*

BIOL 480. INTERNSHIP IN BIOLOGY. Qualified upperclassmen may participate in unpaid, individual off-campus experiences in research, medical, environmental, or other approved settings under the guidance of both an on-site host supervisor and a Biology faculty sponsor. Grade is dependent upon required update communication with the faculty

sponsor, written evaluation by the on-site supervisor, and submission of an internship paper to the faculty sponsor. Prerequisites: Minimum rising sophomore status, minimum eight credit hours of biology, and permission of the department. *One to six hours.*

BIOL 486. SEMINAR FOR BIOLOGY TEACHERS. Provides instruction in how to prepare for and conduct effective biology learning experiences. Students will instruct classmates through presentations, participate in Project WET and other activity-based curriculum training, and conduct research using library/web resources. The course will also cover the basics of WILD, WOW, PLT, and Project Food, Land & People. Students will practice instruction in an actual classroom or informal setting. This course is designated Writing Intensive (WI), Information Literacy (IL), and Speaking Intensive (SI). Prerequisite: Junior or senior standing. *Spring semester, one hour.*

BIOL 488. SEMINAR IN BIOLOGY. Required of all majors in the Department of Biology except for those in teacher certification programs. Students will apply the knowledge they have obtained in previous biology classes by writing a literature review on a biological topic of their interest. Students will learn how to perform in-depth research of scientific literature through the use of library/web resources and will gain experience in both reading and critically evaluating peer-reviewed journal articles. Special emphasis will be placed on the students' participation in a peer-review process as they evaluate their peers' papers. The class culminates with each student delivering a professional oral presentation about their chosen topic. This course is designated Writing Intensive (WI), Information Literacy (IL), and Speaking Intensive (SI). Prerequisite: Senior standing. *One hour.*

BIOL 490. STUDIES IN BIOLOGY. Intensive examination of an area of biology not fully covered by regular departmental offerings. Subject matter varies each semester.
One, two, three or four hours.

BIOL 499. HONORS IN BIOLOGICAL RESEARCH. Seniors who have shown special aptitude in biology may undertake supervised biological research. Registration for the honors course requires prior completion of an on- or off-campus research experience. A research paper is required, and a public presentation is encouraged. Prerequisite: Senior standing, permission of the department chair, and a faculty sponsor. *One hour.*

Geology (GEOL)

GEOL 201. PHYSICAL/ ENVIRONMENTAL GEOLOGY. A study of the internal and external forces affecting the surface of earth and the distribution of geologic resources and the environmental impacts on the extraction and use of these resources. This course is also designed to relate the historical and current geologic activity to the local ecology and land use planning. *Alternate years, spring semester, three hours.*

Public Health (PUBH)

PUBH 101. FOUNDATIONS OF PUBLIC HEALTH. This course provides an introduction to public health, a discipline that strives to improve the health of the community through community-based action. The course covers the history of public health and provides insight into the methods used to measure community health, communicable diseases, chronic and lifestyle diseases, family health, nutrition and food safety, environmental health. The course provides basic information related to the structure and functioning of the community health system, including the identification and examination of programs, providers, and current problems associated with the delivery of health services. The course also describes the U.S. national health care system, underserved groups, public

health law and ethics, and the future of public health. Prerequisites: College level biology course (Biology 101 or Science 202). *Offered periodically, three hours.*

PUBH 102. ENVIRONMENTAL AND OCCUPATIONAL HEALTH. Environmental health explores the ecologic, economic, ethical, toxicologic and epidemiologic bases for disease and illness within the community setting. The course will address current issues in the assessment of environmental exposures among populations and the recognition of risk among various populations. The practical application of local, state, and federal public health law in controlling environmental exposures to biological, physical, and chemical agents for the protection of the population's health will be discussed. Prerequisite: Public Health 101." *Offered periodically, three hours.*

PUBH 190. STUDIES IN PUBLIC HEALTH. Specialized subject matter that varies each semester depending upon the interests of the instructor and students.
Offered periodically, three hours.

PUBH 201. INTRODUCTION TO EPIDEMIOLOGY. Epidemiology is the study of health and disease of populations. In this course, students will learn methods used by epidemiologists to elucidate relationships between various types of exposures and positive or negative health outcomes; they will also explore methods to trace and predict disease patterns. This course introduces population-based statistical methods of inquiry regarding the distribution and determination of disease in human populations. It emphasizes appropriate study design, investigative techniques, and interpretation of findings related to community health. Examples of disease outbreaks and investigations are provided throughout the course. Prerequisites: College-level biology (Biology 101 or Science 202) and college-level statistics course (Psychology 201 or Statistics 131).
Offered periodically, three hours.

PUBH 290. STUDIES IN PUBLIC HEALTH. Specialized subject matter that varies each semester depending upon interests of the instructor and students.
Offered periodically, three hours.

PUBH 390. STUDIES IN PUBLIC HEALTH. Specialized subject matter that varies each semester depending upon interests of the instructor and students.
Offered periodically, three hours.

PUBH 490. STUDIES IN PUBLIC HEALTH. Specialized subject matter that varies each semester depending upon interests of the instructor and students.
Offered periodically, three hours.

Chemistry

Dr. Kriley, Chair; Dr. Falcetta, Assistant Chair; Dr. Clark, Dr. Cramer, Dr. Dabbs, Dr. DiStasi, Dr. Foster, Dr. Shaw, Dr. Wong. Additional Instructional Faculty: Dr. Henson, Prof. A. Wolfe.

CHEMISTRY DEPARTMENT MISSION STATEMENT, OBJECTIVES, AND OUTCOMES

The Department of Chemistry is traditional in its approach to the discipline of chemistry and offers a rigorous and well-balanced curriculum. This provides the student with a strong preparation for graduate studies and/or a career in chemistry. The department's

faculty expertise covers all major areas of chemistry. A variety of research experiences are available to majors through ongoing faculty research programs. In addition, the department attempts to instill in its students an awareness of the beauty and design in nature that reflects the creative hand of God.

There are four separate majors offered within the department:

- **Chemistry:** The traditional chemistry major provides a strong preparation for graduate school or employment in the chemical industry.
- **Biochemistry**: This major provides strong preparation for graduate or professional schools or for employment in the biochemical, molecular biology or genetics industries.
- **Chemistry Secondary Education Certification**: This major prepares the student for teaching chemistry at the secondary school level. It is a program that combines a traditional chemistry curriculum with a foundation of education courses leading to certification.
- **Chemistry and General Science Secondary Education Certification**: This is essentially the same as Chemistry Secondary Education major. These students, however, in addition to all the chemistry and education courses will take Astronomy and either Geology or Environmental Science. This will qualify them for General Science certification.

Success in the chemical profession requires the ability to search chemical literature and chemical databases and to effectively communicate that information in written and oral form. Chemists need to be proficient with software designed to operate instruments, analyze data, model molecules, and present results. The Writing Intensive (WI), Speaking Intensive (SI) and Information Literacy (IL) courses in the Chemistry Department are designed to fulfill these academic and professional requirements.

Chemistry Department Program Objectives

Graduates will be prepared with the knowledge and technical skills to successfully pursue career paths in the chemical industry, secondary education, chemistry graduate studies or health and other professional programs.

Graduates will be prepared to display critical thinking and problem-solving skills to enable them to learn, grow and be effective throughout their professional careers.

Graduates will gain knowledge and develop skills within the context of a Christian worldview, including the Christian foundations of science and the practice of chemistry, both ethical and in conduct, according to Christian principles.

Chemistry Department Program Outcomes

Graduates of the Chemistry Department will demonstrate:

1. Knowledge in the areas of general, analytical, organic, physical, inorganic chemistry and biochemistry according to ACS standards.
2. An ability to apply chemical principles and knowledge to solving chemical problems.
3. Knowledge of the mathematical and physical basis of chemical theories.
4. An ability to use laboratory techniques and skills to effectively conduct experiments and interpret results.
5. An ability to accurately maintain a laboratory notebook.
6. Proficiency in the operation of modern instrumentation and the ability to analyze and interpret instrumental data.

7. An ability to search chemical literature as well as read and comprehend content in professional chemistry journals.
8. An ability to effectively communicate chemical information in written and oral forms according to ACS guidelines.
9. Knowledge of the foundations and the practice of science from a Christian perspective.

Departmental policy limits students to one major within the Department of Chemistry.

Course Requirements for Bachelor of Science Degree in Chemistry—75 hours

Chemistry Core (42 hours):
Chemistry 111, 112, 113, 114, 227, 231, 235, 241, 242, 245, 345, 346, 406, 422, 431, and 488.

Chemistry Concentration (10 hours):
Choose one of the following six options:

- **No concentration:** choose any 10 hours of Chemistry electives from the choices below.
- **ACS Certified:** Chemistry 351, 463; and four hours of Chemistry electives from the choices below.
- **Biochemistry:** Chemistry 351, 352 and two hours of Chemistry electives from the choices below.
- **Forensic Chemistry (18 hours):** Chemistry 151, 408; Chemistry 351 or 4 hours of Chemistry electives from the choices below; Statistics 131 or Psychology 201; and two courses from Psychology 315, Sociology 233, or Sociology 314
- **Physical Chemistry:** Chemistry 441, 445 and six hours of Chemistry electives from the choices below.
- **Synthetic Chemistry:** Chemistry 453, 458 and six hours of Chemistry electives from the choices below.

Chemistry Electives: Chemistry 351, 352, 441, 445, 453, 458, 463, and 466.

Major-Related requirements (23 hours):
Computer Science 141 or 155; Mathematics 161, 162, and 261; and Physics 101-102 or 121-122.

Courses that count in the Chemistry major quality point average (MQPA):
All courses with "CHEM" prefix. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Science Degree in Chemistry Secondary Education Certification—98 hours

Chemistry Core (38 hours):
Chemistry 111, 112, 113, 114, 227, 231, 235, 241, 242, 345, 346, 351, 402, and 488.

Major-Related requirements (20 hours):
Mathematics 161 and 162; Physics 101-102 or 121-122; and Science 202.

Education requirements (40 hours):
Education 102, 202*, 203, 204, 215, 271, 317, 375, 450, 488; and Special Education 102 and 103. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Chemistry Secondary Education Certification major quality point average (MQPA):

All courses with "CHEM" and "EDUC" prefixes, and SEDU 102, 103. A minimum MQPA of 2.00 is required to graduate. The minimum QPAs to be certified are 3.00 for the cumulative CQPA and 2.75 for the MQPA. Students should reference the Department of Education's section of the *Bulletin* for more details on teacher certification requirements.

Course Requirements for a Bachelor of Science Degree in Chemistry and General Science Secondary Education Certification—104-105 hours

Chemistry Core (38 hours):
Chemistry 111, 112, 113, 114, 227, 231, 235, 241, 242, 345, 346, 351, 402, and 488.

Major-Related requirements (26-27 hours):
Astronomy 206 or 207; Geology 201 or Science 204; Mathematics 161 and 162; Physics 101-102 or 121-122; and Science 202.

Education requirements (40 hours):
Education 102, 202*, 203, 204, 215, 271, 317, 375, 450, 488; and Special Education 102 and 103. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Chemistry and General Science Secondary Education Certification major quality point average (MQPA):

All courses with "CHEM" and "EDUC" prefixes; ASTR 206 and 207; GEOL 201; SCIC 202, 204; and SEDU 102 and 103. A minimum MQPA of 2.00 is required to graduate. The minimum QPAs to be certified are 3.00 for the cumulative CQPA and 2.75 for the MQPA. Students should reference the Department of Education's section of the *Bulletin* for more details on teacher certification requirements.

Course Requirements for Bachelor of Science Degree in Biochemistry—72 hours

Biochemistry Core (53 hours):
Chemistry 111, 112, 113, 114, 141, 227, 231, 235, 241, 242, 342, 351, 352, 451, 487; Biology 101, 233, and 234.

Major-Related requirements (19 hours):
Mathematics 161, 162; Physics 101-102 or 121-122; and Psychology 201.

Courses that count in the Biochemistry major quality point average (MQPA):

All courses with "CHEM" and "BIOL" prefixes. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a concentration in Chemical Synthesis (8 hours)

Students majoring in Biochemistry can earn a concentration in Chemical Synthesis by completing Chemistry 422, 431, 453, and 458.

Course Requirements for a concentration in Forensic Chemistry (15 hours)

Students majoring in Biochemistry can earn a concentration in Forensic Chemistry by completing Chemistry 151, 406, 408, and two courses from Psychology 315, Sociology 233, or Sociology 314.

Course Requirements for a concentration in Health (13-14 hours)

Students majoring in Biochemistry can earn a concentration in Health by completing Biology 341 or 346; Biology 407; Chemistry 467; and one of Biology 313, 314, 325, 341, or 346.

Course Requirements for a minor in Chemistry (24 hours)

A minor in Chemistry will consist of Chemistry 111 and 113, or 105; Chemistry 112 and 114; Chemistry 227 and 241; and eight hours from Chemistry 231, 242, 245, 342, 345, 346, 406, or 431.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Chemistry (CHEM)

CHEM 105. CHEMISTRY FOR ENGINEERS. An introductory survey in the fundamental principles of chemistry, including chemical reactions and equations; behavior of gases; chemical thermodynamics; basics of electrochemistry; crystal structure; and nuclear, organic, and environmental chemical fundamentals. Students who have earned credit for Chemistry 105 may not subsequently receive credit for Chemistry 111 or 113. Three lectures and one lab per week. *Fall semester, four hours.*

CHEM 111. GENERAL CHEMISTRY I. The first semester of a year-long introduction to the fundamental principles of chemistry, including stoichiometry, nomenclature, basic reactions (solubility, acid-base and oxidation reduction), gas laws, Laws of Thermodynamics (enthalpy, entropy, Gibb's free energy and equilibrium constant), electronic structure, bonding, molecular structure, properties of pure liquids and solids, and solutions. No credit will be given to students who have already received credit for Chemistry 105. *Fall semester, three hours.*

CHEM 112. GENERAL CHEMISTRY II. The completion of the introductory survey of the fundamental principles of chemistry which begins in Chemistry 111. Topics covered include concepts and theories of rates of reaction, chemical equilibrium, aqueous equilibria, electrochemistry, coordination chemistry, nuclear chemistry, descriptive main group chemistry, and an introduction to organic chemistry. Prerequisite: Chemistry 111 or 105. *Spring semester, three hours.*

CHEM 113. GENERAL CHEMISTRY LAB I. This course will develop laboratory skills in measurement, use of volumetric glassware and titration. Students will learn to use visible spectrometers, calorimeters, and data probes to record results on their computers. They will be exposed first-hand to concepts in Chemistry 111 like solubility, acid-base neutralization, gas laws and colligative properties. Pre- or Co-requisite: Chemistry 111. *Fall semester, one hour.*

CHEM 114. GENERAL CHEMISTRY LAB II. Students will continue to refine lab skills begun to develop in Chemistry 113. They will be exposed first-hand to concepts from Chemistry 112 including kinetics, acid-base behavior, electrochemistry, and enthalpy of reaction. A working knowledge of the following instruments will also be expected by the end of the semester: benchtop GC, pH data probes, digital multimeter and Spectronic 20. Prerequisite: Chemistry 113. Pre- or Co-requisite: Chemistry 112. *Spring semester, one hour.*

CHEM 141. BEGINNING BIOCHEMISTRY. An introduction to the history, methods and major questions of biochemistry intended for students who have completed one

semester of general chemistry. The major themes of biochemistry will be addressed through multiple modes of instruction-lecture, literature discussion and laboratory work. One meeting per week. Prerequisite: Chemistry 111. *Spring semester, two hours.*

CHEM 151. INTRODUCTION TO FORENSIC SCIENCE. This course provides an overview of the field of forensic science and will cover scientific principles and their application in the analysis of crime scene evidence. Topics covered will include glass and soil, microscopy, bloodstains, hair and fiber analysis, fingerprinting and firearms. Meets once per week. *Alternate years, fall semester, three hours.*

CHEM 190. STUDIES IN CHEMISTRY. This course is used to present various introductory topics in chemistry. *One, two or three hours.*

CHEM 227. ANALYTICAL CHEMISTRY. A study of the theoretical basis and laboratory techniques necessary for the solution of problems in quantitative chemical analysis. Three lectures and one lab per week. Prerequisites: Chemistry 112 and 114. *Fall semester, four hours.*

CHEM 231. DESCRIPTIVE INORGANIC/BIOINORGANIC CHEMISTRY. A survey of descriptive inorganic and bioinorganic chemistry. The course is designed to give students an introduction to main group inorganic chemistry, bioinorganic chemistry, and molecular symmetry/group theory. Two lectures per week. Prerequisite: Chemistry 112 and 114, or 105. *Spring semester, two hours.*

CHEM 235. CHEMISTRY IN CONTEXT. Building on the foundation of General Chemistry, topics include current issues in chemistry, research and career opportunities, ethics, and the integration of the Christian faith, researching the chemical literature and an introduction to modern instrumentation. This course is designated Information Literacy (IL). Prerequisite: Chemistry 112 and 114. *Fall semester, one hour.*

CHEM 241. ORGANIC CHEMISTRY I. An introduction to the structure and chemistry of carbon compounds including alkanes, stereochemistry, haloalkanes, alcohols, ethers, and alkenes. Structure determination by spectroscopic methods is introduced. Three lectures and one lab per week. Prerequisites: Chemistry 112 and 114. *Fall semester, four hours.*

CHEM 242. ORGANIC CHEMISTRY II. A continued study in the chemistry of organic compounds including alkynes, conjugated systems, aromatic compounds, aldehydes and ketones, carboxylic acids and their derivatives, amines, and biological molecules. Structure determination by spectroscopic methods is emphasized. Three lectures and one lab per week. Prerequisite: Chemistry 241. *Spring semester, four hours.*

CHEM 245. INTRODUCTION TO MOLECULAR MODELING. An introduction to the application of molecular modeling to the structure, reactivity, and spectra of molecules. The focus will be on what can be accomplished using presently available computational chemistry programs and how to use the programs to accomplish these tasks. The theoretical background of the techniques and algorithms is treated from a user's perspective, emphasizing practical impacts of various choices the user can make in choosing methodology. Students apply the techniques covered in class to small chemical systems and compare results of various approximations. Prerequisites: Chemistry 241 and Mathematics 161. *Spring semester, two hours.*

CHEM 260. INDEPENDENT STUDY. Individual study of specialized topics in chemistry. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

CHEM 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in chemistry. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

CHEM 330. INTRODUCTION TO CLINICAL MEDICNE. This course introduces the practice of clinical medicine by practicing physicians, integrating studies in biology, chemistry, mathematics, and physics in application to a future health career. Students will learn how to take basic medical histories, perform a general physical examination, and begin to develop differential diagnoses for various disease processes. The course will examine clinical medicine through a detailed examination of the body's major systems including the cardiovascular, pulmonary, musculoskeletal, gastrointestinal, nervous, and hematological systems. Prerequisites: Chemistry, Biology or Exercise Science majors with junior or senior standing or by permission of instructor. One evening per week. *Fall semester, one hour.*

CHEM 342. PHYSICAL CHEMISTRY OF BIOLOGICAL SYSTEMS. An overview of physical chemistry with particular application to life sciences. Topics include thermodynamics, equilibrium, kinetics, molecular motion, molecular spectroscopy, molecular structure and modeling. Three lectures and one lab per week. Prerequisites: Chemistry 241 and Mathematics 162. *Spring semester, four hours.*

CHEM 345. MICROSCOPIC PHYSICAL CHEMISTRY: QUANTUM MECHANICS AND SPECTROSCOPY. An introduction to the principles of quantum mechanics and their application in describing molecular properties. An emphasis is placed on developing a solid understanding of the principles of spectroscopy and electronic structure. Three lectures and one lab per week. Prerequisites: Chemistry 231 and Mathematics 261. *Fall semester, four hours.*

CHEM 346. MACROSCOPIC PHYSICAL CHEMISTRY: STATISTICAL MECHANICS, THERMODYNAMICS, AND KINETICS. The relationships between the properties of macroscopic systems are developed to gain an understanding of chemical equilibrium. The principles of statistical mechanics are introduced to show how thermodynamic properties can be predicted from molecular properties described by quantum mechanics. Connections are developed between chemical kinetics and reaction mechanisms. Three lectures and one lab per week. Prerequisites: Chemistry 112 and 114, or 105; and Mathematics 261. *Spring semester, four hours.*

CHEM 351. BIOCHEMISTRY I. An introduction to the molecular forces, equilibria and macromolecules that comprise living organisms. Emphasis is placed on proteins as the enzymatic catalysts of metabolism and the central role of carbohydrates in intermediary metabolism. Three lectures and one lab per week. Prerequisite: Chemistry 242. *Fall semester, four hours.*

CHEM 352. BIOCHEMISTRY II. A continued study of the molecular forces, equilibria and macromolecules that comprise living organisms. Emphasis is on the structures and biological roles of lipids, proteins and nucleic acids. There is also a focus on experimental methods and related molecular technologies. Three lectures and one lab per week. Prerequisite: Chemistry 351. *Spring semester, four hours.*

CHEM 360. INDEPENDENT STUDY. Individual study of specialized topics in chemistry. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

CHEM 370. INDEPENDENT RESEARCH. Juniors who have displayed aptitude in chemistry perform assigned research problems. This course may not be taken concurrently with Chemistry 499. Three hours of laboratory work per week per credit hour. Junior standing, permission of the department chair, and a faculty sponsor are required. *One or two hours.*

CHEM 390. STUDIES IN CHEMISTRY. This course is used to present various advanced topics in chemistry. *One, two or three hours.*

CHEM 402. TECHNIQUES IN CHEMISTRY CLASSROOM AND LABORATORY INSTRUCTION. A course limited to Chemistry Secondary Education (CSED) and General Science Secondary Education (CGSE) majors involving instruction and experience in setting up and conducting effective educational chemistry demonstrations and laboratories. Students will also gain experience in scientific lecture preparation, including multiple lecture opportunities both in the classroom and laboratory settings. Prerequisites: Chemistry 227 and 241. *Alternate years, fall semester, two hours.*

CHEM 406. INSTRUMENTAL ANALYSIS. A course focused on instrumental theory, methods and design, and the application of modern instrumentation in chemical analysis. Two lectures and two labs per week. Prerequisite: Chemistry 227; Recommended: Chemistry 346. *Spring semester, four hours*.

CHEM 408. FORENSIC CHEMISTRY. This course will provide students with exposure to the processing and analysis of forensic samples. Students will learn how to quantitatively analyze sample collections used as evidence in the crime lab, structure and organize lab reports and interpret data to be used for evidence. In addition, analytical methods including chromatography, mass spectroscopy, absorbance spectroscopy, fingerprint identification and microscopy used in forensic applications will be covered. One lecture and 4-hour lab per week. Prerequisite: Chemistry 227. Corequisite Chemistry 406. *Alternate years, spring semester, two hours.*

CHEM 422 INORGANIC SYNTHESIS LABORATORY. This course involves the synthesis and physical characterization of inorganic and organometallic compounds of main group and transition metal compounds. Two labs per week. Prerequisites: Chemistry 231 and 242; Corequisite: Chemistry 431. *Fall semester, two hours.*

CHEM 428. ORGANOMETALLIC CHEMISTRY. A study of the synthesis and properties of organometallic compounds and their role in modern catalytic processes. The rapidly growing areas of bioinorganic and bioorganometallic chemistry is discussed. Three lectures per week. Prerequisite: Chemistry 431. *Offered periodically, three hours.*

CHEM 431. ADVANCED INORGANIC/ORGANOMETALLIC CHEMISTRY. An in-depth study of transition metal chemistry. The relationships between the symmetry of molecules and their physical and chemical properties will be explored, as well as the role that organometallic compounds play in modern catalytic processes. Two lectures per week. Prerequisites: Chemistry 231; and Chemistry 342 or 345. *Fall semester, two hours.*

CHEM 441. CRYSTAL STRUCTURE ANALYSIS. An introduction to the principles of x-ray crystallography. Theory of x-ray diffraction will be covered in addition to instruction

on selecting, mounting, analyzing, refining and determining structures of various crystals. Students will learn to operate a bench-top x-ray instrument and become proficient with operational and analytical software. Prerequisite: Chemistry 231.

Alternate years, fall semester, two hours.

CHEM 445. ADVANCED COMPUTATIONAL CHEMISTRY. Computational chemistry methods are used today in such diverse fields as neuroscience, pharmaceuticals, interstellar chemistry, and catalysis. This course will build upon the introduction to molecular modeling presented in Chemistry 245 and focus on *ab initio* methods of calculating properties and interactions of small molecules to solve chemical problems. Practical use of commercial software will constitute a major component of the students' assessment. Two lectures per week. Prerequisite: Chemistry 245 and Corequisite: Chemistry 345; or Prerequisite: Chemistry 245, 342, and Mathematics 162.

Alternate years, spring semester, two hours.

CHEM 451. BIOCHEMISTRY: DATA AND ANALYSIS. A continued study of the macromolecules of living systems, their structures and the methods used to elucidate those structures. Emphasis is placed on the generation, analysis and presentation of data from a variety of experimental approaches with special consideration given to the unifying theme of computer-aided data analysis. Three lectures per week. Prerequisite: Chemistry 352.

Fall semester, three hours.

CHEM 453. ADVANCED MOLECULAR SPECTROSCOPY. A study in modern spectral analysis for the determination of molecular structure, including advanced topics involving mass spectrometry, infrared spectrometry, and multiple pulse NMR techniques such as 2-dimensional NMR. Two lectures per week. Prerequisite: Chemistry 242.

Alternate years, spring semester, two hours.

CHEM 458. ADVANCED SYNTHESIS LABORATORY. This course is designed to give the student a broad range of advanced synthetic laboratory experiences. The course covers the synthesis of a wide range of organic, inorganic, and organometallic compounds involving specialized techniques typical of a research environment. Two labs per week. Prerequisite: Chemistry 242. *Alternate years, spring semester, two hours.*

CHEM 460. INDEPENDENT STUDY. Individual study of specialized topics in chemistry. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

CHEM 463. POLYMER CHEMISTRY. An introduction to the structure, synthesis, and physical properties of the major organic polymers. Two lectures per week. Prerequisite: Chemistry 242. *Alternate years, fall semester, two hours.*

CHEM 466. ADVANCED ORGANIC CHEMISTRY. A detailed study of organic reactive intermediates and organic reaction mechanisms. Two lectures per week. Prerequisite: Chemistry 242. *Alternate spring semesters, two hours.*

CHEM 467. MEDICINAL CHEMISTRY. The author of the textbook states "The primary objective of medicinal chemistry is the design and discovery of new compounds that are suitable for use as drugs." This course will examine how lead compounds are identified and optimized to maximize their therapeutic effect; and how once a potential drug is identified, it is formulated and administered to reach the target site in the body, its action at the target site and how it is metabolized. Modern methods in drug development and the process of

getting a drug to market will also be addressed. Prerequisite: Chemistry 242.
Alternate spring semesters, two hours.

CHEM 470. INDEPENDENT RESEARCH. Seniors who have displayed aptitude in chemistry perform assigned research problems. This course may not be taken concurrently with Chemistry 499. Three hours of laboratory work per week per credit hour. Prerequisite: Chemistry 370, permission of the department chair, and a faculty sponsor are required.
One or two hours.

CHEM 480. INTERNSHIP IN CHEMISTRY. Selected students participate in an individual field experience in a research laboratory under the supervision of professional staff. Minimum two weeks work required per intern credit hour. The grade is determined on the basis of a written evaluation by the cooperating institution mentor and a written report by the student submitted to the Chemistry Department. Prerequisites: Minimum 24 hours in chemistry and permission of the department. *One to six hours.*

CHEM 487. BIOCHEMISTRY SEMINAR. This course includes faculty directed reading, analysis, and discussion of biochemical literature. The course also involves in-depth research, written paper, and oral presentation of an approved topic selected by the student. Senior status in the department required for enrollment. This course is designated Writing Intensive (WI) and Speaking Intensive (SI). *Spring semester, one hour.*

CHEM 488. CHEMISTRY SEMINAR. This course includes faculty directed reading, analysis, and discussion of chemical literature. The course also involves in-depth research, written paper, and oral presentation of an approved topic selected by the student. Senior status in the department required for enrollment. This course is designated Writing Intensive (WI) and Speaking Intensive (SI). *Fall semester, one hour.*

CHEM 499. HONORS IN CHEMICAL RESEARCH. Seniors who have shown special aptitude in chemistry may, with the consent of the Department of Chemistry, undertake supervised chemistry research. Not to exceed two hours each semester. *One or two hours.*

Communication and Design

Dr. K. Miller, Chair; Prof. Mucha, Director of Design; Prof. Bandy, Dr. Kim, Prof. Pacione. Additional Instructional Faculty: Prof. Craig, Dr. Edwards, Prof. Hammond, Prof. Hansford, Dr. Krajacic, Prof. M. Miller, Prof. Ruby, Dr. Shepson.

Course Requirements for Bachelor of Arts Degree in Communication Arts—36 hours

Communication Arts Core (15 hours):
Communication Arts 104 or 109 (total of three hours), 135, 215, 225, and 312.

Communication Arts Electives (18 hours):

Media & Design (6 hours):
Two courses from Communication Arts 245, 277, 279, 359, 378, 388, Design 101, 102, 201, or 210.

Culture & Theory (6 hours):
Two courses from Communication Arts 222, 240, 250, 304, 305, 352, 362, 427, 444.

Professional & Technical (6 hours):
Two courses from Communication Arts 235, 300, 303, 405, 406, 459, or Art 320.

Capstone Elective (3 hours):
Choose three hours from Communication Arts 470, 480, 488, or 499.

Courses that count in the Communication Arts major quality point average (MQPA):
All courses with "COMM" prefix. A minimum MQPA of 2.00 is required to graduate.

Recommended Electives:
The required courses and electives provide the graduating student a strong foundation for a career in professional communication, graduate study in communication, or more effective performance in the career of his/her choice. Additional recommendations include two-years of language study at the college level and a minor in an area of interest including Design, English, Entrepreneurship, International Business, International Studies, Management, Marketing, Psychology, Sociology, or Theatre. Students are encouraged to discuss their vocational interests with their advisors so they can design a tailored plan for their program of study.

Course Requirements for Bachelor of Science Degree in Design and Innovation—63 hours

Design and Innovation Core (36 hours):
Design 101, 102, 201, 202, 207, 210, 301; Communication Arts 135; Entrepreneurship 101, 104, 201; and Marketing 104.

Design and Innovation Major Electives (27 hours):

Communication Arts Electives (9 hours):
Choose three courses from Communication Arts 104, 245, 277, 303, 406, 470, 480, or any 300- or 400-level Communication Arts courses.

Entrepreneurship Electives (9 hours):
Choose three courses from Entrepreneurship 309, 328, 330, 409, 470, 480, or any 300- or 400-level Entrepreneurship courses.

Marketing Electives (6 hours):
Choose two courses from Marketing 319, 415, 417, or 420.

Capstone Elective (3 hours):
Choose one course from Design 401, 402, or 480.

Courses that count in the Design and Innovation major quality point average (MQPA):
All courses with "DESI", "COMM", "ENTR", and "MARK" prefix. A minimum MQPA of 2.00 is required to graduate.

The faculty in the Department of Communication and Design is committed to providing the opportunities Communication Arts majors and other students need to excel in oral, written, and visual communication. For success in today's society, information literacy is also a critical skill. To these ends, Communication Arts 104 is designated as a Speaking Intensive (SI) course; Communication Arts 135 and Communication Arts 312 are designed as Writing Intensive (WI) courses; and Communication Arts 312 and Design 201 address the key issues involved with Information Literary (IL) and are designated as such. These

courses include learning experiences that are designed to prepare Communication Arts majors to be effective and ethical producers and consumers of knowledge.

SUPPORTING ACTIVITIES

The Department of Communication and Design offers students significant co-curricular activities, including:

- The Speech and Debate Team, which participates in both individual events and group debate.
- American Institute of Graphic Arts (AIGA) student group.
- Involvement with *The Collegian* (campus newspaper), Wolverine Broadcast Network (radio station), *The Echo* (literary magazine), or the College's Office of Marketing and Communications.
- Internships, whereby students earn academic credit for work done in conjunction with a professional organization related to communication (e.g., local newspaper, radio, or television station). See the course description for Communication Arts 480.

Course Requirements for a minor in Communication Arts (18 hours)

A minor in Communication Arts will consist of Communication Arts 104 or 109 (total of 3 hours); one theory course from Communication Arts 215, 222, 304, or 305; and 12 additional hours from any courses with a COMM prefix. The one credit course, Theatre 259, may be repeated, and a maximum of three hours may count toward the minor. A Communication Internship (Communication Arts 480) may not count as an elective course toward the minor.

Course Requirements for a minor in Design (21 hours)

A minor in Design will consist of Design 101, 102, and 15 hours of Design courses.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Communication Arts (COMM)

COMM 104. PUBLIC SPEAKING AND RHETORIC. Introduces students to the preparation and presentation of material for a variety of public speaking situations. This performance-oriented class offers instruction in the theory of rhetoric, material development, and delivery techniques. Students will review the historical importance of oral communication and the role it plays in society. This course is designated Speaking Intensive (SI). *Three hours.*

COMM 109. FORENSICS. A skills-based course designed to improve students' ability to analyze ideas, advocate ideas in individual debate, and to prepare and deliver oral communications. Students will develop and refine their ability to research, organize, and present orally ideas in the form of informative, critical, and persuasive speeches, Lincoln-Douglas style debates, or individual performances of literature in the form of oral interpretation of literature. May be taken up to three times. *One hour.*

COMM 135. WRITING FOR THE MEDIA. Provides an introduction to the substance, structure, and style of multiple forms of non-narrative mass media including print, broadcast, film, and the Internet. This course is designated Writing Intensive (WI).
Three hours.

COMM 215. PRINCIPLES OF MEDIA. This course offers an introduction of the historical and conceptual foundations of media, including oral, print, photographic,

broadcast, cinematic, and digital cultural forms and practices. Drawing upon a comparative approach, students will examine the nature of mediated communication, the functions of media, and the history of transformations in media and the institutions that help define media's place in society. *Three hours.*

COMM 222. FILM HISTORY AND THEORY. Encompasses the history of the motion picture from its invention in 1895 to the present day, focusing on American film. Introduction to film theories and criticism including principles of aesthetics and the art of how a film is created, from concept to completion. *Three hours.*

COMM 225. INTERCULTURAL COMMUNICATION. Provides an overview of the study of communication and culture. Course content focuses primarily on the theory and practice of communication in intercultural contexts. Students will examine cross-cultural communication (communication across cultures) and intercultural communication (communication between members of different cultures). This course is especially suited to students whose future careers may involve travel overseas or business with non-native Americans. *Three hours.*

COMM 235. JOURNALISM. Reviews a variety of print and broadcast media, exploring editorial style and slant. Fundamental newsgathering and news writing skills will be studied and practiced. Students will gather information from campus, community, and research sources in order to develop hard news, feature, and in-depth stories. Ethical and legal issues will be explored as well as the role of print media in shaping current events. *Three hours.*

COMM 240. MEDIA CRITICISM. An introduction to theoretical approaches and practices used to analyze the content, structure, and context of media in society. Primary attention will be paid to how the fundamental elements of media combine to create meaning and tell stories, the forms media texts make, and the way these structures influence viewers/listeners/users. The course will also explore what media is and why various media forms have developed in certain ways through history and across nations. Students will understand, analyze, and apply a working knowledge of terms and concepts underlying contemporary media studies, the economic, social, and political impact of the media industries, and the aesthetic and ethical implications of the media in the context of a Biblical worldview. *Three hours.*

COMM 245. DIGITAL PHOTOGRAPHY. This course will cover foundational photography principles in the context of how the art and techniques of photography now come together through the tools of the camera, the computer and industry-standard software. Students will work and be guided through assigned projects with digital cameras and systems to learn how to leverage emerging technologies of imagery. *Three hours.*

COMM 250. DIGITAL CITIZENSHIP. To be a digital citizen in today's global village one must know how to navigate the various online venues and be tuned into the ethical behavior governing their use. This course will use hands-on learning, discussion and reading to explore this digital world. Students will create blogs, wikis, avatars, podcasts, upload photos to Flickr and learn about tagging in sites like Delicious. Students will ponder the sociological impact of this Internet world and explore their own reactions to it by being actively involved in it. Prerequisite: Communication Arts 215. *Three hours.*

COMM 260. INDEPENDENT STUDY. Individual study of specialized topics in communication studies. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

COMM 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in communication studies. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

COMM 277. AUDIO PRODUCTION. Reviews the basics of audio production for recording. A particular emphasis is placed on the medium of radio including web casting. Consideration will be given to the history of radio broadcasting; properties of sound; microphone types; recording and control room techniques; and computerized editing of audio materials. Students will undertake a variety of practical projects in public affairs, news, sports, remote, music, and drama programming with opportunity for airing quality work on the College radio station. *Three hours.*

COMM 279. SCREENWRITING THE SHORT FILM. In this course, students will learn how to develop a short film screenplay. Students will learn that telling the truth through stories is the most important aspect of storytelling, they will develop a framework for understanding / applying foundational, storytelling principles, and learn to conceptualize, write, edit and follow basic format guidelines for screenwriting. *Three hours.*

COMM 290. STUDIES IN COMMUNICATION. Intensive examination of an area of communication not fully covered by regular departmental offerings. Subject matter varies each semester. *Offered periodically, one, two or three hours.*

COMM 300. PUBLIC RELATIONS. Focuses on public relations theory, strategy, and techniques. The course emphasizes writing and developing public relations campaigns; theories of public persuasion; legal and ethical considerations; and crisis management and related issues. Students will develop a portfolio for a campus or community organization which will include: an overall campaign plan, news releases, a brochure, a speech, a print advertisement, a radio advertisement, and a final campaign presentation. Prerequisite: Communication Arts 135 or 235 recommended. *Three hours.*

COMM 303. PROFESSIONAL COMMUNICATION. Focuses on speaking and writing tools most often used by business professionals. Presentational speaking, personal communicative development, professional communication, and interviewing will be emphasized. Issues that relate to professional success will be explored. Must have junior or senior standing. *Three hours.*

COMM 304. INTERPERSONAL COMMUNICATION. This course examines the fundamental principles of effective interpersonal communication. Students are given the opportunity to work in experiential learning groups and to reflect on effective and ineffective interpersonal communication processes. Effective interpersonal communication is a critical component of competent and ethical decision-making. Emphasizing a relational view of communication – one that explores how relationships are created, negotiated, maintained, and in some cases terminated – this course is designed with a dual approach consisting of both theory and application that allows for the opportunity to critically analyze and evaluate the intricacies of interpersonal relationships in various contexts. *Three hours.*

COMM 305. PERSUASION THEORY. Explores a variety of media to ascertain the persuasive messages inherent in each genre. The course will familiarize the students with the processes of persuasion, methods of studying persuasion, the theories of persuasion, and ethical concerns about persuasion. The perspectives and tools developed should enable the student to develop effective message strategies in both professional and personal life. An

excellent course for pre-professional majors and students involved in speech and debate. Prerequisite: Communication Arts 215. *Three hours.*

COMM 312. RESEARCH METHODS IN COMMUNICATION. This class examines the fundamentals of research approaches that are used in communication studies, both qualitative and quantitative. The course also examines a variety of actual communication research studies across the breadth of the field from interpersonal to mass communication. Students will learn questionnaire design and interviewing techniques. This course is designated Writing Intensive (WI) and Information Literacy (IL). Prerequisite: Communication Arts 215; junior or senior standing, or permission of the instructor. *Three hours.*

COMM 352. CHRISTIAN FAITH AND CINEMA. A survey of films, both the decidedly Christian and decidedly secular. The student will consider the importance of a film's theme in deciding its worth, criteria by which they can choose valuable films to watch, and will evaluate secular films through a Christian perspective. The student will also learn what it means to possess a Biblical worldview and how "other" worldviews permeate popular cinema. *Three hours.*

COMM 359. SCREENWRITING. This course is an introductory course for screenwriters. Topics of study will include character development, plot structure, storytelling techniques in film, as well as the narrative structure. Students will study films and screenplays as they learn to recognize various elements mentioned previously in feature films. Additionally, students will learn to craft their own stories for the screen. *Three hours.*

COMM 360. INDEPENDENT STUDY. Opportunities for students with extensive background in communication studies to do intensive independent study or research on specialized topics. Sophomore or higher standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

COMM 362. MEDIA LAW AND ETHICS. Reviews relevant communication and media law and addresses a variety of communication-related ethical issues such as: libel, privacy, copyright, newsgathering rights, etc. *Three hours.*

COMM 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in communication studies. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

COMM 378. VIDEO PRODUCTION. An introduction to broadcasting history, media aesthetics, and the technology and practice of multimedia production. Lectures, tutorials, and hands-on experience with cameras, microphones, lighting, and computer-based video editing will provide the basis for further study and internships in this influential medium of mass communication. *Three hours.*

COMM 388. ADVANCED VIDEO PRODUCTION. Advanced Video Production will provide instruction in narrative media production, with an emphasis on studio level/team projects. This may include documentary films, short films, news packages, special programs and shows, etc. Preproduction, production, and post-production phases are carefully developed and guided with faculty assistance and industry professionals. Each project will build on key fundamentals to develop professional levels of production expertise and create more portfolio-quality projects for students. With instructor permission, students may take the course more than once, with a requirement that a completely new and more advanced project will be undertaken each time. Prerequisite: Communication Arts 378. *Three hours.*

COMM 390. STUDIES IN COMMUNICATION. Intensive examination of areas of communication not fully covered by regular departmental offerings. Subject matter varies each semester. *Offered periodically, one, two, or three hours.*

COMM 405. SPECIAL EVENTS AND PROMOTIONS. This course offers an introduction to the principles and practices relevant to successful event planning. The course content will explore a variety of topic areas such as social and cultural phenomenon of special events, site selection, program planning, budgeting and sponsorships, vendor and volunteer staff management, and publicity. Through the process of researching, planning, coordinating, and evaluating events, students will learn how to design and execute events, meetings, conferences, and conventions for a variety of organizations including trade and professional associations, non-profit organizations, and corporations. Students may (under the direction of the instructor) opt to take this course a second time ONLY IF they actively participate as a leader in a new/ different role than in previous semester. Prerequisites: Junior or senior standing, or permission of instructor. *Three hours.*

COMM 406. SOCIAL MEDIA WRITING. This course will explore a variety of social media writing experiences. Solid writing practices will be defined (grammar, structure, research), followed by practical experiential learning where students will write for a variety of online platforms. Students will complete the course with a solid foundation on which to build careers in numerous areas- marketing, writing, and production, among others. While specific platforms will be explored, it is a distinct aim of the course to give students the tools they need to write for existing social media as well as new and emerging media. Prerequisite: Junior or senior standing, or permission of instructor. *Three hours.*

COMM 427. RHETORICAL CRITICISM. This course is required for Communication Studies majors. Students study a variety of rhetorical-critical methodologies including metaphoric, pentadic, cluster, narrative, fantasy, theme, and ideological approaches. Students engage in rhetorical criticism throughout the term. The final project is an original rhetorical critique of a significant text for submission to a professional conference or publication. Prerequisites: Communication Arts 312 and senior status or permission of instructor. *Three hours.*

COMM 444. ADVANCED FILM THEORY. A deeper look at the medium of motion pictures from the point of view of film theorists including semiotics; realism; expressionism; *auteur* theory; cinema as art; montage; film as narrative; literature and adaptations to the screen; documentary and propaganda approaches; genre conventions; psychology; sociology; mythology; and ideology. *Alternate years, three hours*.

COMM 459. ORGANIZATIONAL COMMUNICATION. Provides a critical exploration of organizational communication theory, research, and application. This course examines the factors involved in the functioning and analysis of complex organizations, particularly the direct and indirect ways in which communication processes and social dynamics affect organizations and employee interaction. *Three hours*.

COMM 460. INDEPENDENT STUDY. Opportunities for students with extensive background in communication studies to do intensive independent study or research on specialized topics. Sophomore or higher standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

COMM 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in communication studies. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

COMM 480. INTERNSHIP IN COMMUNICATION. Students may, with consent of the department, earn academic credit for work done in a communication-related organization (e.g., newspaper; radio or television station; public relations office; business; etc.). Students must arrange for a faculty advisor, contact the organization where work will be done, keep a daily log of activities, and write a final paper summarizing the internship. Students must work 60 contact hours for each academic credit earned. Sophomore or higher standing and permission of the department internship coordinator are required. *One to six hours.*

COMM 488. SEMINAR. An advanced course for junior and senior Communication Arts majors to concentrate on specific subject matter to be determined by the instructor. Individual research and extensive oral and written reports are required. *Three hours.*

COMM 499. HONORS IN COMMUNICATION. The student who chooses to pursue work beyond the basic requirements may do extensive reading in one of the following areas: media studies; organizational communication; public relations; audio and video production; filmmaking; oral interpretation; public address; group communication; and rhetorical or communication theory. Extensive research paper and independent reading required. Prerequisites: Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

Design (DESI)

DESI 101. INTRO TO VISUAL COMMUNICATION DESIGN. This course is an in-depth analysis of design principles and formal concepts that builds fundamental knowledge of design as a visual language and communication tool. Students will learn through practical application using industry-standard software. *Three hours.*

DESI 102. DESIGN THINKING. Students will investigate essential processes that form the basis for all types of design disciplines including the ability to think divergently, problem solve, and empathize. *Three hours.*

DESI 110. DESIGN SOFTWARE FOR BEGINNERS. Adobe Creative Suite is the industry-standard tool set for virtually every design practitioner. In this class, students learn about Adobe Creative Cloud and how to use Photoshop, Illustrator, and InDesign while integrating them in a logical workflow. *Three hours.*

DESI 190. STUDIES IN DESIGN. Intensive examination of areas of design not fully covered by regular departmental offerings. Subject matter varies each semester.
Offered periodically, one, two, or three hours.

DESI 201. VISUAL COMMUNICATION DESIGN I. In this course, students are challenged with complex design problems for both print and digital environments with a particular emphasis on typography and layout. This course is designated Information Literacy (IL). Prerequisite: Design 101. *Three hours.*

DESI 202. VISUAL COMMUNICATION DESIGN II. This course continues to cultivate skill in applying design principles and tools as students manipulate form and image to create conceptually strong designs and visual systems. Prerequisite: Design 201. *Three hours.*

DESI 207. WEBSITE DEVELOPMENT FOR DESIGNERS. This is a foundational course in the essential tools and technologies upon which websites are built. It is a course designed for students approaching website development from a design and communication perspective and assumes no prior experience with programming or web development

technologies. In this course, students will learn HTML and CSS, and will be able to demonstrate how to structure, style, and publish websites. Prerequisite: Design 101.
Three hours.

DESI 210. INTERACTIVE DESIGN. This course introduces students to strategy-based process for planning and designing digital user experiences as well as the essentials of web design using industry-standard software. Prerequisite: Design 101. *Three hours.*

DESI 220. DESIGN HISTORY. In this course, students will explore the origins of visual communication and its evolution into the professional discipline commonly referred to as "Design". This is an introductory course that provides students with cultural and contextual understanding of various professional design disciplines. Students will spend time studying art and design movements, trends, and key individuals associated with each. *Three hours.*

DESI 290. STUDIES IN DESIGN. Intensive examination of areas of design not fully covered by regular departmental offerings. Subject matter varies each semester.
Offered periodically, one, two, or three hours.

DESI 301. VISUAL COMMUNICATION DESIGN III. In this course, students investigate the design of logos, marks, and brands in a variety of scenarios. Students will craft strategies, work with realistic constraints, and consider how a brand communicates across a variety of channels as a system. Prerequisite: Design 201. *Three hours.*

DESI 390. STUDIES IN DESIGN. Intensive examination of areas of design not fully covered by regular departmental offerings. Subject matter varies each semester. Prerequisite: Design 101. *Offered periodically, one, two, or three hours.*

DESI 401. DESIGN IN PRACTICE. This course introduces students to professional aspects of design such as portfolio preparation and presentation, formulating and pitching design concepts, understanding client needs, and creating professional design documents such as proposals, statements of work, and invoices. Students will also learn about pricing, formatting for project delivery, and how to collaborate with clients. Prerequisite: Design 101 and junior or senior standing. *Three hours.*

DESI 402. SERVICE LEARNING: DESIGN STUDIO. In this course, students will experience what it is like to work with real clients while functioning as a collaborative and creative team. Unlike traditional assignments directed by the professor, projects will be defined by the needs of the client, giving students the opportunity to apply their Christ-centered design skills in service to real people and real organizations with real needs. The course emphasizes not only design excellence but also professional practice. How students prepare for client meetings, present themselves and their work, to the client, collaborate with teammates and deliver solutions in a timely manner will be as important as the quality of their creative output. Students will also be introduced to the concept of a Statement of Work (SOW) that outlines deliverables, timelines, and client expectations. Through this experience, students will gain valuable exposure in project/time management, client communication, and professional accountability alongside their design work itself. Prerequisites: Design 102, 202, junior or senior standing, or permission of the instructor.
Three hours.

DESI 480. INTERNSHIP IN DESIGN. Students may, with consent of the department, earn academic credit for work done in a design-related organization. Students must arrange for a faculty advisor, contact the organization where work will be done, keep a daily log of activities, and write a final paper summarizing the internship. Students must work 60 contact

hours for each academic credit earned. Sophomore or higher standing and permission of the department internship coordinator are required. *One to six hours.*

Computer Science

Dr. Dellinger, Chair; Dr. Dickinson, Dr. Hutchins, Prof. Johnson, Dr. B. Wolfe, Dr. Zhang. Additional Instructional Faculty: Dr. M. W. Bright

The Computer Science Department seeks to provide its students with a solid foundation in the field of computing in order to prepare them for employment in an exciting industry or for advanced studies in top-ranked graduate schools. This foundation is built on knowledge of mathematics, programming languages, algorithms and data structures, and theory. In addition, students explore advanced topics, research projects, and technology projects.

The Department believes that it must transmit more than technical expertise to its students: whenever possible, the curriculum emphasizes the need for students to understand their responsibilities to society and to behave ethically, as well as to strengthen and live their Christian faith and witness to the professional community.

Students who complete a Bachelor of Science in Computer Science or Computer Programming are prepared to use their computer science skills in a variety of jobs or in their graduate education. Students who complete a Bachelor of Science in Data Science are equipped with a combination of mathematics, statistics, computer science, and data science knowledge, as well as knowledge of a particular domain where they can apply data science techniques to solve practical problems. Broadly educated persons with computing skills are in great demand.

No matter what career is pursued, computing professionals must possess the ability to locate, evaluate, and use information. In addition, they must be able to communicate their ideas and conclusions clearly and coherently through the written and spoken word. Instruction in these core communication skills is provided in Computer Science 205, 350, 451, and 452, as well as DSCI 450, which cover the Writing Intensive (WI), Speaking Intensive (SI) and Information Literacy (IL) requirements. As a related concern, one of the significant problems in the computer field today is the proper application of ethics. For this reason, all computer science and computer programming majors are required to take Computer Science 205 *Ethics, Faith, and the Conscious Mind.*

The Computer Science Department has formulated the following objectives and specific outcomes to guide us in directing and evaluating our program.

Program Educational Objectives

1. Graduates active in the computer science profession will be successful because of strong technical skills, including problem-solving, theory, and software engineering.
2. Graduates active professionally will be successful because of strong communication and team skills.
3. Graduates' behavior will be guided by professional and ethical principles based on Biblical truths and a Christian worldview.

Student Outcomes

1. Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline

3. Communicate effectively in a variety of professional contexts
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
6. Apply computer science theory and software development fundamentals to produce computing-based solutions (B.S. in Computer Science only)

Computing Facility

The Computer Science department is located in the Science, Technology, Engineering, and Math (STEM) building. Students have exclusive use of two labs designed specifically to help students work collaboratively by utilizing horseshoe-shaped table and display configurations called "pods." Each of the eight pods in a room has a large monitor; students can connect their school-issued laptops to the monitor to display to their table or, with faculty permission, to show their work to the rest of class. Students also use the labs outside of class to work on group projects.

In addition, the Department has console-game development stations (e.g. Sony PS4), Apple MacBook computers, iPhones, and Android phones for mobile application development. All of this equipment is available for both class and research use. The Department also has dedicated equipment for work in computer security.

Course Requirements for Bachelor of Science Degree in Computer Programming—62-64 hours

Computer Science Core Requirements (37 hours):
Computer Science 141, 155, 205, 220, 222, 230, 244, 325, 340 or 342, 350, 451, and 452.

Computer Science Electives (15 hours):
Choose fifteen hours from any 300-400 level Computer Science, any 300-400 level Data Science courses, or ROBO 302.

Math Requirements: (10-12 hours):
Mathematics 118 or 213.
One of Mathematics 214, Statistics 331, Statistics 131, or Psychology 201.
Mathematics 141 or 161.

Courses that count in the Bachelor of Science in Computer Programming major quality point average (MQPA):

All courses with "COMP" prefix, MATH 118, and MATH 213. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for Bachelor of Science Degree in Computer Science—87-90 hours

Computer Science Core Requirements (27 hours):
Computer Science 141, 155, 220, 222, 230, 244, 314, 325, and 342.

Advanced Core Requirements (25 hours):
Computer Science 205, 340, 350, 422, 424, 448, 451, and 452.

Computer Science Electives (15 hours):
Choose fifteen hours from Computer Science 390, 401, 402, 435, 441, 442, 445, 446, 447, 475, Data Science 431, 450, or Robotics 302.

Math/Science Core Requirements: (20-23 hours):
Mathematics 161, 162, and 213.
Mathematics 214; or Mathematics 222 and Statistics 331.
Choose four credits from Physics 101; Physics 102; Physics 121; Physics 122; Chemistry 105 or both Chemistry 111 and 113; Chemistry 112 and 114; Biology 101; or Biology 102.

Courses that count in the Bachelor of Science in Computer Science major quality point average (MQPA): All courses with "COMP" prefix, "DSCI" prefix, and MATH 213. A minimum MQPA of 2.00 is required to graduate.

B.S. in COMPUTER SCIENCE MAJOR FOUR-YEAR PLAN

FRESHMAN YEAR	Fall	Spr.
COMP 141 – COMP 220	3	3
COMP 155 – MATH 162	3	4
MATH 161 – HUMA Course	4	3
Science Elec. – Writing Req.	4	3
HUMA 100 – Found. Soc. Sci.	1	3
	15	16

SOPHOMORE YEAR	Fall	Spr.
COMP 222 – COMP 205	3	3
COMP 244 – COMP 230	3	3
MATH 213 – COMP 342	4	3
HUMA Course – MATH 214	3	4
General Elec. – HUMA Course	3	3
	16	16

JUNIOR YEAR	Fall	Spr.
COMP 325 – COMP 314	3	3
COMP 422 – COMP 340	3	3
Comp. Sci. Elec. – COMP 350	3	3
Comp. Sci. Electives	3	3
HUMA Courses	3	3
General Electives	2	-
	17	15

SENIOR YEAR	Fall	Spr.
COMP 448 – COMP 424	3	3
COMP 451 – COMP 452	3	4
Comp. Sci. Electives	3	3
HUMA 300 – General Elec.	2	6
General Electives	6	-
	17	16

Note: *Students must work with their advisor during their sophomore year to create a plan for their computer science electives, since some electives are only offered in alternate years and require certain prerequisites.*

Course Requirements for Bachelor of Science Degree in Data Science—71-75 hours

Data Science Requirements (9 hours):
Data Science 201, 431, and 450.

Computer Science Requirements (18 hours):
Computer Science 141, 155, 220, 222, 244, and 435.

Technical Elective (3 hours):
Choose one course (3 credits) from Computer Science 230, 445, Management 210, or Statistics 412.

Math and Statistics Requirements (22 hours):
Mathematics 161, 162, 213, 214, Statistics 132, and one of Statistics 131 or Psychology 201. Note: Students may substitute Mathematics 222 and Statistics 331 for Mathematics 214.

Natural Science Requirement (4 hours):
Choose one course (4 credits) from Physics 101, 102, 121, 122, Chemistry 105, 111 and 113, 112 and 114, Biology 101 and 102.

Domain Concentration (15-19 hours):
Complete one of the following concentrations:

Behavioral and Social Sciences (choose focus area from below):

- *Economics*: Economics 101, 102, 120, and six hours from any 300-400 level Economics courses.
- *Exercise Science*: Exercise Science 101, six hours from any 300-400 level Exercise Science courses (excluding Exercise Science 305), and six hours from any additional Exercise Science courses.
- *Political Science*: Political Science 104, 201, one of Political Science 204 or 205, and six hours from any 300-400 level Political Science courses.
- *Psychology*: Psychology 101, six hours from any 300-400 level Psychology courses and six hours from any additional Psychology courses (excluding Psychology 201) or Education 102.
- *Social Work*: Social Work 101, 264, 342, 382, and three hours from any 300-400 level Social Work courses.
- *Sociology*: Sociology 101, 377, 473, and six hours from any 300-400 level Sociology courses.

Business (choose focus area from below):

- *Accounting*: Accounting 201, 202, 301, 321, and 407.
- *Business*: Accounting 201, 202, Finance 202, Management 103, and Marketing 104.
- *Entrepreneurship*: Accounting 201, Entrepreneurship 101, 102, 201, Finance 202, and two hours from any 300-400 level Entrepreneurship courses.
- *Finance*: Accounting 201, 202, Finance 202, 332, 442, and three hours from any 300-400 level Finance courses.
- *Management*: Management 103, 457, 475, and six hours from any 300-400 level Management courses.
- *Marketing*: Statistics 131, Marketing 104, 215, 319, 411, and 415.

Natural Sciences (choose focus area from below):

- *Biology*: Biology 101, 102, 233, 234, and three hours from any 300-400 level Biology courses.
- *Chemistry*: Chemistry 111 and 113, or 105; 112 and 114, 227, 241, and three hours from any 300-400 level Chemistry courses.
- *Physics*: Physics 101, 102, 135, 234, and three hours from any 300-400 level Physics courses.

Courses that count in the Bachelor of Science Data Science major quality point average (MQPA):
All courses with "DSCI" prefix; COMP 141, 155, 220, 222, 244, 435; MATH 161, 162, 213, 214, 222; PSYC 201; STAT 131, 132, and 331. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a minor in AI and Machine Learning (19 hours)
A minor in AI and Machine Learning will consist of one of Psychology 201 or Statistics 131; Mathematics 214 or both Mathematics 222 and Statistics 331; and Computer Science 222, 422, 435, and 445.

Course Requirements for a minor in Computer Game Design and Development (19 hours)
A minor in Computer Game Design and Development will consist of Computer Science 222, 441, 446, 447; one of Writing 272, Writing 383, Communication Arts 359, Design 110, and Design 210; and one of Computer Science 401, 402, or 445.

Course Requirements for a minor in Computer Science (18 hours)
A minor in Computer Science will consist of Computer Science 141, 220, 222, and nine additional hours of Computer Science courses 200-level and above or Data Science 431.

Course Requirements for a minor in Cybersecurity (18 hours)
A minor in Cybersecurity will consist of Computer Science 205, 340, 342, 448, 475, and Sociology 221.

Course Requirements for a minor in Data Science (24 hours)
A minor in Data Science will consist of Computer Science 141, 155, 220, 244; one of Psychology 201 or Statistics 131; Data Science 201 and 431; Statistics 132.

Students who are enrolled in Computer Programming II (COMP 220) may choose to change from COMP 220 to Computer Programming I (COMP 141) on or before the fifth week of class provided the student did not earn a C or higher in the COMP 141 course. The student must have the approval of the current COMP 220 instructor and the instructor of the COMP 141 course to which the student intends to move. The student must complete and return an Add/Drop Form to the Registrar's Office.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Computer Science (COMP)

COMP 111. PYTHON PROGRAMMING. An introduction to programming using Python. Topics include variables and their types, Boolean expressions, flow of control, Python's built-in data structures, classes, methods, file I/O, and exceptions. *Three hours.*

COMP 141. COMPUTER PROGRAMMING I. An introduction to object-oriented programming using Java in an integrated development environment. Topics include variables and their types, Boolean expressions, flow of control, arrays, methods, basic object-oriented design, file I/O, and an introduction to the Java standard library.
Three hours.

COMP 155. INTRODUCTION TO COMPUTER SCIENCE. This course provides an introduction to the field of Computer Science. Topics include creating precise specifications

and programming solutions for basic computing problems, data representation, and a discussion of topics from the breadth of computing such as information systems, artificial intelligence, networks, and the World Wide Web. *Fall semester, three hours.*

COMP 205. ETHICS, FAITH, AND THE CONSCIOUS MIND. This course focuses on three components of ethics, faith, and philosophy from a computer science perspective. First, it examines the Christian theological and philosophical foundations of science and the ethical role of computer science in areas such as globalization, autonomous systems, and intellectual property. Second, it considers perspectives on the origins, nature, and future of human cognition and consciousness, including intersections of artificial intelligence and consciousness. Third, it reviews ethical systems, cybernetical professional codes, ethical problem-solving techniques, and specific ethical cases, again from a computer science perspective and building on an informed Christian response to technology. This course is designated Information Literacy (IL). Students may only receive credit for one of Computer Science 205 or Science, Faith, & Technology 205. Prerequisites: Humanities 261 or Humanities 271; and a lab science. The lab science course and Humanities 261 or 271 may be taken concurrently with this course. This course satisfies the SSFT General Education requirement. *Spring semester, three hours.*

COMP 220. COMPUTER PROGRAMMING II. This is a second course in the Java language: a review of essential language concepts, structured programming, and top-down design. Object oriented program design principles including inheritance, abstract base classes, interfaces, virtual methods, and polymorphism are covered. Other topics include generics, linked data structures, and exception handling. Prerequisite: Computer Science 141. *Three hours.*

COMP 222. INTRODUCTION TO DATA STRUCTURES AND ALGORITHMS. An advanced course in programming using an object-oriented language, with an emphasis on analyzing the run-time behavior of programs; the design and structure of programs; linear data structures; recursion; binary search trees; sorting; and hash techniques for searching. Prerequisite: Computer Science 220. *Fall semester, three hours.*

COMP 230. ADVANCED PROGRAMMING. Introduces students to several advanced programming topics, including pointers, dynamic memory management, and principles of dynamic languages. Additional topics may include introspection and asynchronous computing. Prerequisite: Computer Science 220. *Spring semester, three hours*.

COMP 244. DATABASE MANAGEMENT SYSTEMS. An introduction to database management systems emphasizing the relational model. Topics include data manipulation languages (SQL, QBE); database design (intuitive design, normalization, and E-R design model); three-tier and multi-tier architecture; database security; and database integrity. Prerequisite: Computer Science 220 or knowledge of its content.
Fall semester, three hours.

COMP 260. INDEPENDENT STUDY. Individual study of specialized topics in computer science. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

COMP 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in computer science. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

COMP 314. AUTOMATA THEORY. This course is an introduction to computation theory including the topics: finite automata, regular languages, pushdown automata, context-free languages, Turing machines, recursive languages and functions, and computational complexity. Prerequisites: Computer Science 220 and Mathematics 213.
Spring semester, three hours.

COMP 325. COMPUTER ARCHITECTURE AND ORGANIZATION. Organization, elementary architectural design and computer instruction sets are examined and used via programming in an assembly language. Students are given an introduction to the manner in which digital computers actually work. Prerequisite: Computer Science 230.
Fall semester, three hours.

COMP 340. OPERATING SYSTEMS. A study of the basic principles of operating system design and implementation including types of computer systems, general architecture of several representative computer systems, security, run-time systems, and performance measurement and evaluation. Prerequisites: Computer Science 222 and one of Computer Science 230 or Electrical Engineering 310. Corequisite: Computer Science 325 or Electrical Engineering 204. *Spring semester, three hours.*

COMP 342. DATA COMMUNICATION AND NETWORKING. This class introduces the concepts of data communications used in information networks. Topics include equipment utilization in information networks; techniques utilized to transmit signals (e.g., modulation, multiplexing, error detection, and correction); methods of message handling; network configuration; and software utilized in implementing networks. Prerequisite: Computer Science 220. *Spring semester, three hours.*

COMP 350. SOFTWARE ENGINEERING. This course introduces software-engineering methodology, covering topics such as development cycles, testing, design, requirements gathering and analysis, and project management. Students work in teams on a semester-long project. This course is designated Writing Intensive (WI) and Speaking Intensive (SI). Prerequisite: Computer Science 222 and junior standing. *Spring semester, three hours.*

COMP 360. INDEPENDENT STUDY. An advanced course for qualified students that provides an opportunity for further computer programming and analysis experience on an individual basis. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours.*

COMP 363. PROBLEM SEMINAR. Expands on students' knowledge of data structures and algorithms with an emphasis on modifying standard algorithms to solve non-standard problems. Topics will include search, greedy algorithms, dynamic programming, and graph algorithms. *Fall semester, one hour.*

COMP 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in computer science. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours.*

COMP 390. SELECTED TOPICS IN COMPUTER SCIENCE. An examination of areas of computer systems not fully covered by regular departmental offerings. Subject matter varies each offering based on topic. Prerequisites: Computer Science 220 and permission of the department. *Two or three hours.*

COMP 401. PRINCIPLES OF iOS PROGRAMMING. The objective of this course is to introduce mobile computing with an emphasis on projects and programming iOS devices.

Smartphones and other Internet-based, highly mobile computing devices, are an increasingly important computing platform and driver of software design. This course covers Swift and the iOS SDK. Important software design issues, such as input modalities, UI design, and location-aware web applications are covered. Students will be provided with development systems. Prerequisite: Computer Science 222.

Alternate years, fall semester, three hours.

COMP 402. PRINCIPLES OF ANDROID PROGRAMMING. The objective of this course is to introduce Android with an emphasis on projects. Android mobile computing devices are an increasingly important computing platform. This course covers the Android SDK and teaches students how to develop basic Android applications. Students will be provided with development systems. Prerequisite: Computer Science 222.

Alternate years, fall semester, three hours.

COMP 422. THEORY OF ALGORITHMS. Topics include fundamental techniques for designing efficient algorithms and basic mathematical methods for analyzing their performance; paradigms for algorithm design; divide-and-conquer, greedy methods, graph search techniques, dynamic programming; design of efficient data structures, and analysis of the running time and space requirements of algorithms in the worst and average cases. Prerequisite: Computer Science 222 and Mathematics 213. *Fall semester, three hours.*

COMP 424. PARALLEL AND DISTRIBUTED COMPUTING. An overview of parallel architectures. Shared memory and distributed memory parallelism. Functional programming is emphasized, including its use in parallel computing. Prerequisite: Computer 222. *Spring semester, three hours.*

COMP 435. INTRODUCTION TO MACHINE LEARNING. Machine learning is an essential part of technologies such as image recognition, social network analysis, and autonomous vehicles. This course introduces concepts and algorithms that enable computers to learn from experience. Emphasis is on the practical application of the algorithms, with some discussion of the underlying mathematics. Techniques covered include supervised learning (linear and logistic regression, decision trees, support vector machines, and neural networks), unsupervised learning (clustering and dimensionality reduction), and time-series data (e.g., hidden Markov models or reinforcement learning). Prerequisites: Computer Science 222; and either Mathematics 214 or both Mathematics 222 and one of Psychology 201, Statistics 131 or 331. *Spring semester, three hours.*

COMP 441. 2D GAME DESIGN AND DEVELOPMENT. This course covers concepts and methods for the design and development of 2D computer games. Topics include sprites, animation, game design, game implementation, and game development environments. Prerequisite: Computer Science 222. *Fall semester, three hours.*

COMP 442. WEB PROGRAMMING TECHNOLOGIES. This course prepares students with the fundamentals needed to program on the Internet. It offers a survey of programming concepts that yield visible or audible results in Web pages and Web-based applications. The course covers effective Web-page design, various markup languages, several scripting languages, Web servers, and databases to provide all the skills and tools needed to create dynamic Web-based applications. Prerequisite: Computer Science 230. Corequisite: Computer Science 244. *Fall semester, three hours.*

COMP 445. INTRODUCTION TO ARTIFICIAL INTELLIGENCE. Artificial intelligence topics included in this class are: predicate calculus, state space search, knowledge representation, expert systems, reasoning in uncertain situations, and machine

learning. Prerequisites: Computer Science 222; and one of Engineering 274, Mathematics 214, or Statistics 331. *Alternate years, spring semester, three hours.*

COMP 446. 3D GAME DESIGN AND DEVELOPMENT. This course is a continuation of Computer Science 441 and is focused on the development of 3D games and other advanced game programming techniques. Topics include graphics, lighting, textures, performance, the 3D pipeline, and intentional design. Prerequisite: Computer Science 441. *Alternate years, spring semester, three hours.*

COMP 447. NETWORKED GAME DESIGN AND DEVELOPMENT. This course is a continuation of Computer Science 441 and is focused on the development of networked, multiplayer console games. Topics include client/server models, synchronization, building code for single and multiplayer use, and techniques for lag mitigation. Prerequisite: Computer Science 441. *Alternate years, spring semester, four hours.*

COMP 448. COMPUTER SECURITY. An overview of software security flaws a programmer should be careful to avoid. Students will learn how to avoid these flaws, as well as practice finding them in existing code. Additionally, better alternatives will be explored which will allow students to make better programs that are less vulnerable to security exploits. Prerequisite: Computer Science 230. Corequisite: Either Computer Science 325 or Electrical Engineering 204. *Fall semester, three hours.*

COMP 451. SENIOR PROJECT I. This course is part of the capstone design experience and is based on applying software engineering to a two-semester long project. This course focuses on design. Students will write reports and make presentations. This course is designated Information Literacy (IL). Prerequisite: Computer Science 350. *Fall semester, two hours. (Note: three hours, starting in Fall 2027)*

COMP 452. SENIOR PROJECT II. This course is a continuation of Computer Science 451 and is focused on the development of a working, tested system delivered to a user community. Students will write reports, make presentations, and deliver a working software system. This course is designated Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL). Prerequisite: Computer Science 451. *Spring semester, three hours. (Note: four hours, starting in Spring 2028)*

COMP 460. INDEPENDENT STUDY. An advanced course for qualified students that provides an opportunity for further computer programming and analysis experience on an individual basis. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours.*

COMP 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in computer science. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours.*

COMP 475. ADVANCED SECURITY. A more comprehensive study of computer security, including the goals of secure computing; elementary cryptography; and system and network security. Practical applications of these ideas are provided by an investigation of secure systems administration by means of team-based security projects. Various legal and ethical issues in the field are also considered. Prerequisites: Computer Science 205, 342, and 448. *Spring semester, three hours.*

COMP 480. INTERNSHIP IN COMPUTER SCIENCE. Students earn academic credit for field experience that allows them to use their computer skills under the supervision of a

cooperating entity. A maximum of six credit hours may be applied toward the major. Junior standing and permission of the department chair are required. *One to six hours.*

COMP 499. HONORS IN COMPUTER SCIENCE. A course for qualified junior or senior students who are interested in an advanced computer-science experience. The course has a significant research component, including system development, review of literature, and writing. Topics change with each offering depending on the interests of the faculty member teaching the course. Prerequisite: Permission of the instructor and department chair. *One, two, or three hours.*

Data Science (DSCI)

DSCI 201. INTRODUCTION TO DATA SCIENCE. An introduction to methods and tools used to analyze and understand data. Topics include common toolkits for data analysis and visualization. Students engage in hands-on analysis of real-world data sets and discuss social issues related to data analysis. Prerequisites: Either Computer Science 111, or both Computer Science 141 and either Computer Science 155 or Mathematics 125. Corequisite: Statistics 131 or Psychology 201. *Spring semester, three hours.*

DSCI 431. INTRODUCTION TO BIG DATA. The objective of this course is to introduce key concepts and technologies of big data management. This course covers big data characteristics, storage, and processing. Students learn how to use multiple big data technologies, such as stream processing, in-memory databases, Hadoop MapReduce, NoSQL, and NewSQL systems. Prerequisites: Computer Science 220 and 244. *Alternate years, spring semester, three hours.*

DSCI 450. APPLIED MODELING AND VISUALIZATION. The capstone course in data science. Students apply modeling and visualization techniques to a large project, giving presentations about their results and writing a report. Legal and ethical issues in data science are examined. This course is designated Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL). Prerequisites: Mathematics 213 or Statistics 331; Mathematics 214 or 222; Data Science 201; Computer Science 222, 244; Data Science 431 or Computer Science 435. *Spring semester, three hours.*

Economics

Dr. Herbener, Chair; Dr. Frank, Dr. Fuller, Dr. Ritenour. Additional Instructional Faculty: Dr. Fegley, Dr. Klein, Dr. Murphy, Dr. Newman, Dr. Salerno, Dr. Terrell.

The mission of the Winklevoss School of Business at Grove City College is to equip students to pursue their unique calling to business, preparing them to be effective and ethical leaders in business and society as a whole. This mission incorporates the following learning outcomes:

1. General Business Knowledge and Analytical Skills: Students will demonstrate appropriate level of knowledge, analytical skills, and information literacy necessary in business.
2. Communication Skills: Students will demonstrate the written and verbal skills needed to communicate effectively within the business environment.
3. Ethics: Students will demonstrate a Christian understanding of business, which reflects their moral and ethical responsibilities to all potential stakeholders.
4. Global Perspective: Students will demonstrate an understanding of the global and multicultural issues in the current business environment.

Course Requirements for a Bachelor of Science Degree in Business Economics—70 hours

Business Core Requirements (36 hours)
Accounting 201, 202; Finance 202; International Business 205; Management 103, 110 or 111, 214, 303, 304, 486; Marketing 104; and Statistics 131.

Economics Core (30 hours):
Economics 101, 102, 120, 216, 301, 302, 310, 401, 402, and 456.

Major-Related Course (4 hours):
Mathematics 141 or 161*.

**Mathematics 141 prepares students in the business applications of calculus, but Mathematics 161 must be taken as a prerequisite for Mathematics 162 and 261.*

Courses that count in the Business Economics major quality point average (MQPA):
All courses with "ACCT", "ECON", "FNCE", "INBS", "MARK", "MNGT" (excluding MNGT 106) prefix, and STAT 131. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Arts Degree in Economics—58 hours

Core Requirements (27 hours):
Economics 101, 102, 120, 301, 302, 342, 407, 408, and 420.

Economics Electives (15 hours):
Fifteen hours from the following:
Economics 202, 204, 206, 207, 213, 214, 215, 216, 260, 270, 290, 303, 306, 309, 310, 360, 370, 390, 401, 402, 404, 456, 460, 470, 480 (3 credit max), and 499.

Major-Related Requirement (16 hours):
Philosophy 161, 211; Statistics 131; Mathematics 141 or 161*; and Sociology 101.

Courses that count in the Economics major quality point average (MQPA):
All courses with "ECON" prefix. A minimum of 2.00 MQPA is required to graduate.

Students who have completed a major in Economics or Business Economics should be able to perform and present economic analysis and understand and critique the economic analysis of others. To attain these ends, they need to develop skills in locating, evaluating, and using information and proficiency in writing and speaking. To give students a forum to demonstrate their mastery of these skills, the Department of Economics requires Economics 420 as a Writing Intensive (WI), Speaking Intensive (SI) and Information Literacy (IL) course for Economics majors, and Management 214 as WI and IL and Management 486 as SI for Business Economics majors.

Course Requirements for a minor in Economics (21 hours)
A minor in Economics will consist of Economics 101, 102, 120, and twelve additional hours in economics.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Economics (ECON)

ECON 101. PRINCIPLES OF ECONOMICS (MICRO) I. An examination of the fundamental principles of human action and the laws of the market economy. Focus will be on exchange, prices, production, costs, entrepreneurship, and government intervention. *Three hours*.

ECON 102. PRINCIPLES OF ECONOMICS (MACRO) II. An examination of the fundamental principles of human action and the laws of the market economy. Focus will be on money, inflation, credit, interest, capital, economic progress, and business cycles. *Three hours.*

ECON 120. FOUNDATIONS OF ECONOMICS. An investigation of the theological, philosophical and epistemological foundations of economics. The nature of man and the created world, laws of action and interaction, and the good society will be explored. *Three hours.*

ECON 202. ECONOMIC EXPANSION AND DEVELOPMENT. A study of economic progress with emphasis on the developing world. Topics include wealth, poverty, capital accumulation, and foreign aid. *Alternate years, three hours*.

ECON 204. ENVIRONMENTAL ECONOMICS. An investigation of environmental, conservation, and population issues. Pollution, natural resource use, demographic changes, and technology will be studied. *Offered periodically, three hours*.

ECON 206. COMPARATIVE ECONOMIC SYSTEMS. An analysis of different economic systems. The command economy, various forms of the mixed economy, different types of interventionism, and the market economy will be compared and contrasted. *Alternate years, three hours*.

ECON 207. LABOR ECONOMICS. An analysis of the working of labor markets. Labor unions and labor legislation and regulation will be examined. *Offered periodically, three hours*.

ECON 213. AMERICAN ECONOMIC HISTORY TO 1860. A survey of the American economy from colonial days to the Civil War. Economic progress and business cycles will be examined with emphasis on how the market economy was developed by entrepreneurs and hampered by politicians. *Alternate years, three hours*.

ECON 214. AMERICAN ECONOMIC HISTORY SINCE 1860. A survey of the American economy from the Civil War to the present. Economic growth and business cycles will be examined with emphasis on how the market economy was developed by entrepreneurs and hampered by politicians. *Alternate years, three hours*.

ECON 215. URBAN AND RURAL ECONOMICS. An examination of the spatial aspects of economic activity. Location decisions of production facilities by entrepreneurs and households by families will be examined with an emphasis on the changes in cities and rural areas as an aspect of economic development. *Offered periodically, three hours*.

ECON 216. ECONOMICS OF ENTREPRENEURSHIP. An examination of entrepreneurship both theoretically and in applied issues including innovation, growth, financing, strategy, institutional environment, and policy. *Alternate years, three hours*.

ECON 260. INDEPENDENT STUDY. Individual study of specialized topics in economics. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours*.

ECON 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in economics. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours*.

ECON 290. STUDIES IN ECONOMICS. Studies in areas of economics not covered by regular departmental offerings. *One, two, or three hours*.

ECON 301. INTERMEDIATE MICROECONOMICS. A study of prices and production. Utility, costs, competition, and equilibrium will be examined. Prerequisites: Economics 101 and 102. *Three hours*.

ECON 302. INTERMEDIATE MACROECONOMICS. A study of economic progress and business cycles. Keynesian, Monetarist, Austrian, and other views will be examined. Prerequisites: Economics 101 and 102. *Three hours*.

ECON 303. INTERNATIONAL ECONOMICS. An examination of the worldwide market economy. The movement of goods, people, capital, and money across political borders and political interference with the market will be investigated. Prerequisites: Economics 101 and 102. *Offered periodically, three hours*.

ECON 306. AUSTRIAN ECONOMICS. An examination of the lives and thoughts of Austrian school economists. Contributions in monetary, capital, and business cycle theory, methodology, economic calculation, entrepreneurship, and other areas will be highlighted. *Offered periodically, three hours*.

ECON 309. PUBLIC POLICY. An analysis of current public policy. Topics include labor and anti-trust regulations, education and energy policies, welfare programs, and price and wage controls. *Alternate years, three hours*.

ECON 310. INDUSTRIAL ORGANIZATION. A study of how producers seek to satisfy demand in different market environments they face. The structure and activities of industries and the effects of these on competition, prices, and resource allocation in the economy will be examined. Prerequisite: Economics 101. *Alternate years, three hours*.

ECON 342. INTRODUCTION TO ECONOMETRICS. This course explores probability theory, hypothesis testing, simple and multiple regression analysis, specification of econometric models, and introduces quasi-experimental techniques. Emphasis is placed on application of econometric techniques in estimating economic relationships. Prerequisites: Statistics 131 and Mathematics 141 or 161. *Three hours*.

ECON 360. INDEPENDENT STUDY. Individual study of special topics in economics. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours*.

ECON 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in economics. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours*.

ECON 390. STUDIES IN ECONOMICS. Studies in areas of economics not covered by regular departmental offerings. *One, two, or three hours*.

ECON 401. MONEY AND BANKING. A study of money and credit. Inflation, interest rates, and various monetary and banking regimes will be investigated. Prerequisites: Economics 101 and 102. *Three hours*.

ECON 402. LAW AND ECONOMICS. An economic analysis of law's traditional categories: property, tort, contract, and criminal. This course will follow the outline of traditional courses in law and economics but will also devote time to the critiques that have been leveled against law and economics. Prerequisite: Economics 101 or 120. *Alternate years, three hours*.

ECON 404. PUBLIC FINANCE. An examination of the types of and justifications for government activity. Taxation, expenditures, debt, and monetary inflation will be explored. Prerequisites: Economics 101 and 102. *Offered periodically, three hours*.

ECON 407. HISTORY OF ECONOMIC THOUGHT TO 1870. A study of the prominent figures in the development of economic thought and the major schools of economic thought from the ancient Greeks through the British classical school. Insights into current debates about economic theory will be highlighted. *Alternate years, three hours*.

ECON 408. HISTORY OF ECONOMIC THOUGHT SINCE 1870. A study of the prominent figures in the development of economic thought and the major schools of economic thought from the beginning of the marginalist revolution to the present. Insights into current debates about economic theory will be highlighted. *Alternate years, three hours*.

ECON 420. ECONOMICS COLLOQUIUM. An immersion into the activities of scholars: writing, presenting, critiquing, and debating. Students will lead and participate in discussions of articles and books, write, and present their own research, and critique the research of other students. This course is designated Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL). Prerequisites: Senior standing or permission of the department chair. *Three hours*.

ECON 456. FINANCIAL MARKETS AND INSTITUTIONS. A study of the nature, origin, working and development of financial markets and institutions. Topics include the markets for and institutions offering credit, equities, and derivatives. Prerequisite: Economics 101 and 102. *Alternate years, three hours*.

ECON 460. INDEPENDENT STUDY. Individual study of special topics in economics. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours*.

ECON 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in economics. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours*.

ECON 480. INTERNSHIP IN ECONOMICS. Practical experience in applied economics. Prerequisite: Permission of the department chair. *One, two, or three hours*.

ECON 488. SEMINAR IN ECONOMICS. An advanced course for juniors and seniors who desire in-depth exploration of a specific topic in economics using research, discussion, oral reports and written essays. Prerequisite: Permission of the department chair. *One, two, or three hours*.

ECON 499. HONORS IN ECONOMICS. Advanced research in economics by seniors who have shown unusual aptitude in economics. Prerequisite: Permission of the department chair. *Three hours*.

Education

Dr. Chapman, Chair; Dr. Martin, Associate Chair; Dr. Culbertson, Dr. Dreves, Dr. Edwards, Dr. Heisey, Dr. J. Munson, Dr. Nichols, Dr. Pelloni, Dr. Scholten. Additional Instructional Faculty: Prof. Brown, Prof. Hoffman, Prof. Jeffries, Prof. Lawrence, Prof. Nemeth, Prof. S. Potter, Dr. Rupnik, Prof. Senita, Dr. Stewart.

The Education Department of Grove City College embraces the mission, goals, and objectives of the College while implementing standards established for teacher education by the state of Pennsylvania and as recommended by research in the field of education. The faculty of the Education Department supports these objectives and standards and seeks to provide the specialized knowledge required by the education profession. Department faculty and staff members dedicate themselves to assist Grove City College pre-service teachers gain an understanding of the craft while supplying them with ample field experiences to practice the art of teaching.

Pedagogical, intellectual, and professional knowledge represent the tools of the teaching craft. These tools are selected so that our pre-service teachers possess the skills they need to plan, assess, and adapt instruction to various ethnicities, socio-economic groups, learning styles, and learning capabilities. We are united in our commitment to supply our pre-service teachers with the necessary capabilities to be successful in teaching to the whole person when they leave our mentoring and enter their own classrooms.

Education majors who are planning to become teachers or to pursue graduate studies following graduation should strive to be good writers and speakers and to know how to find, analyze, and use information. To that end, Education 488 is a Writing Intensive (WI) course; Education 450 and 488 are Speaking Intensive (SI) courses; and Education 202 and 488 are Information Literacy (IL) courses designed to provide the necessary skills for Education majors to use electronic information technology and resources and explore scholarly research within the field of education.

CERTIFICATION OF TEACHERS

Grove City College is approved by the Pennsylvania Department of Education to offer certification programs in the areas of Elementary, Elementary with Middle Level, Middle Level, Elementary with Special Education, Special Education, Foreign Language K-12, and Secondary School Education in any of the following subject areas: Biology, Chemistry, English (also with communications), Foreign Language (French and Spanish), Mathematics, Music, Physics, Social Sciences, and interdisciplinary fields of General Science – Biology, Chemistry, and Physics. Middle-level certification includes a broad range of teaching preparation along with two content area studies: Science and Math, Science and English, Science and History, Math and English, Math and History. Secondary certification students work closely between the Education Department and their content areas to complete courses recommended to meet requirements for the subject area education major and also the professional education course requirements.

Teachers are prepared for careers in public and private education across a wide variety of roles in public, private, international, and additional fields within education. The Department of Education offers in-depth career counseling throughout the education development of students, and after graduation. Additionally, the Department offers the services of a Certification Officer to assist students in meeting requirements for teacher

licensure. Pennsylvania Teacher licensure includes the Instructional I Certificate issued by the Pennsylvania Department of Education to those Grove City College graduates who have completed an approved college program, successfully fulfilled Pennsylvania Teacher Certification requirements (including required testing, Act 33, Act 34, Act 114 clearances and other state requirements), and have been recommended by the College for certification. Additional areas of study (as approved by the PA Department of Education), such as the Integrative Science Technology Engineering Mathematics Endorsement may also be completed upon fulfillment of approved program and fulfillment of state requirements.

It should be noted that graduation and certification are not synonymous terms. All students seeking certification must apply to the Department of Education for admission to the certification program. Admission, retention, and recommendation for certification are contingent upon the approval of the Department of Education and the faculty of the student's area of certification. Education Majors must meet the entry testing requirements articulated by the Pennsylvania Department of Education prior to formal admission into the certification program.

Changes in state licensure requirements may necessitate changes in course requirements for students, particularly for those students who extend their studies beyond the typical four-year sequence. Careful attention to Education Department recommendations for course scheduling is important for staying current with certification requirements.

SCHOLASTIC REQUIREMENTS, ADMISSION AND RETENTION

All students wishing to enter the teacher education program must make formal application for admittance and receive acceptance in accordance with admission requirements. **Students seeking admission as credential candidates should make formal application by December 1 of the sophomore year.** Non-traditional (returning) students are advised on an individual basis (*see Student Life section*).

All students will be required to have a 3.00 Career Quality Point Average (CQPA) to be certified by the Commonwealth of Pennsylvania. This requirement reflects provisions as stated by Chapter 354, passed by the Pennsylvania State Board of Education in May 2000.

In order that students may meet the above standard, the Education Department monitors progress. Students must maintain a minimal CQPA and MQPA as they advance through each academic year. These QPA requirements are detailed in the *Education Department Handbook.* Students are, therefore, advised to reference this source for further information.

Students seeking Endorsement programs may have additional requirements to meet, including making progress on initial certification requirements and admittance to the endorsement program.

POLICY GOVERNING COURSE REQUIREMENTS FOR TEACHER CANDIDATES ONLY SEEKING CERTIFICATION

For those teacher candidates who are already certified in some area and only seek certification at Grove City College in an additional area, the following guidelines are to be followed contingent upon Grove City College and Pennsylvania Department of Education guidelines:

- Candidates who have already taken courses in the area in which they seek certification must take at least 50% of the courses required for this certification at Grove City College.
- Candidates who start with no hours in the additional area of certification may only transfer six hours to Grove City College without special advance permission from the department head in their new area of certification.

- Candidates seeking certification must have a minimum career QPA of 3.00 and a minimum major QPA of 2.75 to enter the Grove City College program.

For candidates who have no certification but have a bachelor's degree from a regionally accredited college or university, the following guidelines are to be followed, contingent upon Grove City College and Pennsylvania Department of Education guidelines:

- Candidates who have completed the required hours in their major (as shown on their status sheet) but require education courses for certification must take all of their education courses at Grove City College. (Under certain conditions up to six hours may be taken elsewhere with prior approval.) Candidates who have the required hours in their major may, however, be required to take up to fifteen additional hours in their subject area at the discretion of their subject area advisor.
- Candidates who have completed their hours in education (as shown on their status sheet) but have not had the required subject area courses must take all of their subject area courses at Grove City College. (Under certain conditions up to six hours may be taken elsewhere with prior approval.)
- Candidates who have not completed the required education and subject area courses will follow both of the above guidelines.
- Candidates must have completed the teacher education core curriculum courses.
- Candidates who have already earned an undergraduate degree must have a minimum career QPA of 3.00 and a minimum major QPA of 2.75 to enter the Grove City College program.
- Additional requirements for certification may include passing scores on the Praxis exam.

REQUIREMENTS FOR TEACHING IN OTHER STATES

Students seeking certification in states other than Pennsylvania should consult the Certification Officer in the Department of Education and research licensure requirements through specific state departments, offices, and/or bureaus of education.

INTERNATIONAL STUDENTS

International students, who are not US citizens and who are interested in a teaching, are advised to consult with the Certification Officer in the Department of Education for further information. The Pennsylvania Department of Education currently requires that candidates for certification be US Citizens or those who have signed a "declaration of intent" to become a US Citizen.

TEACHER'S EXAMINATIONS

Credential candidates must successfully complete the appropriate sections of the National Teachers Examination for certification in Pennsylvania or other states. Test information is available via the Department of Education Career Services website.

ELEMENTARY, SPECIAL EDUCATION, and MIDDLE LEVEL PROGRAMS

Students completing programs of study that lead to certification for teaching may be required to complete more than the standard 128 hours required to graduate from Grove City College and may also incur additional tuition charges. Program requirements and other specific details are available in the Education Department Office.

Course Requirements for Bachelor of Arts Degree in Christian and Classical Education—80-84 hours

Christian and Classical Core (31 hours):
Christian and Classical Education 202, 203, 205, 405, 410; Education 102, 202, 203, 204, and 342, or 215 and 271; History 204.

Christian and Classical Major Requirements (31 hours):
Bible 120, 130, 251; Christian and Classical Education 350; English 210, 302; History 207; Greek 101 and 102, or Latin 101 and 102; Philosophy 211, 231.

Choose one of the following Subject Matter Emphasis (18-22 hours):
Elementary/Grammar (19 hours): Education 181, 323, 324, 325, 326, 327; and Special Education 101.

Logic, Rhetoric, or High School (18-22 hours): Choose one of the following minors to complete: Biblical & Theological Studies, Biology, Chemistry, Christian Ministry, Creative Writing, Economics, English, French, History, Mathematics, Philosophy, Physics, Political Science, Psychology, Spanish, or Writing.

Courses that count in the Christian and Classical Education major quality point average (MQPA):
All courses with "EDUC" and "CCED" prefixes. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Elementary Education—72 hours

Liberal Arts Core (15 hours):
Education 102, 318, 319; Mathematics 151, 152; Music Education 315; Psychology 209.

Education Core Requirements (57 hours):
Education 181, 202*, 203, 204, 282, 323, 324, 325, 326, 327, 328, 342, 383, 440 or 540, 450, 488; and Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Elementary Education major quality point average (MQPA):
All courses with "EDUC" prefix, PSYC 209, and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Special Education—91 hours

Liberal Arts Core (12 hours):
Education 102; Mathematics 151, 152; Psychology 209.

Special Education Core Requirements (79 hours):
Education 181, 202*, 203, 204, 323, 324, 325, 326, 327, 342, 440 or 540, 450, 488; Special Education 101, 103, 202, 203, 204, 205, 206, 210, 306, 307, 309, and Special Education 308 or Education Reading Specialist 524. *Note: Students who completed

Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Special Education major quality point average (MQPA):
All courses with "EDUC" and "SEDU" prefixes; PSYC 209. A minimum MQPA of 2.00 is required to graduate. The minimum QPAs to be certified are 3.00 for the cumulative CQPA and 2.75 for the MQPA.

Course Requirements for Bachelor of Science Degree in Special Education with Elementary Education—96 hours

Liberal Arts Core (15 hours):
Education 102, 318, 319; Mathematics 151, 152; Music Education 315; Psychology 209.

Education Core Requirements (52 hours):
Education 181, 202*, 203, 204, 323, 324, 325, 326, 327, 328, 342, 440 or 540, 450, 488. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Dual Certification in Special Education Requirements (29 hours):
Special Education 101, 103, 202, 203, 204, 205, 206, 210, 306, 307, 309, and Special Education 308 or Education Reading Specialist 524.

Courses that count in the Special Education with Elementary Education major quality point average (MQPA):
All courses with "EDUC" and "SEDU" prefixes; PSYC 209. A minimum MQPA of 2.00 is required to graduate. The minimum QPAs to be certified are 3.00 for the cumulative CQPA and 2.75 for the MQPA.

Course Requirements for Bachelor of Science Degree in Middle Level Math/English Education—99 hours

Liberal Arts Core (27 hours):
Education 102; History 253; one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; Mathematics 151, 152; Science 201 or Physics lab course; Science 202 or Biology lab course; and Science 203 or Chemistry lab course.

Math/English Content (18 hours):
Three MATH or STAT prefix courses (9 hours); and three COMM/ENGL prefix courses (9 hours) choosing from the following: English 203, 204, 222, 261, 302, 351, 352, 402, Communication Arts 104, 225, 235, or 378.

Education Core Requirements (54 hours):
Education 182, 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Middle Level Math/English Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Middle Level Math/History Education—90 hours

Liberal Arts Core (27 hours):
Education 102; History 253; one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; Mathematics 151, 152; Science 201 or Physics lab course; Science 202 or Biology lab course; and Science 203 or Chemistry lab course.

Math Content (9 hours):
Three MATH or STAT prefix courses.

Education Core Requirements (54 hours):
Education 182, 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; and Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Middle Level Math/History Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Middle Level Science/English Education—94 hours

Liberal Arts Core (15 hours):
Education 102; History 253; one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; and Mathematics 151, 152.

Science/English Content (25 hours):
Science 201 or Physics lab course; Science 202 or Biology lab course; Science 203 or Chemistry lab course; one additional four-credit science course; and three COMM/ENGL prefix courses (9 hours) choosing from the following: English 203, 204, 222, 261, 302, 351, 352, 402, Communication Arts 104, 225, 235, or 378.

Education Core Requirements (54 hours):
Education 182, 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Middle Level Science/English Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Middle Level Science/History Education—85 hours

Liberal Arts Core (9 hours):
Education 102; Math 151, 152.

Science/History Content (22 hours):
History 253; one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; Science 201 or Physics lab course; Science 202 or Biology lab course; Science 203 or Chemistry lab course; one additional four-credit science course.

Education Core Requirements (54 hours):
Education 182, 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Middle Level Science/History Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Middle Level Science/Math Education—94 hours

Liberal Arts Core (15 hours):
Education 102; History 253; one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; and Mathematics 151, 152.

Science/Math Content (25 hours):
Three MATH or STAT prefix courses (9 hours); Science 201 or Physics lab course; Science 202 or Biology lab course; Science 203 or Chemistry lab course; and one additional four-credit science course.

Education Core Requirements (54 hours):
Education 182, 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Middle Level Science/Math Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Middle Level Math/English and Elementary Education—113 hours

Liberal Arts Core (27 hours):
Education 102; History 253; one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; Mathematics 151, 152; Science 201 or Physics lab course; Science 202 or Biology lab course; and Science 203 or Chemistry lab course.

Math/English Content (18 hours):
Three MATH or STAT prefix courses (9 hours); and three COMM/ENGL prefix courses (9 hours) choosing from the following: English 203, 204, 222, 261, 302, 351, 352, 402, Communication Arts 104, 225, 235, or 378.

Education Core Requirements (53 hours):
Education 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Dual Certification in Elementary Education Requirements (15 hours):
Education 181, 318, 319, 328, 342, 440 or 540; Music Education 315; Psychology 209.

Courses that count in the Middle Level Math/English and Elementary Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Middle Level Math/History and Elementary Education—104 hours

Liberal Arts Core (27 hours):
Education 102; History 253; one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; Mathematics 151, 152; Science 201 or Physics lab course; Science 202 or Biology lab course; and Science 203 or Chemistry lab course.

Math Content (9 hours):
Three MATH or STAT prefix courses.

Education Core Requirements (53 hours):
Education 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; and Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Dual Certification in Elementary Education Requirements (15 hours):
Education 181, 318, 319, 328, 342, 440 or 540; Music Education 315; Psychology 209.

Courses that count in the Middle Level Math/History and Elementary Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Middle Level Science/English and Elementary Education—108 hours

Liberal Arts Core (15 hours):
Education 102; History 253; one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; and Mathematics 151, 152.

Science/English Content (25 hours):
Science 201 or Physics lab course; Science 202 or Biology lab course; Science 203 or Chemistry lab course; one additional four-credit science course; and three COMM/ENGL prefix courses (9 hours) choosing from the following: English 203, 204, 222, 261, 302, 351, 352, 402, Communication Arts 104, 225, 235, or 378.

Education Core Requirements (53 hours):
Education 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Dual Certification in Elementary Education Requirements (15 hours):
Education 181, 318, 319, 328, 342, 440 or 540; Music Education 315; Psychology 209.

Courses that count in the Middle Level Science/English and Elementary Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Middle Level Science/History and Elementary Education—99 hours

Liberal Arts Core (9 hours):
Education 102; and Math 151, 152.

Science/History Content (22 hours):
History 253 one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; Science 201 or Physics lab course; Science 202 or Biology lab course; Science 203 or Chemistry lab course; and one additional four-credit science course.

Education Core Requirements (53 hours):
Education 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Dual Certification in Elementary Education Requirements (15 hours):
Education 181, 318, 319, 328, 342, 440 or 540; Music Education 315; Psychology 209.

Courses that count in the Middle Level Science/History and Elementary Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for Bachelor of Science Degree in Middle Level Science/Math and Elementary Education—108 hours

Liberal Arts Core (15 hours):
Education 102; History 253; one of Education 363, History 204, 283, 285, 317, 318, 334, 336, or 349; Mathematics 151, 152.

Science/Math Content (25 hours):
Three MATH or STAT prefix courses (9 hours); Science 201 or Physics lab course; Science 202 or Biology lab course; Science 203 or Chemistry lab course; and one additional four-credit science course.

Education Core Requirements (53 hours):
Education 202*, 203, 204, 228, 282, 323, 324, 325, 326, 327, 329, 383, 450, 488; Special Education 101. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Dual Certification in Elementary Education Requirements (15 hours):
Education 181, 318, 319, 328, 342, 440 or 540; Music Education 315; Psychology 209.

Courses that count in the Middle Level Science/Math and Elementary Education major quality point average (MQPA):
All courses with "EDUC" prefix and SEDU 101. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Course Requirements for a minor in Christian and Classical Education (22 hours)
A minor in Christian and Classical Education will consist of 22 required hours, including Christian and Classical Education 202, 203, 205, 405, 410; Education 202; Education 342, or 215 and 271; and History 204.

Course Requirements for a minor in Special Education (18 hours)
A minor in Special Education will consist of 18 required hours, including Education 102; Psychology 209; Special Education 101 and 202; and six additional hours from Special Education 204, 205, 206, 210, 309, or Special Education 308 or Education Reading Specialist 524.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

AUTISM ENDORSEMENT IN PENNSYLVANIA
The state of Pennsylvania offers pathways for educators to pursue endorsement programs for emerging needs in education. Students completing the following course sequence and completing associated Pennsylvania Department of Education requirements may be eligible for receiving an Autism Endorsement in Pennsylvania.

Course requirements for an Autism Endorsement in Pennsylvania (12 hours):
Special Education 101, 202, 421, 422

INTEGRATIVE SCIENCE TECHNOLOGY ENGINEERING AND MATHEMATICS K-12 ENDORSEMENT PROGRAM (INTEGRATIVE STEM ENDORSEMENT)

The Integrative Science, Technology, Engineering, and Mathematics K-12 Endorsement Program is intended to improve a teacher's skills in dealing with complex classroom settings in the emerging area of STEM Education. This endorsement may be added to existing Level I or Level II Certificates.

To be admitted into a STEM Endorsement Program, candidates must be enrolled in an approved Level I program or hold a Level I or II certificate. Completion of the STEM Endorsement Program may include completing courses outside of the regular fall and spring semester offerings (such as summer and January terms).

Course requirements for an Integrative STEM Education Endorsement (12 hours)

An endorsement in Integrative STEM Education will consist of Education 510, 511, 512, and 513.

Christian and Classical Education (CCED)

CCED 202. BIBLICAL INTEGRATION INTO CURRICULUM. This course equips educators with the knowledge and skills to thoughtfully and effectively integrate biblical principles into academic disciplines across grade spans. Participants will explore the theological foundations for biblical integration, examine practical strategies for connecting the Christian worldview with subject matter, and develop lesson plans that reflect that Christian worldview. *Fall semester, three hours.*

CCED 203. THE ART OF CLASSICAL TEACHING METHODS, INCLUDING TRIVIUM AND QUADRIVIUM. This course introduces pre-service educators to the foundational principles and practices of classical education, focusing on the Trivium (Grammar, Logic, Rhetoric) and the Quadrivium (Arithmetic, Geometry, Music, Astronomy). Participants will explore the historical roots and enduring relevance of these methods, learning how they cultivate critical thinking, eloquence, and intellectual virtue. Through lectures, discussions, and practical applications, students will examine strategies for implementing classical pedagogy in modern classrooms, fostering a love of truth, beauty, and goodness. By the end of the course, educators will be equipped to design lessons that integrate classical approaches with contemporary educational standards.

Spring semester, three hours.

CCED 205. FIRST-LEVEL TEACHER APPRENTICESHIP. An apprenticeship course designed to permit students to engage in a thirty-to forty-hour entry-level classroom experience. Students will observe experienced teachers in classroom settings, noting organizational structures, curriculum issues, and students' development. This is to be completed in a Christian or Classical School. *Two hours.*

CCED 350. EDUCATION FOR THE MISSION FIELD. This course seeks to provide students with the opportunity to learn more about the philosophy and structure of international, missional, and national schools. A strong focus will be provided on how to partner with nationals to advance their own teaching abilities. Students will have the opportunity to interact with several alumni who are currently teaching on the mission field. The final component of the course will be a service-learning project for a mission school.

Spring semester, one hour.

CCED 405. SENIOR TEACHER APPRENTICESHIP. Christian & Classical Education candidates (seniors only) are provided a one-semester apprenticeship teaching at a Christian or Classical school. The course is intended to provide the candidate with experience delivering the content they have acquired over the past 3 years while working with a master teacher. Included in this experience is the successful planning, preparation, and delivery of a unit of study. This course is designated Speaking Intensive (SI). Prerequisites: Christian and Classical Education 202, 203, and 205. *Two hours.*

CCED 410. SEMINAR IN CLASSICAL & CHRISTIAN EDUCATION. This course examines how faith and learning interacted in the West historically as well as how to apply the Christian faith to the operation of educational institutions in the future. Throughout the course, special emphasis will be placed on contemporary Classical-Christian school movement as a case study of one-way Christians are currently attempting to bring historical lessons and their faith to bear on education. *Alternate years, three hours.*

Education (EDUC)

EDUC 102. EDUCATIONAL PSYCHOLOGY. A consideration of those aspects of psychology which form the basis for educational methods and their application in the school curriculum, including student characteristics, group and individual differences, cognitive and personality development, learning theory, measurement, and evaluation. *Three hours.*

EDUC 181. EARLY CHILDHOOD FIELD EXPERIENCE (FIRST LEVEL). This one-credit field experience is an internship course designed to permit beginning level early education students to engage in a semester-long field experience in the Early Education Center. Restricted to Elementary Education, Special Education, and Middle Level Education majors or by instructor permission. *One hour.*

EDUC 182. FIRST LEVEL FIELD EXPERINCE FOR MIDDLE-LEVEL MAJORS. An internship course designed to permit students to engage in a thirty to forty-hour entry-level field experience. Field experience interns observe experienced teachers in classroom settings noting organizational structures, curriculum issues, and students' development. Diverse educational settings are strongly encouraged. Corequisite: Education 102 or 202. *One hour.*

EDUC 202. INTRODUCTION TO THE TEACHING PROFESSION. A study of the pedagogical framework of education with emphasis on the legal and organizational issues related to American institutions of education. This includes an analysis of the current reform movements and in impact upon the role of the professional educator. This course is designated Information Literacy (IL). Education majors must complete and may only receive credit for one of Education 202 or the combination of Education 205 and 206. *Three hours.*

EDUC 203. SOCIAL ISSUES AND PERSPECTIVES IN EDUCATION. How should Christian educators teach in an increasingly diverse world? This course explores the complexities of answering this question. Through biblical and theo-anthropological perspectives, this course discusses complex social issues in education including identity, race and ethnicity, sex and gender, socioeconomic status and poverty, religion, language, and exceptionalities. Theories of teaching and learning will also be analyzed to explore the practical manifestations of these theories in policy and the realities of diverse educational contexts, both past and present. *Three hours.*

EDUC 204. PROFESSIONALISM, ETHICS, AND TECHNOLOGY OF EDUCATION. Students will gain a firm understanding of various aspects of the professionalism required for the education profession, including but not limited to portfolios, professional goals, and types of field experiences. Students will also examine Educator Ethics and specifically how their Christian Faith can influence the decisions they make in the classroom. Finally, students will learn how Educational Technology is used in the Curriculum, Instruction, and Assessment of the profession. For education majors only. *Three hours.*

EDUC 205. OVERVIEW OF THE TEACHING PROFESSION. A study of the pedagogical framework of education with emphasis on the legal and organizational issues related to American institutions of education. This includes an analysis of the current reform movements and impact upon the role of the professional educator. Education majors must complete and may only receive credit for one of Education 202 or the combination of Education 205 and 206. Prerequisite: Dual Enrollment Program students or first year Freshman only. *Spring semester, two hours.*

EDUC 206. CLINICAL INTRODUCTION TO THE TEACHING PROFESSION. A classroom extension of Education 205 with a focus on face-to-face teaching and the required in-school field experience. Education majors must complete and may only receive credit for one of Education 202 or the combination of Education 205 and 206. Prerequisite: Education 205. *Fall semester, one hour.*

EDUC 215. SECONDARY CURRICULUM AND INSTRUCTION I. This course provides an overview of all curriculum components essential for operating a secondary education classroom. Major curriculum approaches are explored, and students are expected to complete unit planning skills implementing these approaches. Additional focus will be on classroom management strategies, school setting and culture, selecting course materials, and introduction to professionalism/ethics. Prerequisites: Education 102 and 202. Concurrent course: Education 271. *Two hours.*

EDUC 228. SURVEY OF ADOLESCENT LITERATURE. A survey of young adult literature for educators teaching in upper elementary, middle grades (4-8) with an extensive representation of books from classic and contemporary authors. Major literary genres are studied, trends in adolescent literature are discussed, and issues in selecting and using literature in the 4-8 classrooms are explored. Priority given to Middle Level and English Secondary Education Certification majors. *Spring semester, two hours.*

EDUC 260. INDEPENDENT STUDY. Individual study of specialized topics in education. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EDUC 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in education. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EDUC 271. SECONDARY FIELD EXPERIENCE (FIRST LEVEL). An internship course designed to help pre-service secondary and K-12 teachers observe and collaborate with experienced teachers to gain the knowledge and practice necessary to effectively teach in a secondary classroom. Key components include actively observing and critically reflecting upon elements of successful planning and preparation, classroom environment, instructional delivery, professional conduct, assessment, and knowledge of diverse learners. Prerequisites: Education 102 and 202; Concurrent course: Education 215. *One hour.*

EDUC 282. SECOND LEVEL FIELD EXPERIENCE. An internship course designed to permit students to engage in thirty to forty hours of some observation and most participatory field experience. Field experience interns observe teachers in classroom settings and assume some level of teaching responsibility. Diverse educational settings are strongly recommended. Prerequisite: Education 181 or 182. *One hour.*

EDUC 307. METHODS OF TEACHING MODERN LANGUAGES. A course designed to familiarize students with both theoretical and practical aspects of teaching foreign languages: listening, speaking, reading, writing, and culture. Designed to complement and expand upon skills developed in curriculum and instruction. Prerequisite: Spanish 362 or French 362. *Fall semester, three hours.*

EDUC 316. SECONDARY ENGLISH/HISTORY/FOREIGN LANGUAGE CURRICULUM AND INSTRUCTION II. This course provides English, History and Foreign Language secondary education majors with an advanced implementation of planning and instruction in secondary classrooms. Topics will include literacy in the content

area, motivation, management techniques and English/history/foreign language-specific teaching strategies. Topics discussed will be implemented through an imbedded field that will require English, History and Foreign Language preservice teachers to demonstrate the implementation of topics. Students will also complete an advanced examination of Educational professionalism and ethics. Prerequisite: Education 215. Concurrent course: Education 375. *Spring semester, two hours.*

EDUC 317. SECONDARY MATH/SCIENCE CURRICULUM AND INSTRUCTION II. This course provides Math and Science secondary education majors with an advanced implementation of planning and instruction in secondary classrooms. Topics will include literacy in the content area, motivation, management techniques, and math/science-specific teaching strategies. Topics discussed will be implemented through an imbedded field that will require math and science preservice teachers to demonstrate the implementation of topics. Students will also complete an advanced examination of Educational professionalism and ethics. Prerequisite: Education 215. Concurrent course: Education 375. *Fall semester, two hours.*

EDUC 318. PHYSICAL EDUCATION FOR ELEMENTARY EDUCATORS. The purpose of this class is to introduce the students to a basic overview of elementary physical education in order that they become advocates of physical education and learn to integrate movement education within their classrooms. Prerequisite: Elementary Education, Middle Level Education, and Special Education majors only. *One hour.*

EDUC 319. THE USE OF ART IN THE CLASSROOM. A study of materials and methods of instruction in art for the elementary and preschool including topics in the theory and practice of teaching art. Prerequisites: Sophomore standing. Elementary Education, Middle Level Education, and Special Education majors only *One hour.*

EDUC 323. PRIMARY READING INSTRUCTION, PHONEMIC AWARENESS, PHONICS, AND FLUENCY. A course designed to acquaint future elementary and early childhood teachers with strategies for developing emergent literacy in reading and the integrated language arts. Topics include research-based methods to develop concepts of early literacy learning including phonemic awareness, phonics, decoding ability, and fluency. The course will also explore the developmental continuum of language and literacy, including writing, speaking, listening, visualizing and viewing. Direct field experience is required in the elementary school where students will utilize assessment techniques, plan lessons, and use a variety of approaches and materials in instructing students. Prerequisites: Sophomore standing elementary and special education majors, junior elementary education and middle level majors, or with special permission from the course instructor and completion of Education 102, 202, and one of the following: Education 324, 325, or 327. Elementary Education, Middle Level Education, and Special Education majors only. *Three hours.*

EDUC 324. TEACHING ELEMENTARY SOCIAL SCIENCES. A study of resources and methods of teaching PreK-8 social studies including history, geography, civics, and economics. This course also emphasizes the development of competencies associated with the use of audio-visual equipment and materials. Directed field experience in the elementary and middle schools is required. Prerequisite: Sophomore standing.
Fall semester, three hours.

EDUC 325. TEACHING ELEMENTARY SCIENCE AND HEALTH. A course of instruction in methods of teaching PreK-8 science, health, and physical education. Includes

classroom development of competencies in the planning and use of hands-on materials and application in classroom instruction. Directed field experience in the elementary and middle schools is required. Prerequisite: sophomore standing. *Spring semester, three hours.*

EDUC 326. UPPER ELEMENTARY/MIDDLE READING INSTRUCTION & ELA. A course designed to acquaint elementary, early childhood, middle-level and English education majors about methods to teach literacy (reading and the integrated language arts) to upper elementary and middle school level students. Topics include methods to develop vocabulary knowledge, comprehension, expressive writing, and content area reading. Direct field experience in elementary or middle schools is required. Prerequisites: Elementary Education, Special Education, and Middle Level Education majors must have taken Education 323; English Secondary Education majors must have sophomore standing, Education 102 and 202. *Three hours.*

EDUC 327. TEACHING ELEMENTARY MATHEMATICS. Elementary mathematics concepts and pedagogy will be introduced within the framework of the curriculum and evaluation standards recommended by the National Council of Teachers of Mathematics. Mathematical strands to be explored include geometry; measurement; number sense; whole number operations; patterns and functions; fraction and decimal operations; graphing; statistics; and probability. A strong emphasis will be placed on problem solving as a skill needed to make informed decisions about life. All concepts will be taught with a dependence on manipulative activities. The scope of the course goes from early childhood to adolescence. A structured field experience is embedded within the course. It is strongly recommended that this course be completed before taking additional three-credit elementary methods courses. Prerequisite: Mathematics 151 and Sophomore standing. *Three hours.*

EDUC 328. SURVEY OF CHILDREN'S LITERATURE. Survey of children's literature for early childhood, intermediate, and middle grades with an extensive representation of books and related media from classic and contemporary authors and illustrators. Major literary genres are studied, story-telling techniques are discussed, and issues in literature for children are explored. Additionally, the course discusses the linguistic development in children that is fostered through exposure to literature. Open to Elementary Education and Middle Level Education majors only. *Two hours.*

EDUC 329. MIDDLE LEVEL CURRICULUM AND INSTRUCTION. This course provides middle level certification candidates with an in-depth study of middle level education that focuses on meeting the needs of adolescent learners. Topics will include the role of collaboration in departmentalized middle level programs, adolescent guidance, management of the learning environment, and school governance in middle and junior high settings. Prerequisite: Education 102. *Fall semester, three hours*.

EDUC 330. LITERATURE AND WRITING FOR THE SECONDARY CLASSROOM. A course designed to familiarize the student with both theoretical and practical aspects of teaching literature and writing used at the secondary level. Included will be a discussion of literature selection, treatment of the material, and writing assessment procedures. Traditional works will be emphasized. Prerequisites: Education 102 and 202. *Fall semester, three hours.*

EDUC 342. EARLY CHILDHOOD CURRICULUM AND INSTRUCTION. This course provides an overview of all curriculum components essential for operating an early childhood classroom with a focus on preschool and primary environments. Major curriculum approaches explored and implemented in early childhood settings include a traditional structured approach, a thematic approach, and the project approach. An

awareness of learning styles, diversity, and special needs are integral to effective planning. The role of assessment in the curriculum sequence is included. Students are required to implement curriculum approaches in selected sites. Sophomore or junior level course. Prerequisites: Education 102 and 181. *Three hours.*

EDUC 360. INDEPENDENT STUDY. A course designed to permit students to do advanced study or to participate in educational experiences that provide an opportunity for professional and/or educational self-improvement. Junior standing, permission of the department chair and a faculty sponsor are required. *One, two or six hours.*

EDUC 363. ASPECTS OF SOCIAL STUDIES EDUCATION. A course designed to provide opportunities to teach various aspects of the secondary social studies certification areas, and to examine and implement a variety of technical aspects and resources in the social studies curriculum in preparation for student teaching. This course includes applied opportunities in a 7-12 setting to explore content area competencies in the context of curriculum, planning, and assessment. Required of all students desiring teacher certification in social studies education and middle level certifications with social studies.
Fall semester, three hours.

EDUC 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in education. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EDUC 375. SECONDARY FIELD EXPERIENCE (THIRD LEVEL). An internship course designed to help pre-service secondary and K-12 teachers actively collaborate with experienced teachers to gain the knowledge and practice necessary to effectively teach in a secondary classroom. Included in this collaboration is successful planning and preparation that meets the needs of diverse learners and is closely tied to assessment practices, the maintenance of an effective learning environment through the examination and implementation of successful classroom management strategies, the use of effective instructional delivery techniques, the demonstration of professional conduct, and the knowledge of professional development opportunities and requirements. Prerequisite: Education 215. To be taken concurrent with Education 316 or 317. *One hour.*

EDUC 383. THIRD LEVEL FIELD EXPERIENCE. An internship course designed to permit students to engage in thirty to forty hours of participatory field experience. Field experience interns observe teachers in classroom settings and assume a greater level of teaching responsibility. Diverse educational settings are strongly recommended. Prerequisite: Education 282. *One hour.*

EDUC 385. EARLY CHILDHOOD FIELD EXPERIENCE (SECOND LEVEL). This one-credit second field experience is an internship course designed to permit students who desire to gain additional experience working with young children to engage in a semester-long field experience in the Early Education Center. Sophomore or junior level course. Prerequisite: Education 181. *One hour.*

EDUC 386. EARLY CHILDHOOD FIELD EXPERIENCE (THIRD LEVEL). This two-credit third field experience is an internship course designed to permit students more in-depth experience in studying and teaching young children. Students may choose between Education 385 and 386 for a second field experience in early childhood. Sophomore or junior level course. Prerequisites: Education 181 and 385. *Two hours.*

EDUC 387. FIELD EXPERIENCE IN EDUCATION. A field-based course designed to permit students to engage in approximately twenty-one hours of field experience that fulfills the requirements of a Level I, Level II, or Level III field experience course. With instructor approval, this course may substitute for Education 181, 182, 271, 282, 375, 383, 385, and 386. Prerequisite: Education 102, 202, or 205. With instructor permission the course may be taken more than once. *Travel or online term, one hour.*

EDUC 390. STUDIES: SPECIAL TOPICS COURSE. This course is taught by a visiting scholar from the field of education. The topic for each course will vary from year to year. The course will consist of a minimum of two two-hour lectures on the topic plus a paper of specified length related to the topic. Prerequisite: Junior or senior education majors. *One, two, or three hours.*

EDUC 414/514. FLEXIBLE FIELD EXPERIENCE IN EDUCATION. A field based course designed to permit students to engage in up to 120 hours of field experience that fulfills the PDE competency requirements of a Level I, Level II, or Level III field experience (40 hours = 1 credit, 80 hours = 2 credits, and 120 hours = 3 credits). With instructor approval, this course may substitute for Education 181, 182, 271, 282, 375, 383, 385, and 386. With instructor's permission, the course may be taken more than once. *One, two, or three hours.*

EDUC 415/515. PROFESSIONAL TOPICS IN EDUCATION. A course for credential candidates that examines contemporary issues, successful practices, curricular approaches, political influences, school structure, and/or specific student needs that schools face in the 21st century. Students will also consider possible solutions to various crises facing American education. *One, two, or three hours.*

EDUC 440. LEADERSHIP FOR TEACHERS. This course explores contemporary trends in education with a focus on the role of the teacher as a leader. Special emphasis in this course focusses on the advocacy and agency of teachers to work within systems to respond to the sociological, psychological, political, and economic forces shaping education and impacting students. Teacher leadership skills will be applied through action research integrating the fourth domain of the Danielson Framework, with an emphasis on developing professional networks and collaborative service-learning projects. Senior level course. Prerequisites: Senior standing and completion of all methods courses (one of Education 316, 317, 329, or 342), or with special permission of the course instructor. Priority given to elementary and special education majors. *Three hours.*

EDUC 450. STUDENT TEACHING. Preservice teacher certification candidates (seniors only) are provided a one semester course in student teaching at local public schools. The course runs five days per week for an entire semester. Additionally, student teachers must attend a student teacher practicum session per week as the course syllabus dictates. This course is designated Speaking Intensive (SI). Prerequisites: Senior standing and completion of all methodology courses required before student teaching. Departmental approval and permission required. *Sixteen hours.*

EDUC 460. INDEPENDENT STUDY. A course designed to permit students to do advanced study or to participate in educational experiences that provide an opportunity for professional and/or educational self-improvement. Senior standing, permission of the department chair and a faculty sponsor are required. *One, two or seven hours.*

EDUC 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in education. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EDUC 480. INTERNSHIP IN EDUCATION. An opportunity for junior or senior level education majors to participate in approved experiences that provide extraordinary leadership roles in applying educational theory to practice, under the supervision of an on-site manager and a department faculty member. Products of the internship include a log, evaluation by the on-site manager, and all other requirements established within the faculty approved Contract of Expected Responsibilities and Outcomes. Prerequisites: Acceptable standing within the Education Department and permission of the Chair or Associate Chair of the Education Department. *One to six hours.*

EDUC 488. SEMINAR: ISSUES IN EDUCATION. A capstone course for senior credential candidates that examines the major philosophical, historical, social, political, and psychological issues as they impact the teaching profession. Contemporary issues, successful practices, and curricular approaches will be studied as the student considers possible solutions to various crises facing American education. This course is designated Writing Intensive (WI), Speaking Intensive (SI) and Information Literacy (IL). Prerequisite: Senior standing or permission of instructor. *Three hours.*

EDUC 540. LEADERSHIP FOR TEACHERS. This course explores contemporary trends in education with a focus on the role of the teacher as a leader. Special emphasis in this course focusses on the advocacy and agency of teachers to work within systems to respond to the sociological, psychological, political, and economic forces shaping education and impacting students. Teacher leadership skills will be applied through action research integrating the fourth domain of the Danielson Framework, with an emphasis on developing professional networks and collaborative service-learning projects. Graduate standing or taken with special permission for students admitted into the teacher preparation program. *Three hours.*

Education, Reading Specialist (EDRS)

EDRS 524. REMEDIATION OF READING AND WRITING PREK-ADULT. Graduate level course in literacy methods aimed at preparing students to meet the needs of learners (PreK-Adult) who experience difficulty in literacy development. Students will study research-based findings related to the causes and research-based strategies on ameliorating such difficulties. Key components of the course focus on the appropriate use of materials, assessment instruments, teaching strategies, and a variety of service delivery models to optimize the success of individual students. This course also includes an ongoing clinical field experience throughout the semester in which students will work with a student with literacy needs to support their growth in an educational setting. Heavy emphasis on the science or reading and integration of assessment data to diagnose and remediate literacy challenges will be developed. Prerequisites: EDRS 521 and EDRS 522. Students who have taken SEDU 308 may take a graduate elective in place of this course with permission from the coordinator of the Reading Specialist program. *Three hours.*

Special Education (SEDU)

SEDU 101. EXCEPTIONAL LEARNERS. This course is a foundational study of the characteristics, etiology, and psychological and educational needs of individuals eligible for special education services, focusing on the implication of such needs on the educator and meeting of individual needs in a standards-aligned system. The course also introduces students to the processes, professionals, and strategies for identifying individual needs and

the establishment and delivery of required special education services. An embedded special education field experience is part of this course. Prerequisites: Education 102 and appropriate clearances. *Three hours.*

SEDU 102. EXCEPTIONAL LEARNERS FOR 7-12 & K-12. This course is a foundational study of the characteristics, etiology, and psychological and educational needs of individuals eligible for special education services, focusing on the implication of such needs on the educator and meeting of individual needs in a standards-aligned system. The course also briefly introduces pre-service teachers to the processes, professionals, and strategies for identifying individual needs and the establishment & delivery of required special education services. A particular focus will be on the implementation of identification, implementation, and inclusion in the secondary classroom. Concurrent course: Special Education 103 or 104. *Two hours.*

SEDU 103. METHODS OF SECONDARY SPECIAL EDUCATION IMPLEMENTATION. The course is an expansion and implementation of previous coursework for K-12, 7-12 and Special Education Majors that will focus on co-teaching, full inclusion, assessment writing & modification, and co-curricular experiences. *One hour.*

SEDU 104. METHODS OF SECONDARY SPECIAL EDUCATION IMPLEMENTATION FOR MUSIC EDUCATION MAJORS. The course is an expansion and implementation of previous coursework for K-12 Music Education Majors that will focus on co-teaching, full inclusion, assessment writing & modification, and co-curricular experiences. Concurrent course: Special Education 102. Music Education majors only. *One hour.*

SEDU 202. APPLIED BEHAVIORAL ANALYSIS. Topics include assessment and intervention with a focus on ethics and methods to increase and decrease behaviors. Students will carry out behavioral analyses and intervention to design and implement individual and group behavior plans for special education populations while gaining proficiency in developing pro-social behaviors and in direct instruction to explicitly teach appropriate social skills and communication. Furthermore, students will implement intervention strategies appropriately in compliance with IEP goals with respect for student safety and individual needs. Prerequisites: Education 102, Special Education 101, and appropriate clearances and standing in the certification program at Grove City College. Concurrent course: Special Education 203 for Special Education majors. There is no corequisite for Special Education minors. *Fall semester, three hours.*

SEDU 203. SPECIAL EDUCATION SYSTEMS AND PROCESSES/FIELD EXPERIENCE LEVEL I. This field experience-based course will provide the prospective teacher with opportunities to interact and instruct students with Special Education labels as they work with both Regular Education and Special Education teachers. Student-interns enrolled in this field will function as skilled observers/explorers and pre-student teacher tutors as they collect information and prepare and deliver lessons to small groups and individual students while spending at least 35 hours in the field, focusing on the special education process, LRE, Participation in a Standards Aligned Curriculum, and Behavioral Interventions. Prerequisites: Education 102, Special Education 101, and appropriate clearances and standing in the certification program at Grove City College**.** Concurrent course: Special Education 202, for Special Education majors (there is no corequisite for Special Education minors), as assignments from that course will be tied to this field experience. *Fall semester, one hour.*

SEDU 204. EDUCATIONAL ASSESSMENT IN SPECIAL EDUCATION. This is an in-depth study of the tools and processes used in identification of and programming for the Exceptional Population. Expertise will be developed in the implementation of unbiased multiple-layered assessment tools and their subsequent application in IEP programming. Students will become proficient in providing and evaluating in-depth authentic, benchmark, diagnostic, formative, screening, and summative assessment data related to meeting the needs of those being considered for or identified within the special education population. Prerequisites: Education 102, Special Education 101, and appropriate clearances and standing in the certification program at Grove City College. *Spring semester, three hours.*

SEDU 205. CONSULTATION, LITIGATION, AND TRANSITION. Students will prepare skills for building productive professional interactions with parents, educators, service providers, and community professionals. Additionally, historical cases and current litigation will be studied to enable students to design and implement programs that provide full procedural safeguards to all constituents while gaining expertise in aligning resources, securing providers, and mediating forces to provide for the full spectrum of support services both legally and ethically. Prerequisites: Education 102, Special Education 101, and clearances and standing in the certification program at Grove City College.
Spring semester, three hours.

SEDU 206. CURRICULUM DESIGN IN BEHAVIOR AND LEARNING DISORDERS. The ever-changing complex world of disabilities, as well as the increase in youngsters and adolescents with emotional/behavioral disorders and learning problems has necessitated the need for students to have a deeper understanding of these conditions. Specifically, the interface of these conditions with curriculum design and learning. Prerequisites: Education 102 and Special Education 101. *Spring semester, two hours.*

SEDU 210. MATHEMATICS FOR EXCEPTIONAL LEARNERS. This advanced course will provide students with alternative tactics for providing instruction in mathematics for students with disabilities or at risk for disabilities in a multi-tiered system of support. Content will cover research concerning mathematics instruction as well as instructional design and delivery, counting, symbol identification and place value, basic facts, operations, problem-solving, fractions and decimals, percent and ratio, telling time, money, measurement, geometry, pre-algebra and algebra, as well as study skills for mathematics. Prerequisites: Mathematics 151, 152, and Education 327. *Fall semester, three hours.*

SEDU 290. STUDIES IN SPECIAL EDUCATION. The topic for each course will vary from year to year. *Offered periodically, one, two, or three hours.*

SEDU 306. SUPPORTIVE SERVICES AND TECHNOLOGY / FIELD EXPERIENCE LEVEL II. This field experience-based course will provide the student-intern with opportunities to interact and instruct students with Special Education Labels as they work with both Regular Education and Special Education teachers. Specifically, this experience will be selected to provide a 25-hour experience with students receiving special education services under the labels of moderate to severely handicapped. Prerequisites: Education 102; Special Education 101 or 102, 202, 203, 204, 205; and appropriate clearances and standing in the certification program at Grove City College. Concurrent course: Special Education 307, as assignments from that course will be tied to this field experience. *Fall semester, one hour.*

SEDU 307. EVIDENCE BASED INSTRUCTION OF LOW INCIDENCE DISABILITIES. Students will develop advanced skills in meeting the needs of special

education students with labels of Autistic, Visually Impaired/Blind, Hearing Impaired/Deaf, Multiple Handicapped, Severe Disabilities, Orthopedic Impairments, and Traumatic Brain Injury. Students will demonstrate knowledge of facilitating inclusion, managing the environment, and the use of available technology to design and implement programs, while continuously monitoring progress, providing remediation and compensation techniques, and providing alternative routes to achievement across all areas of the continuum of services. Prerequisites: Education 102; Special Education 101 or 102, 202, 203, 204, 205; and appropriate clearances and standing in the certification program at Grove City College. Concurrent course: Special Education 306. *Fall semester, three hours.*

SEDU 308. READING DISABILITIES. This is an advanced level course in literacy methods aimed at preparing students to meet the needs of the special education population who experience difficulty in literacy development. Students will study research-based findings related to the causes and research-based strategies on ameliorating such difficulties. Key components of the course focus on the appropriate use of materials, assessment instruments, teaching strategies, and a variety of service delivery models to optimize the success of individual students. This course also includes an ongoing clinical field experience throughout the semester in which students will collaborate with a practicing special educator of reading specialist to work with a student with literacy needs. Prerequisites: Education 102, Special Education 101 or 102, Education 323 and 326; and appropriate clearances and standing in the certification program at Grove City College. *Three hours.*

SEDU 309. EVIDENCE BASED INSTRUCTION OF HIGH INCIDENCE DISABILITIES. Students will develop advanced skills in meeting the needs of special education students with labels of Learning Disabled, Speech and Language Impaired, Intellectually Disabled, Seriously Emotionally Disturbed, and Attention Deficit Disorder (Other Health Impaired). Students will demonstrate knowledge of facilitating inclusion, managing the environment, and the use of available technology to design and implement programs. As appropriate, students will provide Education / 179 integrated learning experiences, multiple instructional approaches, and evidence-based decisions. Prerequisites: Education 102; Special Education 306, 307; Education 323, 326; and appropriate clearances and standing in the certification program at Grove City College.
Spring semester, three hours.

SEDU 360. INDEPENDENT STUDY. A course designed to permit students to do advanced study or to participate in educational experiences that provide an opportunity for professional and/or educational self-improvement. Junior standing, permission of the department chair and a faculty sponsor are required. *Variable hours.*

SEDU 412. PRACTICUM OF PROFESSIONAL DEVELOPMENT. As an extension of the student teaching experience, student teachers will participate in a practicum experience including course work, assignments, and interaction with the college supervisor while exploring topics that are important to the development of the Professional Special Educator. Thus, the course will support the student teacher in applying theory to practice during the student teaching experience. Additionally, topics of professional responsibilities, confidentiality issues, and current issues in special education will be discussed. *One hour.*

SEDU 421. ASSESSMENT AND PROGRAM DELIVERY FOR STUDENTS ON THE AUTISM SPECTRUM. This course describes the intricacies of assessment practices in working with those students on the Autism Spectrum. Students will generate and deliver individual education programs using data and empirically based practices to bring about meaningful changes in behaviors and learning during the required integrated field

experience. *Completion of this course may partially meet the requirements for the Autism Endorsement offered by the Pennsylvania Department of Education.* Prerequisite: Special Education 202; other prerequisites include appropriate clearances and standing in the certification program at Grove City College. *Three hours.*

SEDU 422. SUPPORTING STUDENTS ON THE AUTISM SPECTRUM OR WHO ARE NEUROLIGICALLY DIVERSE. This course provides an overview of the etiological implications for the educational service needs of those with autism or who are neurologically diverse will be explored. Research-based interventions and curriculums will be reviewed across settings and grade levels. *Completion of this course may partially meet the requirements for the Autism Endorsement offered by the Pennsylvania Department of Education.* Prerequisites: Education 102; Special Education 101 or 102 and 103, and 202. *Three hours.*

SEDU 521. ASSESSMENT AND PROGRAM DELIVERY FOR STUDENTS ON THE AUTISM SPECTRUM. This course describes the intricacies of assessment practices in working with those students on the Autism Spectrum. Students will generate and deliver individual education programs using data and empirically based practices to bring about meaningful changes in behaviors and learning during the required integrated field experience. Furthermore, students taking the course for graduate credit will complete a professional development plan in consultation with the course instructor and site-based education agency. *Completion of this course may partially meet the requirements for the Autism Endorsement offered by the Pennsylvania Department of Education. Course is reserved for students completing autism certification program or applicable electives in graduate programs.* Undergraduates taking the course must be granted approval. Appropriate clearances and standing in the certification program at Grove City College. *Three hours.*

SEDU 522. SUPPORTING STUDENTS ON THE AUTISM SPECTRUM OR WHO ARE NEUROLIGICALLY DIVERSE. This course provides an overview of the etiological implications for the educational service needs of those with autism or who are neurologically diverse will be explored. Research-based interventions and curriculums will be reviewed across settings and grade levels. Students taking the course for graduate credit will complete a professional development plan in consultation with the course instructor and site-based education agency. *Completion of this course may partially meet the requirements for the Autism Endorsement offered by the Pennsylvania Department of Education. Course is reserved for students completing autism certification program or applicable electives in graduate programs.* Undergraduates taking the course must be granted approval. Appropriate clearances and standing in the Education Program at Grove City College is required. *Three hours.*

INTEGRATIVE SCIENCE TECHNOLOGY ENGINEERING AND MATHEMATICS K-12 ENDORSEMENT PROGRAM (INTEGRATIVE STEM ENDORSEMENT)

EDUC 410/510. INTEGRATIVE STEM FOR EARLY CHILDHOOD AND ELEMENTARY SCHOOL. This course focuses on STEM topics, methods, curriculum and instruction for school students in early childhood grades PreK-4 and elementary school settings. In this course, students will (a) Gain exposure to the standards knowledge of standards that are pivotal in the STEM field, (b) Explore how STEM can be involved in other disciplines and used in cross curricular activities and lessons, and (c) Explore inquiry-based teaching and learning methodologies to teach STEM topics – explore each topic

(science, technology, engineering, and math) individually and explore methodologies that work within each topic area. In addition, students will participate in a field component where they will design, implement, and reflect using the reflective teaching model on lessons and units that incorporate an integrative STEM learning cycle approach and developmentally appropriate methodology for PREK-4 students. This course is in partial fulfillment of the STEM endorsement from PDE. *Online, three hours.*

EDUC 411/511. INTEGRATIVE STEM FOR ADOLESCENT AND MIDDLE SCHOOL. This course focuses on STEM topics, methods, curriculum and instruction for school students in grades 4-8. The course is designed for candidates seeking an endorsement in Integrative Science, Technology, Engineering, and Mathematics Education. In this course, students will (a) Apply knowledge of standards that are pivotal in the STEM field, (b) Create cross curricular lessons, and (c) Apply inquiry-based teaching and learning methodologies to teach STEM topics. In addition, students will participate in a field component where they will design, implement, and reflect using the reflective teaching model on lessons and units that incorporate an integrative STEM learning cycle approach and developmentally appropriate methodology for 4-8 students. Prerequisite: EDUC 510. This course is in partial fulfillment of the STEM endorsement from Pennsylvania Department of Education. *Online, three hours.*

EDUC 412/512. INTEGRATIVE STEM FOR SECONDARY AND HIGH SCHOOL. This course focuses on STEM topics, methods, curriculum and instruction for school students in secondary settings, grades 9-12. In this course, students will (a) utilize their knowledge of the standards to create and implement lesson plans in the field, (b) Explore hot topics in STEM education such as robotics and 3D printing (c) Gain hands on experience with technology tools related to STEM education. In addition, students will participate in a field component where they will design, implement, and reflect using the reflective teaching model on lessons and units that incorporate an integrative STEM learning cycle approach and developmentally appropriate methodology for 9-12 students. Prerequisite: EDUC 511. This course is in partial fulfillment of the STEM endorsement from Pennsylvania Department of Education. *Online, three hours.*

EDUC 413/513. STEM PRACTICUM AND APPLIED LEADERSHIP. A capstone course designed to integrate previously learned concepts in other STEM endorsement classes through a long-range service project and teaching experience in a PreK-12 setting. The course is designed to develop the ability to endorsement candidates to integrate previously learned content and dispositions to have a dynamic impact on schools and the field of education. Critical course components include engagement with STEM community partners from business and industry outside of the PreK-12 settings, developing recourses for the PreK-12 setting, and furthering the promotion of STEM teaching and learning as an instructional leader. The course covers broad themes: STEM in Society and Professions, STEM Education, and STEM Educational Leadership. The capstone course will be structured with a weekly practicum meeting for the total cohort, but the individual students will each be partnered with a STEM cooperating educator or cooperating school administrator AND a mentor professor from institution. The STEM capstone class is a rigorous internship for the educator in a high school, middle school, intermediate, primary, and/or early childhood classroom. All placements must be approved by the course instructor. This course is in partial fulfillment of the STEM endorsement from PDE.
Online, three hours.

Electrical and Computer Engineering

Dr. Brooks, Chair; Dr. M. W. Bright, Dr. Christman, Dr. Hill, Dr. Rumbaugh. Additional Instructional Faculty: Prof. Armour, Dr. Chu.

Electrical and Computer Engineering Department Mission Statement, Objectives, and Outcomes

Electrical and Computer Engineering (ECE) is the analysis, design, and application of devices and systems for the conversion, processing, and transmission of electrical energy and information. Electrical and Computer Engineering at Grove City College covers such basic topics as electric circuits, electronics, electrical machines, signal analysis, and digital systems, as well as advanced topics in communication systems, computer systems, and control systems. There are also opportunities to study technical entrepreneurship. Electrical and computer engineers practice a variety of professional duties including research, design and development, management, sales, field service, testing, manufacturing, and education.

The Electrical and Computer Engineering Department at Grove City College offers a program leading to the Bachelor of Science in Electrical Engineering (BSEE) and Bachelor of Science in Computer Engineering (BSCE) degrees. The Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Proficiency in writing and speaking skills is essential to a productive career in any branch of Electrical and Computer Engineering. To that end, all majors take Engineering 451 (Capstone Laboratory I), as a Writing Intensive (WI) and Speaking Intensive (SI) course. In addition, all graduates need to know how to obtain, evaluate, and use technical information related to the field of Electrical and Computer Engineering. Instruction and practice in these Information Literacy (IL) skills is provided in the combination of the following required courses: Electrical Engineering 251 and 351.

Electrical and Computer Engineering Program Educational Objectives

1. Graduates will be active in the electrical engineering profession or an alternative field consistent with their God-given calling. Many of our graduates will assume leadership roles as a result of having demonstrated strong technical abilities as well as communication and team skills.
2. Graduates will set career goals and engage in life-long learning through self-study, continuing education courses, and/or formal graduate education to reach those goals.
3. Graduates will demonstrate ethical behavior in the workplace and will carry out their professional duties in a manner that is consistent with a Christian life perspective.

Student Outcomes

To ensure fulfillment of the ECE Department objectives, graduates of the Electrical and Computer programs shall demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Inherent in the ECE curriculum at Grove City College is the inculcation of design experience. Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process applying basic science, mathematics, and engineering science to use available resources to optimally meet stated objectives. In the EE program, engineering design is assured via design problems and projects integrated throughout the ECE curriculum.

Freshman Year-The *Introduction to Engineering* (ENGR 156) course introduces the profession of engineering and the design process. Students work in teams on a design project and present results in written and oral reports.

Sophomore and Junior Years-ECE students are afforded additional opportunities to solve relevant design problems through homework and group design projects in various courses in the sophomore and junior years. Design projects that incorporate course-specific topics along with techniques introduced in the freshman *Introduction to Engineering* course are assigned in *Digital Logic Design* (ELEE 204), *Electric Machines* (ELEE 303), and *Microcontrollers with Robotic Applications* (ELEE 310), and other courses as appropriate. These projects are presented in written and/or oral reports.

Senior Year-The integrated design experience in ECE at Grove City College culminates in the senior year with the capstone design project. The capstone design experience comprises a combination of research and proposal writing in *Engineering Design* (ENGR 401) and *Capstone Design Laboratory I* (ENGR 451) in the fall semester of the senior year and hands-on implementation and documentation of that design in *Capstone Design Laboratory II* (ENGR 452) in the spring semester. The project must incorporate one or more advanced topics chosen from the senior-level stem sequences in Communication Systems, Computer Systems, or Control Systems (students choosing the CE concentration must include the Computer Systems sequence). The capstone project assures that all ECE graduates complete a major design experience drawing on fundamental concepts as well as advanced ECE topics. While seniors are asked to present various oral and written updates throughout the capstone experience, the climax comes in the second semester of the senior year when students present oral and written reports to the public, including engineering professionals from nearby industries.

Course Requirements for Bachelor of Science Degree in Computer Engineering—98 hours

Computer Engineering Core (58 hours)

Electrical Engineering 201, 204, 221, 251, 301, 310, 351, 441, 442; Computer Science 141, 220, 222, 230, 340, 342, 350, 448; Engineering 156, 301, 401, 402, 451, 452.

Technical Elective Requirement (6 hours)

Choose six hours from any 200-400 level ELEE, COMP, ENGR, or ROBO course (excluding Engineering 216 and Computer 205).

Math/Science Core (34 hours)
Mathematics 213, 214, 161, 162, 261, 262; Physics 101, 102; Engineering 120.

FOUR-YEAR PLAN for Computer Engineering

FRESHMAN YEAR	Fall	Spr.
Mathematics 161-162	4	4
Physics 101-102	4	4
Writing Req. – General Elective	3	1
Engineering 120 – HUMA 100	3	1
Computer Science 141	-	3
Electrical Engineering 204	-	3
Engineering 156	2	-
	16	16

SOPHOMORE YEAR	Fall	Spr.
Mathematics 261-262	4	3
Electrical Engineering 201-221	3	3
Electrical Engineering 251	1	-
Computer Science 220-342	3	3
Foundations of Social Science	3	-
Humanities Courses	3	3
Computer Science 230	-	3
	17	15

JUNIOR YEAR	Fall	Spr.
Electrical Engineering 301-310	6	0
Electrical Engineering 351	1	-
Computer Science 222- 340	3	3
Mathematics 213-214	4	4
Technical Elective	-	3
Humanities Courses	3	3
SSFT Course	-	2
Engineering 301	-	1
	17	16

SENIOR YEAR	Fall	Spr.
Engineering 401	1	-
Electrical Engineering 441- 442	3	3
Engineering 402	-	1
Engineering 451-452	3	3
Computer Science 448-350	3	3
Technical Elective	3	-
General Elective	-	3
Humanities Courses	3	2
	16	15

Courses that count in the Computer Engineering major quality point average (MQPA):
All courses with "ELEE", "ENGR", "COMP" and "ROBO" prefixes. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for Bachelor of Science Degree in Electrical Engineering—98 hours

Electrical Engineering/Computer Core (36 hours)
Computer Science 141; Electrical Engineering 201, 202, 204, 221, 251, 301, 302, 303, 304, 351; Engineering 401, 451, 452.

Engineering Core (9 hours)
Engineering 120, 156, 301, 402; Engineering 209 or Mechanical Engineering 109.

Math/Science Core (30-31 hours)
Chemistry 105 or Biology 101; Engineering 274 or Mathematics 214; Mathematics 161, 162, 261, 262; Physics 101 and 102.

Concentration Area—choose one:

Automation Concentration (13 hours):
Electrical Engineering 310, Engineering 305, 317, 411, 412.

Communications Concentration (13 hours):
Electrical Engineering 404, 416, 431, 432, and Computer Science 342.

Technical Entrepreneurship Concentration (13 hours):
Electrical Engineering 431, Engineering 411, Entrepreneurship 304, 466, and one of Entrepreneurship 201 or 303.

Technical Elective Requirement (9-10 hours)
Choose nine to ten hours from any 200-400 level ELEE, COMP, ENGR, MECE, or ROBO course (excluding Engineering 216 and Computer 205).

Courses that count in the Electrical Engineering major quality point average (MQPA): All courses with "ELEE", "ENGR", "COMP" and "ROBO" prefixes. A minimum MQPA of 2.00 is required to graduate.

FOUR-YEAR PLAN for Electrical Engineering

FRESHMAN YEAR	**Fall**	**Spr.**
Mathematics 161-162	4	4
Physics 101 – 102	4	4
Writing Req. – General Elective	3	1
Engineering 120 – HUMA 100	3	1
Computer Science 141	-	3
Engineering 156	2	-
Electrical Engineering 204	-	3
	16	16

SOPHOMORE YEAR	**Fall**	**Spr.**
Mathematics 261-262	4	3
Electrical Engineering 201-202	3	3
Electrical Engineering 251	1	-
Electrical Engineering 221	-	3
SSFT course	2	-
Chemistry 105 or Biology 101	4	-
Humanities Courses	3	3
Foundations of Social Science	-	3
Mech. Engr. 109 or Engr. 209	-	2
	17	17

JUNIOR YEAR	**Fall**	**Spr.**
Electrical Engineering 301-302	3	3
Electrical Engineering 303-304	3	3
Electrical Engineering 351	1	-
Engineering 301	1	-
Concentration Course	3	4
Math 214 or Engineering 274	-	3-4
Humanities Courses	3	3
	14	16-17

SENIOR YEAR	**Fall**	**Spr.**
Engineering 401	1	-
Engineering 451-452	3	3
Engineering 402	-	1
Technical Electives	6-7	3
Concentration Course	3	3
Humanities Courses	3	2
General Electives	-	3
	16-17	15

Course Requirements for a minor in Robotics (22 hours)

A minor in Robotics will consist of Robotics 301, 302; Engineering 301; a 6-credit robotics-related capstone project (Engineering 451 and 452); and nine hours from Computer Science 445, Electrical Engineering 310, Engineering 317, 411, 412, Mechanical Engineering 316, or 410.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Engineering Core Courses (ENGR)

ENGR 120. NUMERICAL COMPUTING FOR ENGINEERS. This course introduces students to applied numerical computation, with an emphasis on solving typical engineering problems. Sequential logic programming is taught using MATLAB. Topics include array and scalar operators, program control elements, graphic and text I/O, internal and user-

defined functions. Students are introduced to numerical methods such as root finding, solutions to systems of linear equations, linear regression, and numerical integration and differentiation. Basic understanding of high school physics is highly recommended. Corequisite: Mathematics 161. *Three hours.*

ENGR 156. INTRODUCTION TO ENGINEERING. Introduces students to the engineering profession and the design process. Course lectures and assignments include the design process; problem definition and solution; oral and written communications; group dynamics; public responsibility; current global engineering challenges; and engineering ethics. A group design project is required. *Two hours.*

ENGR 209. SOLIDWORKS: MODELING AND SIMULATION. An introduction to Solidworks Design and Engineering Software. The primary objective is to adequately utilize Solidworks for parametric modeling. Instruction will include parametric modeling and simulation to validate student designs. Additional modules will be included as an overview; specifically Electrical Design and Visualization/Animation. Projects will utilize both Additive and Subtractive Manufacturing methods to test modelling accuracy.
Spring semester, two hours.

ENGR 216. MECHATRONICS I. A survey for non-electrical engineering majors covering the basic principles of circuit analysis, electronics, instrumentation, and electromechanical energy conversion, with computer applications. Prerequisites: Mathematics 162, Physics 102, and Engineering 120 or Computer Science 141. *Three hours.*

ENGR 274. MATHEMATICAL METHODS IN ENGINEERING. A course for engineering and science majors covering selected topics in probability and statistics, linear algebra, discrete mathematics, and numerical methods as applied to the solution of problems in engineering and science. Students who receive credit for Mathematics 213, 222, and Statistics 331 may not receive credit for Engineering 274. Prerequisite: Mathematics 162.
Three hours.

ENGR 290. SPECIAL ENGINEERING TOPICS. Special topics in the areas of new engineering development based on student demand and faculty interest. Specific subject matter varies each semester with prerequisites and credit hours announced in advance of registration. *One, two, three or four hours.*

ENGR 301. ETHICS IN ENGINEERING. This course investigates ethical decision-making from a Christian perspective as it applies to engineering and robotics. It includes an overview of approaches to ethical decision-making, as well as particular issues raised by the robotics field, such as robots making military decisions, privacy issues with in-home robots, issues with emotional bonds, etc. Prerequisite: Engineering 156. *One hour.*

ENGR 305. INTRODUCTION TO LABVIEW. Introduction to LabVIEW. Presents the fundamentals of the LabVIEW graphical programming environment. This visual programming language is from National Instruments and is commonly used for data acquisition, instrument control, and industrial automation. Students will gain a basic understanding of LabVIEW programming practices and will develop LabVIEW applications for data acquisition, data analysis, and real-time control. *One hour.*

ENGR 317. MECHATRONICS II. An introduction to the field of mechatronics for Mechanical, Electrical, and Computer Engineering majors. Topics include sensors and instrumentation, power electronics and motor drives, actuators and motion systems, and

digital control using sensor feedback. Prerequisites: Engineering 216 or Electrical Engineering 201. *Spring semester, three hours.*

ENGR 318. INTRO TO SYSTEMS ENGINEERING. This course introduces the fundamental principles of model-based systems engineering and the application to complex systems design. Topics include Agile development framework, requirements definition and analysis, systems architectures, and validation & verification.
Alternate years, spring semester, three hours.

ENGR 370. INDEPENDENT RESEARCH. Course providing independent opportunity in engineering research under the supervision of a faculty mentor. *One, two or three hours.*

ENGR 390. SPECIAL ENGINEERING TOPICS. Special topics in the areas of new engineering development based on student demand and faculty interest. Specific subject matter varies each semester with prerequisites and credit hours announced in advance of registration. *One, two, three or four hours.*

ENGR 401. ENGINEERING DESIGN. A study of the principles and methods of designing engineering systems in today's society including the design process; decision making in design; data analysis and verification of performance; ethical and environmental impact. The early stages of the design process are emphasized, including identifying needs, requirements specification, planning, and evaluating design alternatives. Prerequisite: Senior standing in Engineering or applied science and engineering. *Fall semester, one hour.*

ENGR 402. ENGINEERING SENIOR SEMINAR. A study of engineering practice topics to include intellectual property, risk management, reliability, managing people, and project economics. Principles and methods for analyzing the economic feasibility of engineering projects including interest, depreciation, rate-of-return, economic life, replacement costs, and comparison of alternative designs. Prerequisites: Senior standing in Engineering or applied science and engineering. *Spring semester, one hour.*

ENGR 411. CONTROL SYSTEMS. A study of the design and analysis of feedback control systems using classical techniques. Topics include modeling of mechanical and electrical dynamic systems, a review of Laplace transform techniques, steady-state error, transient response, stability, root locus design methods, Bode analysis/stability margins, and Bode compensator design. Includes MATLAB/Simulink simulations and hands-on projects. Prerequisite: Electrical Engineering 201 or Engineering 216; Mechanical Engineering 316 or Electrical Engineering 221; and Engineering 274, Mathematics 214, or Mathematics 222.
Fall semester, three hours.

ENGR 412. MODERN CONTROL THEORY. Analysis and design of feedback control systems using modern control modeling and design techniques. Topics include state space modeling of mechanical and electrical systems, design of state-space controllers and observers, Kalman filtering, and an introduction to advanced topics such as robust control, optimal control (LGR/LQG), and others. Includes MATLAB/Simulink simulations and hands-on projects. Prerequisite: Engineering 411. *Spring semester, three hours.*

ENGR 415. PROBABILISTIC SYSTEMS MODELS. An introduction to common mathematical models used in the analysis and design of complex engineered systems. Topics include reliability models for different system architectures, queueing models to find system delays and throughput, and models for decision analysis to derive optimal strategies and assess the value of information. Prerequisites: Engineering 274 or Mathematics 214.
Alternate years, spring semester, three hours.

ENGR 451. CAPSTONE DESIGN LABORATORY I. An advanced lab course requiring the student to complete their senior design project. The capstone design project is initiated, defined and documented. Extensive technical writing and oral presentation skills are employed. For electrical/computer engineering majors, this will include performing experiments in control systems, digital communication systems, and initiation of work with the senior design team. For mechanical engineering majors this will include 3-D computer-aided design and manufacturing techniques and experiments related to their senior project. For applied science and engineering majors, this will include a bio-technology project or project management element. Written reports and oral presentations are required. This course is designated Writing Intensive (WI) and Speaking Intensive (SI). Prerequisites: Senior standing in Engineering or applied science and engineering.

Fall semester, three hours.

ENGR 452. CAPSTONE DESIGN LABORATORY II. An advanced lab course requiring student teams to complete their group design project. Written reports and oral presentations are required. This course is designated Speaking Intensive (SI). Prerequisites: Senior standing in Engineering or applied science and engineering; Engineering 451.

Spring semester, three hours.

ENGR 480. INTERNSHIP IN ENGINEERING. An opportunity for junior or senior engineering majors to participate in an extended work experience (six months or more) under the supervision of an on-site manager and a department faculty member. Products of the internship will include an evaluation by the on-site manager, a journal of the internship experience, and a paper describing the experience and relating it to academic theory. This course may be repeated a maximum of three times. Prerequisite: Permission from the department chair. *One to six hours.*

ENGR 482. CROSS CULTURAL INTERNSHIP FOR ENGINEERS. The Cross-Cultural Internship for Engineers provides students with an opportunity to apply engineering knowledge and professional skills in a cultural context different from their own home culture. This course provides an opportunity for international students to gain credit for working at an internship in the United States, while domestic students gain credit for working outside of the United States. Students are expected to demonstrate effective communication, professional and ethical responsibility, teamwork, and adaptability in diverse cultural and organizational settings. Required components include an on-site manager evaluation, a reflective journal documenting technical tasks and cultural observations, and a final paper analyzing the experience in relation to academic theory, engineering practice, and global and cultural factors. Credit may be received a maximum of two times. A minimum of 320 work hours (8-week experience with 40-hour work weeks) is necessary. Permission of the department chair is required. *One hour.*

Electrical Engineering (ELEE)

ELEE 201. LINEAR CIRCUITS I. An introduction to the analysis and design of electrical circuits composed of linear elements. The course begins with time domain analysis of the steady state and transient behavior of linear circuits and progresses to sinusoidal steady state analysis using the phasor method. Computers are introduced as an aid to analysis and design of circuits via the use of circuit simulation software. Prerequisites: Mathematics 162 and Physics 102. *Fall semester, three hours.*

ELEE 202. LINEAR CIRCUITS II. Continued study in techniques for analyzing and designing circuits composed of linear elements, including the Laplace Transform, convolution, and Fourier analysis methods. Applications of linear circuits to electric power

systems and frequency selective systems are examined. Computers are used as an aid to analysis and design via the use of circuit simulation software. This course is designated Information Literacy (IL). Prerequisites: Electrical Engineering 201.
Spring semester, three hours.

ELEE 204. DIGITAL LOGIC. An introduction to digital circuit analysis and design methods. Combinational circuit topics include the use of Boolean algebra, map minimization methods, and circuit implementation with logic gates and standard integrated circuits. Sequential circuit design is explored, and implementation with flip-flops and standard integrated circuits is investigated. Programmable logic implementation of both combinational and sequential circuits is introduced. A group design project is required.
Spring semester, three hours.

ELEE 221. SIGNAL ANALYSIS. The mathematical representation of continuous and discrete systems including Fourier Series and transforms; Laplace transforms; z-transforms; continuous and discrete convolution; and digital computer techniques such as FFT's and digital filtering. Prerequisite: Electrical Engineering 201. Corequisite: Mathematics 262.
Three hours.

ELEE 251. LAB SKILLS AND PROTOTYPING. A laboratory course intended to acquaint the student with basic techniques of instrumentation, measurement, design, and troubleshooting for linear analog circuits. Laboratory investigation of basic Electrical Engineering concepts is integrated with design and implementation of practical circuits to meet specifications. This course is designated Information Literacy (IL). Prerequisite: Sophomore standing. *Fall semester, one hour.*

ELEE 260. INDEPENDENT STUDY. Individual study of specialized topics in electrical engineering. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ELEE 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in electrical engineering. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ELEE 290. SPECIAL TOPICS IN ELECTRICAL ENGINEERING. Special topics, based on student demand and faculty interest, in the areas of new electrical engineering development. Specific subject matter varies each semester. Prerequisites and credit hours announced in advance of registration. *One, two, three, or four hours.*

ELEE 301. ELECTRONICS I. A study of semiconductor device characteristics, diodes, bipolar junction transistors (BJTs), field-effect transistors (FETs), BJT and FET amplifier circuits, bias stability, and DC power supplies. Prerequisites: Electrical Engineering 201 and Mathematics 262. *Fall semester, three hours.*

ELEE 302. ELECTRONICS II. A study of the frequency response characteristics of transistor amplifiers, integrated-circuit operational amplifiers, fundamentals of feedback and stability, oscillators, active filters, quasi-linear circuits, pulsed waveforms and timing circuits. Prerequisite: Electrical Engineering 301. *Spring semester, three hours.*

ELEE 303. ELECTRICAL MACHINES. Theories of transformers, DC machines, induction motors, synchronous motors and generators, stepping motors, and single-phase motors are developed, and applications are explored. Prerequisite: Electrical Engineering 202. *Three hours.*

ELEE 304. ELECTROMAGNETIC THEORY. Fundamentals of electromagnetic theory, including static electric fields; dielectrics; energy and forces in the electric field; magnetic fields in free space and in magnetic materials; time-varying fields; and Maxwell's equations with applications. Computer techniques are used to solve a problem involving Laplace's Equation. Prerequisite: Electrical Engineering 202 and Mathematics 261. *Three hours.*

ELEE 306. DESIGN OF DIGITAL SYSTEMS. A study of semiconductor devices and their use in digital integrated circuits. Characteristics of semiconductor devices will be explored followed by an investigation of their application to the design of digital logic circuits and systems. Prerequisite: Electrical Engineering 204. *Three hours*.

ELEE 310. MICROCONTROLLERS. An introduction to the skills required to design and program systems that incorporate embedded microprocessors or microcontrollers. Topics include microprocessor circuitry and architecture, programming using assembly and higher-level languages, and interfacing the microprocessor with external devices. Three lectures and one lab per week. Prerequisites: Electrical Engineering 201 or Engineering 216, and Electrical Engineering 204. *Three hours.*

ELEE 351. LAB DESIGN EXPERIENCES. A hands-on experience in the use of electronic devices including discrete active and passive components and sub-assemblies; test equipment; and instrumentation. Assignments are oriented toward the analysis and design of analog electronic circuits and systems. Computer software is used for circuit simulation and analysis. Familiarization with the technical resources available in the library is also provided. This course is designated Information Literacy (IL). Prerequisite: Electrical Engineering 251. *Fall semester, one hour.*

ELEE 360. INDEPENDENT STUDY. Individual study of specialized topics in electrical engineering. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ELEE 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in electrical engineering. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ELEE 390. SPECIAL TOPICS IN ELECTRICAL ENGINEERING. Special topics, based on student demand and faculty interest, in the areas of new electrical engineering development. Specific subject matter varies each semester. Prerequisites and credit hours announced in advance of registration. *One, two, three, or four hours.*

ELEE 404. RF ENGINEERING. A study of the fundamentals of radio-frequency engineering, including the concepts of resonance, impedance matching, distributed circuits, directional couplers, and filter design. The basics of electromagnetic theory and wave propagation are also covered, along with the use of tools such as matrix analysis and the Smith chart. Prerequisite: Mathematics 262. *Fall semester, three hours.*

ELEE 416. ANTENNA ANALYSIS AND DESIGN. This course begins with an introduction to basic antenna theory. Next, antenna-modeling software is introduced to the class, including a tutorial on how to use it. This software is then utilized to analyze and design a variety of antennas, including vertical monopoles, arrays of monopoles, horizontal dipoles, Yagi-Uda arrays, and log-periodic dipole arrays. Prerequisite: Electrical Engineering 304. *One hour.*

ELEE 431. COMMUNICATION SYSTEMS I. Analysis and design of digital and analog communication systems. An investigation of the techniques for improving system performance in transmitting voice, video, and data, over both noisy wired and wireless channels. A variety of techniques are investigated, including modulation, channel coding, equalization, and detection. Students are required to simulate the design using MATLAB. Matlab/Simulink simulations. Prerequisite: Electrical Engineering 221.
Fall semester, three hours.

ELEE 432. COMMUNICATION SYSTEMS II. An advanced study of the communication systems applications. Applications include satellite, cellular, digital television & radio, fiber-optic, and wired & wireless data networks. System performance will be investigated using the link budget. Selected topics in leading-edge technologies are explored such as software-defined radio and software communication architecture. Prerequisites: Electrical Engineering 431. *Three hours.*

ELEE 441. COMPUTER ARCHITECTURE. An advanced study of Central Processing Unit (CPU) organization and architecture. The Instruction Set Architecture (ISA) and Instruction Level Parallelism (ILP) are emphasized. The organization and importance of the memory hierarchy, particularly cache memory, are introduced. Modern CPU architectures, such as the Intel IA-32 architecture, are used as practical examples of theoretical concepts. A design project is required. Prerequisite: Electrical Engineering 204. *Three hours.*

ELEE 442. PARALLEL COMPUTER ARCHITECTURE. An advanced study of multiprocessor architectures. Different approaches to memory, interconnection network and CPU design are explored. The nature and limitations of massively parallel applications are explored. Design of large-scale storage systems is introduced. Selected topics in leading-edge computer system design are explored, such as quantum computing or wireless sensor networks. Students are required to research selected topics in the academic literature. Corequisite: Electrical Engineering 441. *Spring semester, three hours.*

ELEE 460. INDEPENDENT STUDY. Individual study of specialized topics in electrical engineering. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ELEE 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in electrical engineering. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

Robotics (ROBO)

ROBO 101. INTRO TO ROBOTICS. A hands-on introduction to the science and engineering involved in mobile robots. Fundamentals of robot hardware and software are explored and reinforced with weekly hands-on projects culminating in a final project competition. Prerequisites: Freshman standing; Algebra I course in high school.
Fall semester, one hour.

ROBO 301. INDUSTRIAL ROBOTICS. Presents the fundamentals of robot mechanisms, kinematics, dynamics, and controls. Topics include forward and inverse kinematics, differential motion and velocities, dynamics and force control, path and trajectory planning, actuators and drive systems, and sensors used in robotic systems. The basics of robotic control systems are briefly presented. The use of vision systems in robotics is introduced. Two lectures and one lab per week. Prerequisite: Electrical Engineering 221 or Mechanical Engineering 316, robotics minor, or permission of instructor. *Fall semester, three hours.*

ROBO 302. MOBILE ROBOTS. An introduction to the basic principles of mobile robots, including mechanical, sensory, and cognitive systems necessary for successful operation. Topics will include hardware, locomotion, sensors, control schemes, localization, and navigation. Hands-on lab experiences with real robots and a final project supplement lecture material. Two lectures and one lab per week. Prerequisites: Physics 101; Mathematics 261; and Engineering 274 or Mathematics 214. *Spring semester, three hours.*

English

Dr. Mayo, Chair; Dr. Bilbro, Prof. Craig, Dr. Harvey, Dr. Loretto, Dr. J. L. McCray, Dr. E. Potter, Dr. Shepherd, Dr. M. Rawl, Dr. V. Rawl, Dr. Waha. Additional Instructional Faculty: Prof. Anastasi, Prof. D. Baker, Prof. Philson.

The Department of English sets high standards for its students in the development of composition and research skills necessary for writing clear, well-supported research papers in MLA format for each literature course in the program. To this end, all freshman English majors take English 201: English Literature Survey and Literary Studies I as the foundational Writing Intensive (WI) course in the major. Information Literacy (IL) skills are then built in English 202: English Literature Survey and Literary Studies II. Oral communication skills are essential to success in graduate school as well as in careers related to English, and English 351 or 352: Shakespeare serves as the required Speaking Intensive (SI) course in the department.

Course Requirements for a Bachelor of Arts Degree in English—36 hours

English Core Requirements (21 hours):
English 201, 202, 203, 204, 485; English 205, 206, or 250; and English 351 or 352.

English Electives (15 hours):
Choose any five English courses to be counted toward these hours, at least 9 hours of which must be 200-level and 6 hours must be 300-level or higher.

Courses that count in the English major quality point average (MQPA):
All courses with "ENGL" prefix. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Arts Degree in English and Secondary Education Certification—82 hours

Core Requirements (27 hours):
English 201, 202, 203, 204, 402, 485; English 205, 206, or 250; English 351 or 352; and Writing 271 or 381.

English Electives (6 hours):
Choose two additional ENGL prefix courses; at least one of which must be 300-level or higher.

Education Requirements (49 hours):
Education 102, 202*, 203, 204, 215, 271, 316, 326, 330, 375, 450, 488; Special Education 102, 103; and Communication Arts 104. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the English and Secondary Education Certification major quality point average (MQPA):

All courses with "ENGL" prefix. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification. Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

Course Requirements for a Bachelor of Arts Degree in English and Communication Secondary Education Certification—88 hours

Core Requirements (27 hours):

English 201, 202, 203, 204, 402, 485; English 205, 206, or 250; English 351 or 352; and Writing 271 or 381.

English Electives (6 hours):

Choose two additional ENGL prefix courses; at least one of which must be 300-level or higher.

Education Requirements (49 hours):

Education 102, 202*, 203, 204, 215, 271, 316, 326, 330, 375, 450, 488; Special Education 102, 103; and Communication Arts 104. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Communication Core (6 hours):

Choose six (6) hours from any *one* of the following three areas:

Speech: Communication Arts 109 (one credit course must be taken three times), 303; Theatre 251 or 255.

Media: Communication Arts 135, 215, 222, 235, or 378.

Theatre*: Theatre 251, 259 (one credit course must be taken three times), 261, 262, 320; or English 252.

**Students who elect the "Theatre" option must take English 250 as one of their English elective courses.*

Courses that count in the English and Communication Secondary Education Certification major quality point average (MQPA):

All courses with "ENGL" prefix. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification. Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

Note: Advanced Placement credits in English do not count toward the requirements for majors within the English Department. They will, however, count as general elective credits toward graduation.

SUPPORTING ACTIVITIES

The Department of English offers students significant co-curricular activities including:

- Lambda Iota Tau (LIT), the literary honor society on campus, sponsors special speakers and poetry readings.

- Involvement with the campus newspaper (*The Collegian*), radio station (Wolverine Broadcast Network), literary magazine (*The Echo*), or the College's public relations offices.
- Internships, whereby students earn academic credit for work done in conjunction with a professional organization related to English. See the course description for English 480.

Course Requirements for a minor in Creative Writing (21 hours)

A minor in Creative Writing will consist of Writing 271; one course from Writing 310 or 320; one course from English 221, 222, 226, 230, 242, 243, 245, 246, 250, 252, 261, 262; four courses from Communication Arts 359, Theatre 384, Writing 272, 356, 358, 381, 382, 383, and 451 (contains a prerequisite of at least one 300-level creative writing course).

Course Requirements for a minor in English (18 hours)

A minor in English will consist of any six three-credit ENGL literature courses.

Course Requirements for a minor in Writing (20-21 hours)

A minor in Writing will consist of Writing 305* or 310; Writing 320; one other 300-level Writing course (other than those listed above) or 3 credits of an internship in professional writing (Communication Arts or Writing 480); and choosing one of the track options below:

1. **Professional Writing Track**: Four courses from Communication Arts 135, 235, 300, 378, 406, Writing 271, and Entrepreneurship or Marketing 328.
2. **Technical Writing Track: (**Note: Two 2-credit courses are offered in this specialization. Students may only select one of the two to count toward the minor): Two courses from: Communication Arts 245, 378, Design 101, 110, 201, 210, and Mechanical Engineering 107. Two courses from Computer Science 141, 155, 205, Electrical Engineering 204, and Engineering 156. *Note: Writing 305 must be completed by students pursuing the Technical Writing Track.
3. **Public Rhetoric Track:** Four courses from Communication Arts 104, 135, 240, 305, 362, Philosophy 201 or 211, Political Science 358, Writing 381, or an approved Writing Studies Course (Writing 290 or 390).

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

English (ENGL)

ENGL 201. ENGLISH LITERATURE SURVEY AND LITERARY STUDIES I. The first semester of the two-semester survey of English literature focuses on the major authors and representative works of each period from the early Middle Ages (*Beowulf)* to the 18th century. It also introduces students to major interpretive/critical schools of thought, as well as such foundational literary practices as close reading, analysis, and scansion. As such, it is the foundational course for the English major and should be taken in the first semester of the program. This course is designated Writing Intensive (WI). *Three hours.*

ENGL 202. ENGLISH LITERATURE SURVEY AND LITERARY STUDIES II. Elaborating upon the content, practices, and interpretive modes introduced in English 201, the second semester of the two-semester survey of English literature focuses on the major authors and representative works of each period from the late 18th century to the modern era. This course is designated Information Literacy (IL). Prerequisite: English 201. *Three hours.*

ENGL 203. AMERICAN LITERATURE SURVEY I. The first semester of the two-semester survey of American literature focuses on representative works from the time of the discovery of America to the Civil War. Attention is concentrated on major writers and their works in each period with some consideration given to all genres except drama. English majors are strongly encouraged to take 203 before 204. *Three hours.*

ENGL 204. AMERICAN LITERATURE SURVEY II. The second semester of the two-semester survey of American literature focuses on representative works from post-Civil War to the late 20th century. Attention is concentrated on major writers and their works in each period with some consideration given to all genres except drama. Non-English majors may enroll in 204 without having taken 203, but English majors are strongly encouraged to take 203 before 204. *Three hours.*

ENGL 205. WORLD LITERATURE SURVEY: ASIA. A survey of representative authors and works of Asia, with a special focus on the literature of China, India, and Japan. The 205-206 survey is designed to include works of cultures and regions not covered by the English and American literature surveys or the classical and European literature in the required Humanities 202: Civilization & Literature. Students may take either or both courses, in either sequence. *Three hours.*

ENGL 206. WORLD LITERATURE SURVEY: AFRICA AND LATIN AMERICA. A survey of representative authors and literary works of Africa and Latin America, including the Caribbean. The 205-206 survey is designed to include works of cultures and regions not covered by the English and American literature surveys or the classical and European literature in the required Humanities 202: Civilization & Literature. Students may take either or both courses, in either sequence. *Three hours.*

ENGL 210. THE GOOD BOOKS TRADITION. This course explores the educative value of those texts classicist John Senior called the "Good Books," i.e., poetry, fables, myths, mysteries, and adventure stories which imaginatively prepare students to receive the great ideas of the classics. This class studies the Good Books not only for their rich content, but also for their propaedeutic value as stepping-stones to the Tradition. Along the way, we will be discussing vital and relevant themes like the concept of leisure, the distinction between ratio and intellectus, and the doctrine of the Good. *Alternate years, three hours.*

ENGL 221. SCIENCE FICTION. This course introduces students to the many ways science fiction engages a range of cultural and social issues, such as the nature of science and scientific exploration, science and ethics, scientific dystopia, technological apocalypse, relationships between faith and science, cybernetics and human identity, transhumanism, medical ethics, and nanotechnology. *Alternate years, three hours.*

ENGL 222. **FANTASY LITERATURE.** This course is designed to introduce students to the major features that characterize fantasy as a literary genre. Students will read 16-18 fantasy novels, including authors such as C. S. Lewis, J. R. R. Tolkien, Madeleine L'Engle, Ursula LeGuin, and J. K. Rowling. Class time will be spent analyzing these novels and critiquing them as works of literature. *Alternate years, three hours.*

ENGL 224. ARTHURIAN LITERATURE. This survey course follows King Arthur across the centuries and literary genres from his seminal appearances in medieval histories and literature to latter interpretations – Victorian, Modernist, Inkling, and post-modernist in English and American prose fiction, film, and poetry. Authors include, but are not limited

to, Chretien de Troyes, Thomas Malory, Tennyson, Twain, Eliot, C.S. Lewis, Charles Williams, the Wizard Tim, and Malamud. *Alternate years, three hours.*

ENGL 226. GOTHIC LITERATURE. This course is a historical survey of Gothic literature from the eighteenth to the twentieth century, focusing mainly on literary Gothicism of Europe and America. The course also explores how films and other literary genres have appropriated Gothic elements in the twentieth and twenty-first centuries.
Alternate years, three hours.

ENGL 242. 19th CENTURY ENGLISH NOVEL. A study of major works by authors from the great age of the English novel, including Austen, the Brontes, Dickens, Eliot, Hardy, Conrad, and Wilde. Prerequisite English 202 or by permission.
Alternate years, three hours.

ENGL 243. 20th CENTURY ENGLISH NOVEL. A study of the themes and technical developments which emerge in the novels of such authors as Woolf, Forster, Joyce, Waugh, Greene, and selected contemporary authors. Prerequisite English 202 or by permission.
Alternate years, three hours.

ENGL 245. 19th CENTURY AMERICAN NOVEL. This course explores the romances of Hawthorne and Melville; the realism of Mark Twain, Henry James, and Chopin; and the naturalism of Dreiser, along with works by other key writers. Prerequisites: English 203 and 204 or by permission. *Alternate years, three hours.*

ENGL 246. 20th CENTURY AMERICAN NOVEL. This course gives students experience with the long fiction of such writers as Cather, Hemingway, Faulkner, Fitzgerald, Ellison, Morrison, Percy, and others. Prerequisite: English 204 or by permission.
Alternate years, three hours.

ENGL 250. WORLD DRAMA. An introduction to the great playwrights and representative plays of world drama from the Greeks to the present. Students study elements of plot, characterization, and idea in each of the plays studied. The course also focuses on the theatrical and historical context of each play and playwright. *Three hours.*

ENGL 252. MODERN DRAMA. A study of major plays and playwrights of the late nineteenth and twentieth centuries, including Ibsen, Chekhov, Shaw, O'Neill, Beckett, Stoppard, and recent American and British playwrights. *Alternate years, three hours.*

ENGL 254. PAGE TO STAGE. Students will travel to a major theatre venue such as New York City (Broadway and Off-Broadway shows); Niagara-on-the-Lake, Canada (Shaw Festival); Staunton, VA (American Shakespeare Center); Stratford, Canada (Stratford Festival); or various other global cities that have large theatre centers. Students will read and be quizzed on selected plays prior to travel. While there, students will attend three to five plays, attend daily post-play discussion sessions and workshops, and keep a guided response journal. Upon their return, students will submit a four to five-page paper as their final exam. Cost of the trip will vary depending on location.
Travel course, offered periodically, one to three hours.

ENGL 260. INDEPENDENT STUDY. Individual study of specialized topics in English. Sophomore standing, permission of the department chair, and a faculty sponsor are required.
One, two or three hours.

ENGL 261. POETRY. This course explores a wide range of traditional and contemporary poetry; gives insight into ways poets use imagery, rhyme, meter, persona, and sound

qualities to create meaning in poetry; provides experience with prosody and offers in-depth experience with the work of selected poets. *Three hours.*

ENGL 262. MODERN POETRY. This course provides a more intensive examination of the poets and poetry of the 20th century. Students will examine the most significant movements in poetry of this period, including Modernism in the first half of the century and post-modern experiments of recent decades. *Alternate years, three hours.*

ENGL 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in English. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ENGL 290. STUDIES IN LITERATURE. Subject matter varies each semester, to allow an in-depth study of authors and works of literature not covered in as much detail in other courses. *Three hours.*

ENGL 302. CLASSICAL LITERATURE IN TRANSLATION. A study of the major works of ancient and medieval Greek, Roman, Latin, and Italian literature from Homer to Dante with particular emphasis on epic and tragedy. The influence of classical literature on later Western literature will also be considered. *Three hours.*

ENGL 304. CHAUCER AND THE MIDDLE AGES. An introduction to the literature and art of the Middle Ages, from *Beowulf*, through *Sir Gawain and the Green Knight* and *The Canterbury Tales*, to the religious drama of the later Middle Ages. Prerequisite: English 201. *Alternate years*, *three hours.*

ENGL 306. ENGLISH RENAISSANCE: SPENSER TO MILTON. A survey of major English writers of the sixteenth and seventeenth centuries from Spenser, Donne, and Jonson to John Milton. Prerequisite: English 201 or by permission. *Alternate years, three hours.*

ENGL 308. RESTORATION AND 18th CENTURY LITERATURE. An introduction to the works of principle authors from 1660 to 1750 such as Dryden, Pope, Swift, and Johnson. The simultaneous codification of rules and outbreak of the Romantic temper will be traced. Prerequisite: English 201. *Alternate years*, *three hours.*

ENGL 312. ROMANTIC LITERATURE. An intensive examination of the poetry of the six major English Romantic poets of the early nineteenth century: Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats. Students also read major critical prose by and about these poets. Prerequisite: English 202 or by permission. *Alternate years*, *three hours.*

ENGL 314. VICTORIAN LITERATURE. A study of the major British writers of the period from 1837 to 1900, focusing particularly on Tennyson, Robert Browning, Christina Rossetti, Gerard Manley Hopkins, and Oscar Wilde. Prerequisite: English 202.
Alternate years, *three hours.*

ENGL 318. AMERICAN RENAISSANCE. An opportunity for students to explore an unusually productive phase in the history of ideas in America through literature of outstanding quality including works of Emerson, Thoreau, Hawthorne, Melville, and Whitman. The dynamics of interaction among members of that group will be studied. Prerequisite: English 203 or by permission. *Alternate years*, *three hours.*

ENGL 320. SOUTHERN LITERATURE. With significant emphasis on the works of William Faulkner, this course explores the great flowering of literature in the American South in the twentieth century. Such writers as Robert Penn Warren, Richard Wright,

Eudora Welty, Flannery O'Connor, and Walker Percy are also considered, especially as they seek to move beyond the "aesthetic of memory" that characterizes Faulkner's novels.
Offered periodically, three hours.

ENGL 322. MODERN IRISH LITERATURE. The purpose of this course is to introduce students twentieth century Irish literature via an in-depth study of two of that literature's principal figures, W.B. Yeats and James Joyce. Other writers that may be studied include J.M. Synge, Samuel Beckett, Seamus Heaney, and Eavan Boland. Merging breadth with depth, the course focuses on all major literary genres, including lyric poetry, drama, and prose fiction. *Alternate years, three hours.*

ENGL 324. EUROPEAN LITERATURE. A study of European fiction in translation, with major emphasis on the novel, highlighting the work of writers such as Flaubert, Tolstoy, Dostoevsky, and Mann. *Alternate years, three hours.*

ENGL 325. CONTEMPORARY LITERATURE. A study of American, European and world literature of the last three decades, with particular emphasis on Nobel and other award-winning authors. *Alternate years, three hours.*

ENGL 327. CHRISTIAN WRITERS. This course explores major writers in the Christian tradition, while training students in the discipline of faith-informed reading and writing. Featured authors will vary depending on professor interest, either taking the form of a general survey of several Christian writers or an in-depth study of a single author—e.g., John Milton, Fyodor Dostoevsky, Gerard Manley Hopkins, or C.S. Lewis. This course may be repeated, if the course title has changed, as topics covered vary by semester.
Alternate years, three hours.

ENGL 351. SHAKESPEARE I. One of two courses which together examine 20 of the 37 plays of William Shakespeare. Each semester begins with a study of the sonnets and then focuses on ten of the major plays, selected from the comedies, histories, tragedies and romances. Class discussion is supplemented with a required lab session for the viewing and discussion of performances of the plays under study. Plays for the fall semester usually include *Richard III, Taming of the Shrew, Merchant of Venice, A Midsummer Night's Dream, Romeo and Juliet, Much Ado About Nothing, Henry V, Julius Caesar, Othello,* and *The Winter's Tale.* Students may take either or both courses, in either sequence. This course is designated Speaking Intensive (SI). Prerequisite: English 202 or by permission.
Three hours.

ENGL 352. SHAKESPEARE II. One of two courses which together examine 20 of the 37 plays of William Shakespeare. Each semester begins with a study of the sonnets and then focuses on ten of the major plays, selected from the comedies, histories, tragedies and romances. Class discussion is supplemented with a required lab session for the viewing and discussion of performances of the plays under study. Plays for the spring semester usually include: *As You Like It, Twelfth Night, Richard II, 1 Henry IV, Measure for Measure, Hamlet, Macbeth, King Lear, Cymbeline,* and *The Tempest.* Students may take either or both courses, in either sequence. This course is designated Speaking Intensive (SI). Prerequisite: English 202 or by permission. *Three hours.*

ENGL 356. LITERARY THEORY. A detailed examination of the major literary critics and theorists of Western civilization. Part one is devoted to key figures of the Classical tradition; Part two uses basic tenets of that tradition to engage and critique the "new wave" of 20th and 21st century critical theory. The class employs a seminar format; students lead

discussion on a rotating basis and are expected to contribute significantly to every discussion. This course is strongly recommended for all students considering graduate study in English. Prerequisites: English 201, 202, 203, and 204, junior or senior English major; or by permission. *Three hours.*

ENGL 360. INDEPENDENT STUDY. An opportunity for students with extensive background in literature to do intensive independent study or research on specialized topics. Junior standing in the English Department, permission of the department chair, and a faculty sponsor are required. Application deadline: end of the semester preceding the proposed study. *One, two or three hours.*

ENGL 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in English. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ENGL 390. STUDIES IN LITERATURE. Subject matter varies each semester, to allow an in-depth study of authors and works of literature not covered in as much detail in other courses. *Three hours.*

ENGL 402. GRAMMAR AND HISTORY OF ENGLISH. Required of English majors seeking secondary certification in English, this course offers an introduction to the history of the English language, a review of traditional grammar, and presentation of a working knowledge of modern grammar. *Three hours.*

ENGL 460. INDEPENDENT STUDY. An opportunity for students with extensive background in literature to do intensive independent study or research on specialized topics. Senior standing in the English Department, permission of the department chair, and a faculty sponsor are required. Application deadline: end of the semester preceding the proposed study. *One, two or three hours.*

ENGL 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in English. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ENGL 480. INTERNSHIP IN ENGLISH. Students majoring in English may, with prior consent of the department, earn academic credit for work done (normally off campus) under the direct supervision of a professional in an English-related field. This includes but is not limited to such fields as publishing, library science, journalism, technical writing, and script writing. Students must keep a daily log of activities and submit an academic paper summarizing the experience. A maximum of six credits of internship may apply toward graduation. *One to six hours.*

ENGL 485. SENIOR CAPSTONE. As a culminating experience for senior English majors, this seminar-style course provides students an opportunity to reflect on their college literary studies; to deepen their understanding of literature, its role in the pursuit of truth, and its place in their lives, especially as Christians; and to apply what they have learned as majors in completing a substantial project. This project will focus on a significant work, author, or literary topic and should reflect thorough research, thoughtful analysis, and clear communication. The course subject matter varies each semester to reflect the interests and expertise of the professor. Prerequisite: Senior status in the English program. *Three hours.*

ENGL 499. HONORS IN ENGLISH. Seniors who have shown special aptitude in literature may, with consent of the department, undertake this course on an individual basis.

The format is similar to that of the independent study, but students must also submit their papers to the entire English faculty and provide an oral presentation and defense of their research. *One, two or three hours.*

Writing (WRIT)

WRIT 101. FOUNDATIONS OF ACADEMIC DISCOURSE. A course introducing students to the fundamentals of college composition. Topics include the writing process, rhetorical strategies, basics of critical reading and thinking, and key forms of writing such as informative, evaluative, argumentative, and synthesis. This course serves as a foundation to prepare students to succeed in other academic writing contexts. This course is designated Writing Intensive (WI) and Information Literacy (IL). *Three hours.*

WRIT 120. TUTORING STUDENT WRITERS. This course provides theoretical and practical training in one-on-one writing instruction for students working as peer tutors in the Writing Center. The primary goal is to support and complement their work; the secondary goal to prepare them for future professional or academic roles. Reserved for writing tutors only. *One hour.*

WRIT 260. INDEPENDENT STUDY. Individual study of a specialized topic(s) in writing. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

WRIT 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in writing. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

WRIT 271. CREATIVE WRITING. An exploration of the elements and techniques of writing short fiction and poetry. Informal lectures and discussions focus on student writing. *Three hours.*

WRIT 272. DEVELOPING CHARACTERS. A creative writing course that will allow students to develop character backstory and explore the impact of character psychology on action and in dialogue. Concepts will enhance character development for film scripts, short stories, novels, and more. *Three hours.*

WRIT 290. STUDIES IN WRITING. Subject matter varies each semester, to allow an in-depth study of writing concepts, issues, and practices not covered in as much detail in other courses. *Three hours.*

WRIT 305. TECHNICAL COMMUNICATION. This course explores elements of clear and effective writing and oral expression appropriate for careers in the technical professions. Coursework will include case studies, job search materials, set of instructions, standard professional correspondence, examination of social media in professional settings, oral presentation with presentation software, and research into a technical field with the goal of communicating that field to non-experts. Prerequisite: Writing 101. *Three hours.*

WRIT 310. BUSINESS COMMUNICATION. This course explores elements of clear and effective writing and oral expression for business-related professions. Coursework includes business communication case studies, job search materials, business correspondence (e-mail, memos, and letters), business proposals, business plans, oral presentations, social media in the business world, and formal business reports. Prerequisite: Writing 101. *Three hours.*

WRIT 320. PROFESSIONAL EDITING. This course provides an overview of key concepts and skills essential for the professional editor. It will cover standard proofreading marks, the creation and use of style guides, communication with authors and publishers, best practices in freelance editing, and feedback tools in Microsoft Word and Adobe Acrobat. Students will gain competency in editing both fiction and non-fiction prose as proofreaders, copyeditors, content editors, and developmental editors. Prerequisite: Writing 101. *Offered periodically, three hours.*

WRIT 352. SCIENCE WRITING AND REPORTING. This course prepares students to interpret stories in natural, technical, and social sciences for various public audiences through multiple forms of media. It helps students assess how to develop a story for public consumption out of academic publications through creative work, research, and other journalistic techniques. Coursework includes analysis of published scientific articles and science writing and original short and long-form stories for various purposes.
Alternate years, three hours.

WRIT 356. GENRE FICTION. This course will explore cultural conceptions of "literary fiction" and "genre fiction" through: (a)., reading accessible scholarly commentary that will help to historicize these terms (b)., reading works that helped give rise to several contemporary genres alongside contemporary works that "play" with these genres, and (c)., writing and workshopping short fiction inspired by course readings. Prerequisite: students must have completed Writing 271 or have permission from the instructor.
Alternate years, three hours.

WRIT 358. NOVEL WRITING. This course will allow students to research, plan, and write portions of, a novel in a genre of their choosing. Elements for discussion include the creative writing process, story structure, character and conflict development, creating a novel series, marketing and publicity, among others. *Alternate years, three hours.*

WRIT 360. INDEPENDENT STUDY. Individual study of a specialized topic(s) in writing. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

WRIT 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in writing. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

WRIT 381. CREATIVE NON-FICTION. An exploration of the elements and techniques of writing creative nonfiction, including such forms as personal essays, memoirs, travel writing, biography, literary journalism, book reviews, and lyric essays. Informal lectures and discussions focus on student writing. *Three hours.*

WRIT 382. POETRY WRITING. This course explores various forms and elements of lyric poetry and gives students the opportunity to develop their craftsmanship and poetic vision. In addition to producing their own poetry, students will analyze poems by published writers and fellow students, explore the literary marketplace, and read essays on poetics and on the role of the Christian artist. Prerequisite: Writing 101.
Offered periodically, three hours.

WRIT 383. SHORT STORY WRITING. This course explores various forms and elements of the short story and gives students the opportunity to develop their craftsmanship and narrative vision. In addition to producing their own stories, students will analyze stories

by published writers and fellow students and read essays on fiction writing and on the role of the Christian artist. Prerequisite: Writing 101. *Offered periodically, three hours.*

WRIT 384. PLAYWRITING. This course emphasizes the various aspects of writing an effective play. Topics include the processes of drafting and revision, analyses of literary style and technique, and methods of offering and accepting constructive criticism. Additionally, the collaborative nature of playwriting will be addressed; a play is not complete until the writer has involved others in the creative process. The student is expected to submit original manuscripts during the semester. Students may only receive credit for one of Theatre 384 or Writing 384. *Offered periodically, three hours.*

WRIT 390. STUDIES IN WRITING. Subject matter varies each semester, to allow an in-depth study of writing concepts, issues, and practices not covered in as much detail in other courses. *Three hours.*

WRIT 451. ADVANCED MANUSCRIPT DEVELOPMENT. This course serves as an advanced seminar for the creative writing minor, giving students the opportunity to develop work already begun, with guidance toward professional or academic submission. Students must come into the class with a substantial project of poetry, novel, memoir, essays, or short stories in progress; a minimum page count requirement will be specified by the instructor at the time of registration. We will read and critique each other's manuscripts, produce additional pages over the course of the semester, and read short works on craft. Students will work toward a substantial final project: a prose or poetry manuscript accompanied by either a query letter addressed to literary agencies or a portfolio of the student's best prose or poetry accompanied by a statement of purpose. Prerequisite: students must have taken at least one 300-level creative writing course unless granted permission by the instructor. *Offered periodically, three hours.*

WRIT 460. INDEPENDENT STUDY. Individual study of a specialized topic(s) in writing. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

WRIT 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in writing. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

WRIT 480. INTERNSHIP IN WRITING. This course offers practical experience in the field of writing. Prerequisite: Sophomore status or higher and permission of the department internship coordinator. *One to six hours.*

Entrepreneurship

Prof. Sweet, Chair; Prof. K. Smith.. Additional Instructional Faculty: Prof. Kunst, Prof. Myer, Prof. O'Toole.

The mission of the Winklevoss School of Business at Grove City College is to equip students to pursue their unique calling to business, preparing them to be effective and ethical leaders in business and society as a whole. This mission incorporates the following learning outcomes:

1. General Business Knowledge and Analytical Skills: Students will demonstrate appropriate level of knowledge, analytical skills, and information literacy necessary in business.
2. Communication Skills: Students will demonstrate the written and verbal skills needed to communicate effectively within the business environment.
3. Ethics: Students will demonstrate a Christian understanding of business, which reflects their moral and ethical responsibilities to all potential stakeholders.
4. Global Perspective: Students will demonstrate an understanding of the global and multicultural issues in the current business environment.
5. Entrepreneurship Knowledge and Skills – Our students will demonstrate entry-level knowledge and skills necessary to successfully plan, launch, and operate startup commercial and social enterprises, and to develop new business models in corporate contexts. Students will acquire experience and competencies in ideation, lean startup methodologies, competitive research, blended-value business modeling, digital technologies, business planning, and in the financial, legal, ethical and faith-minded dimensions of entrepreneurship.

Course Requirements for a Bachelor of Science Degree in Entrepreneurship—67-68 hours

Entrepreneurial Core (31 hours):
Entrepreneurship 101,102, 201, 302, 303, 307, 309, 312, 430, 466, and 467.

Business Core (18 hours):
Accounting 201 and 202; Finance 202; Marketing 104; Management 214; and Statistics 131.

Entrepreneurial Electives (12 hours):
Complete 12 hours choosing from Entrepreneurship 104, 304, 314, 317, 319, 324, 326, 328, 330, 331, 390, 402, 408, 409, 423, 424, 426, 468, 480, 488, or any two courses from any 300- or 400-level Accounting, Entrepreneurship, Finance, International Business, Management, or Marketing offerings not listed. A maximum of three credits of Entrepreneurship 480 Internship may also count as entrepreneurial electives; any remaining internship credits will count as general electives.

Major-Related Courses (6-7 hours):
Economics 101; and one of Computer Science 141, Mathematics 141, or Mathematics 161.

Courses that count in the Entrepreneurship major quality point average (MQPA):
All courses with "ACCT", "ENTR", "FNCE", "INBS", "MARK", "MNGT" (excluding MNGT 106) prefix, and STAT 131. A minimum MQPA of 2.00 is required to graduate.

It is essential for students pursuing the Entrepreneurship major to possess strong writing, speaking, and information literacy skills in preparation for future careers in business. Four required courses for the major will equip students with these skills: Entrepreneurship 466 *Business Planning* is designated to enhance Writing Intensive (WI) skills; Entrepreneurship 102 *Technology for the Entrepreneur* and Entrepreneurship 309 *E-Commerce* for Information Literacy (IL) skills; and Entrepreneurship 201 *Lean LaunchPad* and Entrepreneurship 467 *Corporate Innovation* for Speaking Intensive (SI) skills.

Course Requirements for a minor in Digital Entrepreneurship (21 hours)
(Restricted to non-Entrepreneurship majors only)

A minor in Digital Entrepreneurship will consist of Entrepreneurship 101, 328, 330, 409; Design 101, 210: and one of Entrepreneurship 309 or Marketing 215.

Course Requirements for a minor in Entrepreneurship (22 hours)
(Restricted to non-Entrepreneurship majors only)

A minor in Entrepreneurship will consist of Accounting 201; Entrepreneurship 101, 102, 201; Finance 202; and nine hours from Entrepreneurship 302, 303, 307, 309 or 328, 312, 314, 317, 408, 423, 430, or 467.

Course Requirements for a minor in Missional Entrepreneurship (18 hours)
(Restricted to Biblical & Theological Studies majors only)

A minor in Missional Entrepreneurship will consist of Entrepreneurship 101, 201, 307, 314, 319, and 408.

Course Requirements for a minor in Redemptive Entrepreneurship (18 hours)
(Restricted to non-Biblical & Theological Studies and non-Entrepreneurship majors only)

A minor in Redemptive Entrepreneurship will consist of Entrepreneurship 101, 307, and 314; one course from Entrepreneurship 319 or 408; and two courses from Bible 240, 242, 243, 250, and 251.

Course Requirements for a minor in Social Entrepreneurship (18 hours)
(Restricted to non-Business School majors only)

A minor in Social Entrepreneurship will consist of Entrepreneurship 101, 201, 307, 319; Entrepreneurship 408 or International Business 408; and Sociology 201.

Course Requirements for a minor in Social Enterprise (18 hours)
(Restricted to Business School majors only)

A minor in Social Enterprise will consist of Entrepreneurship 307; Entrepreneurship 408 or International Business 408; Sociology 201, Communication Arts 225 or International Business 205; and six hours from Sociology 208 or 314; Social Work 101, 305, or 382; or Entrepreneurship, Management, or Sociology 390 with department chair approval.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet the requirements for a major.

Entrepreneurship (ENTR)

ENTR 101. ENTREPRENEURIAL MIND: CREATIVITY AND INNOVATION. This course introduces the student to entrepreneurial thought and the process for innovation and idea generation. Students begin to develop their own entrepreneurial mindset and the business skills essential to the entrepreneurial experience. Students are introduced to the basics of business and challenged to think creatively about forming businesses or designing products to solve customer problems and address unmet needs in the commercial and social

arenas. Through experiential learning, case studies, business writing assignments, and creative thinking exercises, students will develop a disciplined thought process for starting and running their own enterprise. Corequisite: Entrepreneurship 102 for Entrepreneurship majors. All other majors may take the course as an elective without the corequisite. *Three hours.*

ENTR 102. TECHNOLOGY FOR THE ENTREPRENEUR. Students learn to use technology commonly used by entrepreneurs in the following areas: presentations, networking, blogging, social media, design, basic websites, eCommerce, and prototyping. This course is designated Information Literacy (IL). Entrepreneurship majors take this concurrently with Entrepreneurship 101. *One hour.*

ENTR 104. LIFE DESIGN STUDIO. Students often struggle with knowing how to define their future. Whether one is trying to choose a major or to figure out how to go about pursuing a career using that chosen major, it's a process that's often filled with uncertainty and angst. By approaching these challenges as a designer would approach creating a product, students will use proven design methods to understand who they are, what they want to do, and how they can build a life full of joy. During this class, students will explore how to apply design thinking principles to their lives while learning more about themselves and how to connect their work to God's work. *Three hours.*

ENTR 201. LEAN LAUNCHPAD. The Lean LaunchPad uses the Customer Discovery process and the Business Model Canvas to collapse the infinite possibilities of a startup into a set of solvable problems. Students will be taught how to use the information that they collect from customers to validate and/or invalidate their business model hypotheses. Throughout the course, the teams will modify their business models as they iterate, pivot, and/or restart their ideas. It provides real world, hands-on learning on what it's like to actually start a company. This class is not about how to write a business plan. It is a practical entrepreneurial lab in which the goal is to create an entrepreneurial experience that includes the pressures and demands of the real world in an early-stage startup within the constraints of the classroom and with a limited amount of time. Students will work in teams, learning how to use a business model to brainstorm and test each critical element of a company. Students will also learn how to develop customers in real business scenarios, testing product viability and authentic demand. This course is designated Speaking Intensive (SI). *Three hours.*

ENTR 260. INDEPENDENT STUDY. Individual study of specialized topics in entrepreneurship. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ENTR 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in entrepreneurship. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ENTR 302. SALES IN THE STARTUP. The purpose of this course is to understand the theory and practice of sales as it is approached in the environment of a startup business. The class will explore strategic selling methodologies, such as partnership development, channel development, and seminar-based sales, as well as specific sales skills and techniques. Students will learn about the particular challenges of selling in the context of a newly launched business, and they will have the opportunity to meet and interact with sales professionals who have specialized in this sales context. Throughout the course, students will have opportunities to practice sales skills. *Three hours.*

ENTR 303. LAW FOR ENTREPRENEURS. This course provides an awareness and basic understanding of the legal issues frequently encountered by entrepreneurs. The course specifically examines the legal issues surrounding the organization, financing, and operations of a company, including ownership structuring, the raising of capital, federal securities requirements and exemptions, determining valuation, intellectual property, board formation, human resources, and exit strategies. Students may not receive credit for both Entrepreneurship 303 and Management 303. *Three hours.*

ENTR 304. INTELLECTUAL PROPERTY PROTECTION. This course is a comprehensive and in-depth overview of the different forms of intellectual property (IP), the type of subject matter to be protected, and protection strategies such as patents, copyrights, trademarks and IP belonging to other people and organizations. Given the broad application of IP in today's world, students with any major would benefit from learning about this topic. *One hour.*

ENTR 307. SOCIAL ENTREPRENEURSHIP. How might one "do good while doing well?" Social entrepreneurship is an accelerating field of study and practice in today's world of shrinking governmental services. Students study highly effective non-profit as well as for-profit social enterprises to learn the unique aspects of entrepreneurship used to facilitate meaningful social change. Practitioners of existing successful social enterprises act as guest lecturers and coaches. *Three hours.*

ENTR 309. E-COMMERCE. This course will provide a foundation for understanding the essential components of a successful eCommerce system, including eCommerce strategy, target market analysis, search engine optimization, integrated marketing, web usability, payment processing, current technologies, data management and fulfillment systems. Case studies and actual business scenarios will be examined in detail, and students will have the opportunity to explore practical applications in the marketplace by working in teams to design and operate their own eCommerce ventures during the semester. This course is designated Information Literacy (IL). *Three hours.*

ENTR 312. ENTREPRENEURSHIP: MANAGING A GROWING ENTERPRISE. This course focuses on the strategy and operations issues involved with managing an existing company beyond the startup phase using a global business simulation game. While the course is open to non-entrepreneurship, business, and accounting majors, it presupposes a basic understanding of business functions and language. The core feature of the course is a simulation tied to students' weekly business decisions involving recognizing opportunities, assessing risk, developing resources, and implementing a course of action. *Three hours.*

ENTR 314. ENTREPRENEURSHIP AND THE MISSION OF THE CHURCH. This course explores the relationship between entrepreneurial theory and practice and the execution of church ministry and mission work, with a particular focus on the ways in which entrepreneurship can be employed in the service of Kingdom of God. In addition, the development of "kingdom-minded" businesses providing blended value will be explored in detail. Students will learn about need identification, opportunity analysis, ministry model development, strategic planning, and reputation building in the context of faith-based organizational experience. Concepts related to organizational launch, growth, development and sustainability will also be addressed throughout the course. Students will apply diagnostic and problem-solving skills to case studies, while identifying entrepreneurial strategies to address challenges and opportunities. Students will work throughout the semester in project teams with a local church ministry or mission endeavor. *Three hours.*

ENTR 317. STARTUP FOUNDERS' DILEMMAS. The early decisions made by the founders of startup organizations can determine the entire future path of a company. In this course, students will explore the types of decisions that founders face and the potential impact of such decisions. They will examine case studies of actual startup companies in detail in order to understand how to avoid common pitfalls and mistakes. Through the examination of the results of a decade of research, including quantitative data on almost ten thousand founders, students will build a strong understanding of these types of decisions and how their consequences can make or break organizations. The specific areas of study will include pre-founding decisions, founding team dilemmas, hires, and investors. *Three hours.*

ENTR 319. ENTREPRENEURIAL LEADERSHIP. This course will include a comprehensive survey of research around the dimensions of successful entrepreneurial leadership and the development of an entrepreneurial leadership assessment tool. Students will have opportunities to hear from, engage with, and assess several successful entrepreneurs, further developing their understanding of the dimensions of entrepreneurial leadership. Students will complete a comprehensive assessment of their own strengths and weaknesses relative to these dimensions using a variety of assessment tools and will prepare and present a personal entrepreneurial leadership development plan with specific strategies to leverage strengths and accommodate for shortcomings. *Three hours.*

ENTR 324. LEGAL ASPECTS OF THE MUSIC BUSINESS. This course is designed to analyze the most important legal issues in the contemporary music industry, including how these issues began, how they have evolved, and where they are headed. Students will explore copyright law, including fair use and public domain, and how it affects sampling, interpolation, and mashups. The course will explore contracts related to songwriting, 360° deals, revenue sharing, and more, in addition to legal documents related to bands, booking, and touring. Students will also explore contemporary and new means of creating and disseminating music, including streaming audio/video and augmented/virtual reality, and explore associated legal implications. Students may only receive credit for one of Entrepreneurship 324, Management 324, or Music 324. *Three hours.*

ENTR 326. INTRODUCTION TO THE BUSINESS OF MUSIC. This course is designed as an introduction to the business of music, providing students with the latest instruction on best practices for music creators, consumers, and facilitators working in this field. Students will have the opportunity to learn the fundamental principles involved in the entrepreneurial and legal dimensions of the music business, exploring the structural and functional components of this ever-changing and rapidly growing industry. Particular attention will be given to the challenges of starting, growing and managing a music business in the digital era. Students may only receive credit for one of Students may only receive credit for one of Entrepreneurship 326, Management 326, or Music 326. *Three hours.*

ENTR 328. CONTENT MARKETING. Students will probe the subject of content marketing as a core discipline for 21st century entrepreneurs. They will learn essential concepts for strategic content development and web-based thought leadership and will acquire skills for use with practical web applications. Students will engage in a semester-long project using WordPress to publish Internet content for their own website idea, or for a company or organization, employing techniques learned in a class. The structure of the class will include two teaching sessions per week and a WordPress lab. Students may not receive credit for both Entrepreneurship 328 and Marketing 328. *Three hours.*

ENTR 330. SEARCH ENGINE OPTIMIZATION. Students will explore the fundamental principles and best practices in the field of search engine optimization. They will learn and develop the essential knowledge and skills required to achieve favorable organic rank in the most important search engines and will become familiar with and interact with experts in the industry. Case studies and actual business scenarios will be examined in detail. Students will have opportunity to conduct SEO research for small businesses and non-profit organizations in a semester-long project. Students may not receive credit for both Entrepreneurship 330 and Marketing 330. *Three hours.*

ENTR 331. ENTREPRENEURSHIP AND ENTERPRISE. An examination of entrepreneurship and its role in society. The contribution of creativity, foresight, and other attributes of entrepreneurs to the working of both for-profit and not-for profit enterprises will be explored. *Three hours.*

ENTR 360. INDEPENDENT STUDY. Individual study of specialized topics in entrepreneurship. Prerequisites: Junior standing and permission of the department chair. *One, two or three hours.*

ENTR 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in entrepreneurship. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ENTR 390. STUDIES IN ENTREPRENEURSHIP. Studies in areas of entrepreneurship not fully covered by regular departmental offerings. *Three hours.*

ENTR 402. TECH COMMERCIALIZATION STUDIO. In this course, students will examine what is needed to take an idea to market while exploring business and revenue models, legal considerations, customer validation, and go-to-market strategies through lectures, guest presentations, and working on exercises exploring the commercialization of a specific technology. *One hour.*

ENTR 408. SOCIAL ENTREPRENEURSHIP PRACTICUM. Using case studies, lectures, and hands-on exercises, this course clarifies and illustrates the steps necessary to prepare to launch a social enterprise. Topics include the idea generation, business models, organizational structure, staffing, governance, funding, and measurement of social impact. Over the course of the semester, students will prepare business plans for their own social enterprises. Students may only receive credit for one of International Business 408 or Entrepreneurship 408. *Three hours.*

ENTR 409. DIGITAL ENTREPRENEURSHIP. This course will explore the foundational principles and essential components for launching a successful entrepreneurial endeavor on the Internet. The course will cover important topics related to Internet Entrepreneurship, including key entrepreneurial models, business concept development, opportunity analysis, advanced search marketing techniques, understanding user behavior, and creating a viable Internet model for business endeavors. Case studies and existing businesses will be examined in detail. Students will have the opportunity to study the journeys of successful Internet Entrepreneurs, to hear from experts in the field, and to create an original Internet business model in a team with other students. *Three hours.*

ENTR 420. MENTORING. This course will help students learn and practice the skills necessary to establish and leverage valuable mentor relationships. The course consists of two dimensions: classroom study and one-on-one discussions with an experienced business leader. Students learn how to identify, establish and work with a mentor, to develop

professional networks, to build relationships, and to determine the purpose and value of relationships in the world of the entrepreneur. Students will be prepared for typical mentorship discussion topics, such as a personal value statement, strengths assessment, a personal development plan, ethical leadership, professionalism, meaningful internships/summer jobs and finding one's calling. The course, designed for junior and senior Entrepreneurship majors, is open to any upper-division non-majors pending space available. Prerequisite: permission of the instructor. *Three hours.*

ENTR 423. FAMILY, FRANCHISE, AND SMALL BUSINESS MANAGEMENT. An upper-level course that will focus on the dynamics of owning and operating family-owned businesses, franchise businesses and acquired small businesses. Appropriate for students anticipating working in a family business, students who are considering acquiring and operating a franchise business or students considering acquiring and operating an existing small business. Students explore the key management issues facing these types of business today including interpersonal relations, succession/transition, business functions of marketing, sales, financial management, etc., in the special context of the unique challenges and opportunities of the family-owned, franchise and small business. Students will hear from and interact with family, franchise and small business owners who have agreed to visit classes and share their experiences. *Three hours.*

ENTR 424. SUPPLY CHAIN MANAGEMENT. This course will focus on providing an introduction to supply chain management. It will deal with both the logistical activities of demand fulfillment and the behavioral aspects of supply chain management. Experiential learning will take place within a simulation called, "Fundamentals of Supply Chain Management." This course will provide considerable insight into the management of supply chains. Students will develop disciplines and a knowledge of best practices that will facilitate their success in a world where demand and supply integration is one of the cornerstones of modern business. Students may not receive credit for both Management 424 and Entrepreneurship 424. *Three hours.*

ENTR 426. MUSIC MARKETING. This course will provide students with an overview of key music marketing principles, terms, and practices, which together form the foundation for all music marketing plans. Students will dig into the key areas of opportunities for musicians, including publicity, advertising, promotion (online and traditional), digital distribution, touring, licensing/synch, and radio. Students will learn what companies and partners to work with to reach their core fans, how to communicate with them, and the ways to leverage the changes and new opportunities that the internet offers to marketers. In addition, they will learn marketing ideas to help them describe their vision, identify a market need, analyze an artist's fan base, learn from their competitors, set marketing plan goals, and find the perfect mix of new marketing strategies ranging from branding, product, price, place, promotion, and marketing information systems. Students may only receive credit for one of Entrepreneurship 426, Marketing 426, or Music 426. Prerequisite: Marketing 104. *Three hours.*

ENTR 430. ENTREPRENEURIAL FINANCE AND VENTURE CAPITAL. This course covers financial skills used by entrepreneurs and venture capitalists from the startup of a venture through its harvest. This includes a wide variety of topics including the financial elements of a business plan, the evaluation of new business opportunities, financial planning, sources of financing at different stages, valuation methods, essentials of security law, and methods of harvesting an investment. Prerequisite: Finance 202. *Three hours.*

ENTR 460. INDEPENDENT STUDY. Individual study of specialized topics in entrepreneurship. Prerequisites: Senior standing and permission of the department chair. *One, two or three hours.*

ENTR 466. BUSINESS PLANNING. This course provides students from all majors with a vehicle for turning their business and non-profit ideas into concrete viable business plans. Either as individuals or as teams, students research, create, and present a plan for a viable business or non-profit organization. They are coached by the instructor and may also be matched to an appropriate mentor with experience in their area of interest. Successful completion of this course requires students to participate in the campus-wide business plan competition held during the spring semester. This course is designated Writing Intensive (WI). Prerequisite: Entrepreneurship 430 and a business or non-profit idea. *Three hours.*

ENTR 467. CORPORATE INNOVATION. In this course, students have a unique opportunity to explore real-world innovation concepts in the context of working directly with a corporation. Corporate representatives work directly with Grove City College students each semester, providing students with business and technology concepts that engage them in terms of research, strategy, innovation and business case development. Students from a variety of disciplines collaborate in groups to explore, define, strategize, and develop the concept. The course utilizes a service-learning model, and benefits from the constant support of representatives of the partner company, who regularly attend classes for input and feedback. At the end of the semester, students present their findings and recommendations to corporate executives. This course is designated Speaking Intensive (SI). *Three hours.*

ENTR 468. INNOVATION FOR IMPACT. Innovation and creativity are widely recognized as drivers of success in today's world for both individuals and organizations. Whether entities are nonprofits, startups, small companies, large companies, or governmental units, they are all looking to employ people who understand innovation. This course will provide students with an understanding of how different entities can innovate using design thinking methodology. As we explore how to innovate in concept, we will use that knowledge to attack problems faced by real organizations in our own community to explore how applying design thinking methodologies can have true impact on real-world organizations. Students will emerge from this course with a toolbox of innovation techniques, real project work that they can use as examples of their practice of those techniques, and the confidence that they are creative and innovative people. Students may not receive credit for both Entrepreneurship 468 and Marketing 468. *Three hours.*

ENTR 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in entrepreneurship. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ENTR 480-481. INTERNSHIP IN ENTREPRENEURSHIP. An opportunity for juniors and seniors, with a minimum of fifteen hours in their major, to participate in individual job experiences, domestic and international, under the supervision of an on-site manager and a department faculty member. Internship must be within an entrepreneurial organization. Products of the internship will include an evaluation by the on-site manager, a log of the internship experience, and a paper describing the experience. A comparison-contrast between academic learning and the internship experience will be conducted. Prerequisite: Minimum grade point average, permission of department coordinator, and an appropriate job site. *One to six hours.*

ENTR 488. SEMINAR IN ENTREPRENEURSHIP. An advanced course for junior and senior Entrepreneurship majors to concentrate on specific subject matter to be determined by the instructor. Individual research and extensive oral and written reports are required.
One, two, or three hours.

Exercise Science

Dr. Prins, Chair; Dr. Buxton, Assistant Chair, Dr. Ault, Dr. Gerhart. Additional Instructional Faculty: Prof. Fritz, Dr. Patterson, Prof. Severson, Dr. Thrasher, Dr. Wise.

POLICIES GOVERNING THE EXERCISE SCIENCE PROGRAM

The Department of Exercise Science and Grove City College believe that a Christian liberal arts college should teach the "whole individual", giving careful attention to the development of psychomotor (physical development), cognitive (basic reasoning), and the affective (social, emotional and spiritual) behavioral goals of the student regardless of his/her major.

In an attempt to realize this philosophy, the Department of Exercise Science presents a balanced program that encompasses the many facets of exercise science. The specific objectives of the program are to develop a heightened awareness of personal fitness and wellness, to develop neuromuscular skills, to cultivate an interest in recreation, and to encourage desirable social and moral standards.

VISION

The Department of Exercise Science is committed to educating, serving, and developing students and future leaders to advance the state of lifelong health, wellness, and physical activity among members of both local and extended communities.

MISSION

Our mission is to provide student-centered instruction, conduct research, perform service, and promote health and well-being through discovery, learning, and participation in the study of Exercise Science in a Christian community.

Course Requirements for a Bachelor of Science Degree in Exercise Science—92-95 hours

Exercise Science Core (59 hours):
Exercise Science 101, 203, 230, 244, 253, 254, 256, 258, 304, 306, 307, 309, 310, 312, 313, 377, 404, 407, and 480.

Exercise Science Electives (15-17 hours):
Choose fifteen hours from Exercise Science 134, 201, 202, 205, 215, 221, 235, 237, 240, 249, 250, 251, 261, 305, 308, 344, 402, 403; or choose to complete one of the following concentrations:

Athletic Training: Exercise Science 215, 237, 249, 251, 261, and three additional hours from the Exercise Science courses listed above.

Coaching: Exercise Science 201, 205, 251, 305, Management 213, and three additional hours from the Exercise Science courses listed above.

Personal Training: Exercise Science 202, 221, 240, 261, 402, and three additional hours from the Exercise Science courses listed above.

Pre-Occupational Therapy: Psychology 209, 211, Sociology 101, Exercise Science 215, 250, and one of Biology 102 or Psychology 312.

Pre-Physical Therapy: Biology 102, Chemistry 112 and 114, Physics 122, Exercise Science 250, and one of Psychology 209 or 211.

Strength & Conditioning: Exercise Science 221, 240, 261, 403, and three additional hours from the Exercise Science courses listed above.

Major-Related Requirements (18-19 hours):
Biology 101; Chemistry 111 and 113; Mathematics 111 or 161; Physics 121; and Psychology 201.

Courses that count in the Exercise Science major quality point average (MQPA):
All courses with "EXER" prefix. A minimum MQPA of 2.50 is required by the end of the sophomore year and maintained through graduation. Transfer students and students changing their major after freshman year will be evaluated after their second semester as an Exercise Science major. Students on academic probation will be evaluated after one semester and students below a 2.50 MQPA will be moved to the Undeclared (UNSE) major designation. Students with a MQPA below 2.50 will not be permitted to register for Exercise Science 480.

The following courses provide instruction in locating, evaluating and presenting information related to the Exercise Science discipline: Exercise Science 377 Research Methods — Writing Intensive (WI) and Information Literacy (IL), and Exercise Science 307 Exercise Prescription— Speaking Intensive (SI)

Course Requirements for a Minor in Exercise Science (23 hours of required courses)
A minor in Exercise Science will consist of Exercise Science 101, 203, 221, 244 or 254, 253, 256, and 258. Biology 341 may be taken in the place of Exercise Science 253.

The Exercise Science minor curriculum has the potential to enrich the academic preparation of students pursuing majors in Biology, Chemistry, Education, and even Business School majors with entrepreneurial aspirations in commercial or community-based health, fitness, or athletics. The curriculum also provides an opportunity for students in pursuit of health-related professions which require graduate studies, doctoral research and/or professional training.

Course Requirements for a minor in Nutrition (15 hours)
A minor in Nutrition will consist of Exercise Science 134, 240, 244, 254, and 344.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Exercise Science (EXER)

EXER 101. INTRODUCTION TO EXERCISE SCIENCE. This course introduces students to the field of Exercise Science, requirements for professional certification, graduate school requirements and career options in both health fitness and clinical fields. Lecture topics will include exploration of the human body and the effects of exercise on the body. *Two hours.*

EXER 134. INTRODUCTION TO NUTRITION. An introduction to the importance of diet for present and future good health. Carbohydrates, fats, proteins, vitamins, and minerals, and their interactions will also be addressed. In addition, the course explores topics

such as label-reading, popular diets, dietary analysis, and other issues of current interest in the field of nutrition, including sport and exercise nutrition, supplements, and life-cycle nutrition. *Fall semester, three hours.*

EXER 201. ETHICS IN SPORTS. This course will explore the concepts of sport and competition in the context of a Christian world view. Special emphasis will be given to the theology of competition, a biblical foundation for spiritual integrity and ethical conduct, the mind and heart of the Christian athlete, and character and performance as a matter of Christian stewardship. Students will be encouraged in their spiritual maturity, promoting their athletic and intellectual development. *Fall semester, one hour.*

EXER 202. LIFTING TECHNIQUES. This course introduces the practical skills necessary to work in the field of Strength and Conditioning. Students will learn proper coaching cues, movement patterns, lifting techniques, and communication skills required to safely and successfully perform common Strength and Conditioning movements in the weight room. This course will provide an introduction to both sport performance and general population coaching and instruction. These foundational components of movement efficiency are vital to the field of Strength and Conditioning, more specifically, the Personal Training profession. Prerequisite: Exercise Science 101. *Fall semester, one hour.*

EXER 203. EXERCISE AND SPORT PSYCHOLOGY. This course provides an overview of psychological theory, research and methodology with an emphasis on application within diverse exercise settings. Topics include the history and development exercise psychology, personal and environmental factors of physical activity, use of counseling skills for behavior modification, and group processes within physical activity and exercise. Prerequisite: Exercise Science 101. *Spring semester, three hours.*

EXER 205. INTRODUCTION TO SPORTS MINISTRY. This interdisciplinary course will explore the spreading of the gospel and what it means to be a Christian athlete through sport. Many opportunities for ministry are presented through sports as one of the most powerful of social institutions in the world. A grace-based view of the theology of sports and competition in lieu of a performance-based approach will be the cornerstone of this course. Sports ministry will be examined as a tool for transforming lives through sharing the Gospel, discipleship and mentoring. *Three hours.*

EXER 215. MEDICAL TERMINOLOGY. This is an online course that will help train students to understand and speak commonly used terms in various healthcare fields. Topics include word construction, body structure terminology, and terminology related to body systems and disorders. *Online, three hours.*

EXER 221. PERSONAL TRAINING. This course will introduce students to the profession of personal training. Students will develop skills in exercise technique, including teaching approaches involving free-weight and machine exercises, cardiovascular activities, flexibility, and plyometrics. Program designs will include the healthy adult as well as for adults presenting unique challenges to exercise. Students will design and implement a program for an assigned client, whom they will train throughout the second half of the semester. Prerequisite: Exercise Science 101. *Alternate years, spring semester, three hours.*

EXER 230. INTRODUCTION TO EXERCISE PROGRAM DESIGN. This course will instruct students in designing and implementing scientifically sound exercise programs. This includes dynamic and static warmup, resistance training, aerobic conditioning, speed and agility programming, and plyometrics. The process of needs analysis will be introduced and covered. The students will be introduced to basic periodization theories and program

implementation and adjustment strategies. The course will also cover an introduction to exercise equipment types, functions, and uses. For exercise science students, this course will serve as an introduction to the pertinent skills and knowledge required of them in both their professional internship and future career. Prerequisites: Exercise Science 101. *Three hours.*

EXER 235. FACILITY MANAGEMENT. This course will focus on the proper guidelines, standards and regulations necessary to successfully design and operate a safe and functional health and fitness facility. The minimal performance codes needed to operate legally will be examined, including compliance with the American Disabilities Act. The necessary steps to ensure optimum performance of a health and fitness facility, such as program development and marketing, will be discussed. This course will also cover important topics such as compliance with the American Disabilities Act, incorporating technical advances into the facility, hiring and training staff, emergency plans, risk management policies, and all federal laws and guidelines to ensure the safety of both the management and the users of a facility. Prerequisite: Exercise Science 101.

Offered periodically, two hours.

EXER 237. SPECIAL TOPICS IN EXERCISE SCIENCE. The purpose of this course is to introduce students to the EBP process and develop literacy abilities while investigating hot topics relevant to sport and human performance. Topics covered will include the benefits of EBP and the EBP process, conducting a literature search, appraising literature for best evidence, various topics in sport and human performance (i.e. performance enhancing drugs, movement screening for injury prediction and prevention, concurrent strength and endurance training, weight loss strategies, etc.). Prerequisite: Exercise Science 256.

Summer online, three hours.

EXER 240. DIETARY SUPPLEMENTS. This course provides an overview of the dietary supplement industry, current regulations, product development process, and marketing of products. Students will learn how to critically evaluate dietary supplements in terms of claims, efficacy, and safety. This course, offered online, is open to all majors. Prerequisites: Exercise Science 101 or 134. *Summer and winter online, three hours.*

EXER 244. NUTRITION AND HEALTH. A study of the science of nutrition with an emphasis on how nutrition influences health and well-being. Students will gain a foundational knowledge of the role of nutrition in the development and treatment of chronic diseases. Prerequisite: Exercise Science 101 or 134.

Fall semester, summer and winter online, three hours.

EXER 249. INTRODUCTION TO ATHLETIC TRAINING. The course introduces the role of the athletic trainer and concepts of sports medicine. Students will learn prevention, evaluation and treatment for athletic injuries. The course will provide an introduction to both the orthopedic assessment and management process as well as basics of biomechanics and ethical issues in the Athletic Training profession. Prerequisite: Sophomore Standing.

Fall semester, one hour.

EXER 250. INTRODUCTION TO PHYSICAL AND OCCUPATIONAL THERAPY. This course will provide an introduction to the practices of physical and occupational therapy. It will integrate studies in biology and anatomy for application in future careers in physical or occupational therapy. Students will learn how to take basic medical histories, have an introduction to performing a general physical examination, and begin to develop differential diagnoses for various musculoskeletal processes. In addition, students will begin to investigate therapy modalities applicable to a variety of therapy needs. Throughout this

course, students will gain knowledge helpful in their transition into the first year of an advanced health professional program. Prerequisite: Sophomore standing.

Spring semester, one hour.

EXER 251. PREVENTION AND CARE OF INJURIES. The purpose of this course is to give the students the knowledge and skills necessary to prevent and care for athletic related injuries. The topics covered include fitness training, nutrition, sports equipment, emergency situations, blood borne pathogens, environmental conditions, taping techniques, injury rehabilitation, psychological concerns with injuries, recognition of injuries, and the basic anatomy of and common injuries to the different parts of the body. There is an additional fee required for this course. Prerequisite: Exercise Science 101.

Spring semester, three hours.

EXER 253. ANATOMY & PHYSIOLOGY I. This course introduces students to human anatomy and physiology with the emphasis on the various body systems and how they integrate with one another. Laboratory exercises will include simulations using physical and computer models. Prerequisite: One of Exercise Science 101 or Biology 101. Equivalent courses: Biology 341 (Mammalian Anatomy) 346 (Mammalian Physiology).

Fall semester, four hours.

EXER 254. NUTRITION IN SPORTS AND EXERCISE. This course will detail the effects of nutrition and how it applies to an athlete/sport. Course topics will include metabolism of nutrients, nutrient utilization during exercise, and nutrient needs for specific athletes and/or sports. Students can expect to participate in lectures, athlete/sports analysis, and class projects. Prerequisite: Exercise Science 101 or 134. *Fall semester, three hours.*

EXER 256. PHYSIOLOGY OF EXERCISE. This course will survey the acute and chronic effects of exercise on human systems. Students will be introduced to the essentials of human movement, energy metabolism, cardiorespiratory function, and sport performance. Three lectures and one lab per week. Prerequisite: Exercise Science 253 or Biology 341. *Four hours.*

EXER 258. ANATOMY & PHYSIOLOGY II. A continuation of the study of human anatomy and physiology with emphasis on the various body systems and how they integrate with one another. Laboratory exercises will include simulations using physical and computer models, as well as introductory tissue dissections. Prerequisite: Exercise Science 253. Equivalent courses: Biology 341 (Mammalian Anatomy) 346 (Mammalian Physiology). *Spring semester, four hours.*

EXER 260. INDEPENDENT STUDY. Individual study of specialized topics in exercise science. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EXER 261. CORRECTIVE EXERCISE STRATEGIES. This course will use a combination of interactive lectures and hands-on workshop style teaching methods to teach students how to identify common postural and movement dysfunctions and the exercise strategies to address them. Prerequisites: Exercise Science 256 and 258.

Alternate years, spring semester, three hours.

EXER 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in exercise science. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EXER 290. STUDIES IN EXERCISE SCIENCE. A course that covers special topics related to exercise science. *One, two or three hours.*

EXER 304. EXERCISE TESTING. This course will cover fitness testing procedures for healthy and clinical populations. The course will follow the American College of Sports Medicine Guidelines for Exercise Testing. There will be a balance between lecture and laboratory work. Prerequisites: Exercise Science 256. *Three hours.*

EXER 305. BASIC PRINCIPLES OF COACHING. This course will introduce the principles of coaching team and individual sports. The student will be able to identify and demonstrate the personal and professional qualities required to become an effective coach at any level. The student will be able to develop a basic philosophy regarding the ethical and logical decision-making processes involved in coaching sports. *Two hours.*

EXER 306. EXERCISE LEADERSHIP. This course will focus on the practical skills necessary to teach group exercise classes. It will provide a survey of basic instructor skills such as music selection, choreography and cueing. All students will experience introductory class leadership in a variety of traditional and contemporary modes of group exercise including strength, flexibility, cardiovascular, and equipment-based classes. Prerequisite: Exercise Science 230. *Two hours.*

EXER 307. EXERCISE PRESCRIPTION. This course focuses on developing exercise prescriptions for healthy populations as well as those with chronic diseases. Prescriptions will be based on possible client goals of improved health, fitness or quality of life (abilities to perform activities of daily living). All course work will follow the standards set by the American College of Sports Medicine. This course is designated Speaking Intensive (SI). Prerequisite: Exercise Science 256. *Fall semester, three hours.*

EXER 308. TACTICAL STRENGTH AND CONDITIONING. This course introduces the knowledge and practical skills necessary to work in the field of Tactical Strength and Conditioning. Students will learn about specific physiological demands of the tactical athlete, including Paramedics, EMT's, Military Personnel, Firefighters, Law Enforcement Officers, and other first responders. Additionally, students will gain an understanding of how to communicate and program exercise effectively for these athletes. This course will provide an introduction to tactical athlete performance. The knowledge and practical experience in this course serve as foundational components in the field of Tactical Strength and Conditioning. Prerequisites: Exercise Science 230 and 307.

Spring semester, two hours.

EXER 309. BIOMECHANICS. The purpose of this course is to study biomechanical concepts and principles with special focus on their applications in human movement and physical activity. Students will examine the relationship between internal and external biomechanical factors and their effect on human performance and mechanisms of injury. Both qualitative and quantitative approaches will be discussed and applied to movement observation. Prerequisites: Physics 121; and Exercise Science 258 or Biology 346.

Fall semester, three hours.

EXER 310. FUNCTIONAL KINESIOLOGY. This course will provide a greater understanding of how humans move from an integrative functional anatomy and applied biomechanical lens. Specifically, muscle groups and their functional relationships will be presented with application to simple mechanical principles. Course emphasis will be placed on anatomical and mechanical analysis of motion as it pertains to human movement in sports and exercise. Prerequisites: Exercise Science 256 and 258. *Spring semester, three hours.*

EXER 312. DIET, EXERCISE, AND CHRONIC DISEASE. This course will focus on prevalent chronic diseases including obesity, diabetes, hypertension, cardiovascular disease, dyslipidemia; the pathophysiology and etiology of these conditions; and the role of lifestyle factors such as diet and exercise in disease prevention and treatment. Prerequisite: Exercise Science 244 and 256. *Spring semester, three hours.*

EXER 313. ADVANCED EXERCISE PHYSIOLOGY. This course will focus on the integrative physiology and physiological responses to exercise. Specifically, this course will cover energetics, metabolism, and endocrine physiology, as well as discuss cardiovascular hemodynamics in various environments and respiratory exercise physiology. Prerequisites: Exercise Science 256 and 258. *Spring semester and summer online, three hours.*

EXER 344. LIFE CYCLE NUTRITION. Exploration of nutrient needs throughout different life stages of pregnancy, infancy, childhood, adolescence, and older adulthood. Content will focus on the special nutritional needs of each life stage for optimal growth and development, maturation, aging, and overall health and well-being. This course will increase and refine students' pre-professional experience in helping people throughout the life cycle, improving their health and reducing the risk of chronic diseases. Prerequisite: Exercise Science 101 or 134 or Biology 101.
Spring semester and summer online, three hours.

EXER 360. INDEPENDENT STUDY. Individual study of specialized topics in exercise science. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EXER 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in exercise science. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EXER 377. RESEARCH METHODS IN EXERCISE SCIENCE. This course will introduce basic methods of reading, understanding, evaluating, and applying research. Students will experience quantitative research, qualitative research, mixed-model research and research reviews. Students will also become acquainted with statistical concepts in research planning and design. Working in groups, students will complete a research proposal write a research proposal to be continued and completed in Exercise Science 407. This course is designated Writing Intensive (WI) and Information Literacy (IL). Prerequisites: Exercise Science 256; Psychology 201; and Exercise Science 230 or 307.
Fall semester, three hours.

EXER 402. CERTIFIED EXERCISE PHYSIOLOGIST. This course will integrate the EXER curriculum, specifically the objectives of the ACSM certified Exercise Physiologist (EP-C). The job task analyses (JTAs) specific to the EP-C exam will be covered in detail. Students will apply the EP-C JTAs in class and with personal training clients. Prerequisites: Exercise Science 304 and 307. *Fall semester, three hours.*

EXER 403. PRINCIPLES OF STRENGTH AND CONDITIONING. This course will serve as preparation for students who will be taking the Certified Strength and Conditioning Specialist (CSCS) certification exam given by the National Strength and Conditioning Association. Prerequisite: Exercise Science 304 and 307. *Fall semester, three hours.*

EXER 404. PROFESSIONAL CERTIFICATION AND SEMINAR. This course provides instructor-guided preparation for a professional certification exam offered by ACSM or NSCA. There is an additional cost incurred by the student to register for the

certification exam and purchase the study materials, including practice exams, from the certifying organization. Students will determine which certification exam best matches their future career and complete it prior to the end of the semester, on or before Study Day. In addition, students will be required to complete a professional portfolio that will represent the body of work completed in the Exercise Science major. Prerequisite: Exercise Science 480. *Fall semester, one hour.*

EXER 407. RESEARCH PRACTICUM. The students will complete the original group research project created in Exercise Science 377, including data collection, statistical analysis, and a final report. Students will complete an individual research proposal. Prerequisites: Exercise Science 304 and 377. *Spring semester, four hours.*

EXER 460. INDEPENDENT STUDY. Individual study of specialized topics in exercise science. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EXER 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in exercise science. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

EXER 480. INTERNSHIP IN EXERCISE SCIENCE. Students will earn academic credit for field experience in the areas of applied Exercise Science, such as coaching, athletic training, strength and conditioning, health and fitness, physical therapy, and nutrition. Students will first determine their career path and corresponding professional certification. Then students will locate a facility along with an onsite supervisor for their internship. Professional dress is expected each day of the internship. Grade is dependent upon written evaluation by an on-site supervisor and the submission of the student's written report to the Department of Exercise Science. Students majoring in Exercise Science must earn at least five credits (300 clock hours) for this course. Prerequisites: Exercise Science 304, 306, and 307. *One to six hours.*

History

Dr. Graham, Chair; Dr. Baker, Dr. Gomulkiewicz, Dr. Mitchell.

Course Requirements for Bachelor of Arts Degree in History—42 hours

History Core Requirements (33 hours):
History 103, 143, 144, 201, 283, 285, and 400.
One course from: History 334, 336, 349, or 350.
One course from: History 230, 231, or 365.
Two courses from: History 206 or 207 (choose one), 208, 209, or 212.

History Electives (9 hours):
Three courses from: History 300-or 400-level courses, Bible 210, 211, Political Science 317, or Political Science 318.

Courses that count in the History major quality point average (MQPA):
All courses with "HIST" prefix. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Arts Degree in History and Social Studies Secondary Education Certification—85 hours

History Core Requirements (27 hours):
History 103, 143, 144, 201, 209, 212, 283, and 285.

Major-Related Requirements (18 hours):
Economics 101, 102; Political Science 201, 204; and Sociology 103 and 201.

Education Requirements (43 hours):
Education 102, 202*, 203, 204, 215, 271, 316, 363, 375, 450, 488; and Special Education 102 and 103. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the History and Social Studies Secondary Education Certification major quality point average (MQPA):
All courses with "HIST" prefix. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification. Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

History majors are strongly encouraged to take courses in languages, the humanities and the social sciences in their programs if they plan to attend graduate school in history. Courses at the 200 and 300 levels are open to all students.

The History Department seeks to equip their students with skills in professional writing, speaking and information literacy. History 103 is designated as an Information Literacy (IL) course, and History 201 and 400 are designated as Writing Intensive (WI) and Speaking Intensive (SI), and IL courses. Information literacy instruction includes defining and framing significant historical research questions; distinguishing different types of sources; using databases to find relevant sources; critically evaluating websites; citing sources correctly, respecting intellectual property and avoiding plagiarism; and synthesizing material from a range of electronic and traditional sources and presenting it in a cogent manner.

Course Requirements for a minor in Classical Studies (21 hours)
A minor in Classical Studies will consist of History 207; English 302; Political Science 355 or Philosophy 231; and twelve additional hours from Art 201; Bible 235, 236; Christian and Classical Education 410; Communication Arts 427; History 204, 206, 209, 346, 376; Political Science 355 or Philosophy 231; Philosophy 191, 313; Philosophy 488 (topic must be ancient philosophy); Greek 101, 102, 201, 202, 260, 360, 460; Latin 101, 102, 201, 202, 290; and Music 331.

Course Requirements for a minor in History (18 hours)
A minor in History will consist of six hours from each of the three following areas:
American History: History 283, 285, 334, 336, 349, or 350.
European History: History 208, 209, 212, 261, 262, 265, or 372.
Other History Electives: Bible 210, 211; History 143, 144, 201, 206, 207, 231, 260, 270, 346, 360, 370, 376, 378, 390, 400, 460, 470, 480, 488; History 317, 318 or Political Science 317 or 318.

Course Requirements for a minor in Medieval Studies (21 hours)

A minor in Medieval Studies will consist of English 304, History 208, Philosophy 232; and twelve hours from Art 201; Bible 210, 321; English 224; French 320; History 261, 346; Latin 102, 290 (Reading Latin); Music 331; Philosophy 205 (topic must be medieval philosophy), Philosophy 305 (topic must be medieval philosophy); and Spanish 330.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

History (HIST)

HIST 103. FRESHMAN SEMINAR. This course is designed to take beginning history majors methodically through the process and techniques of historical research, from the crafting of a question through written and oral presentations of one's work. It emphasizes designing historical research questions; finding, evaluating, and using primary and secondary sources; citing sources properly; and writing a cogent paper. Students will also be introduced to the philosophical dimensions of the discipline including ways in which the historian may contribute to the common good. Topics of study vary depending on the instructor. This course is designated Information Literacy (IL). *Three hours.*

HIST 120. FOUNDATIONS OF HISTORY. An introduction to the principal theories, ideas, concepts, methods, and debates that have shaped the discipline of history. The course examines competing perspectives on history, human nature, and providence. It analyzes how historians use and evaluate evidence and provides Christian perspectives on history. *Three hours.*

HIST 143. WORLD HISTORY I. A survey of the basic history of world societies from the earliest recorded development of human civilizations to the late medieval period. *Three hours.*

HIST 144. WORLD HISTORY II. A survey of the history of world societies from the early modern period to the present. Special emphasis is given to the interrelationship between the Western world and the non-Western world. *Three hours.*

HIST 201. HISTORIOGRAPHY. An introduction to the art and craft of history. Students learn the basics of the discipline of history, focusing on what historians do and have done, the essential concepts and methodologies they use, and the vocabularies they employ. Students sharpen the skills essential for work as a historian: critical reading, effective analysis, excellent writing, and skillful communication. This course is designated Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL). *Three hours.*

HIST 204. HISTORICAL AND PHILOSOPHICAL FOUNDATIONS OF EDUCATION. A survey of the historical and philosophical foundations of education from antiquity to the present day. It includes an analysis of political, sociological, and economic issues related to American education with emphasis upon understanding the contributions of Christianity, Western Civilization and the field of education. *Three hours.*

HIST 206. ANCIENT EMPIRES I: NEAR EAST AND GREECE. A survey of ancient Near Eastern, Aegean and Hellenistic worlds with emphasis on the formation of and resistance to empires. The course explores the varied cultural legacies of these ancient cultures and civilizations. *Alternate years, three hours.*

HIST 207. ANCIENT EMPIRES II: ROME. This course provides an overview of the history of Rome, beginning with its western Mediterranean setting and tracing its

development as a Republic and then its formation as an ancient empire stretching from Britain to the Tigris, and from the Danube to the Sahara. The course analyzes in some detail the dynamics of Roman imperialism as well as the varied responses of diverse groups which found themselves under Rome's sway. *Alternate years, three hours.*

HIST 208. MEDIEVAL EUROPE. A survey of Europe from the end of the Roman Empire to the early fifteenth century that emphasizes the cultural and intellectual legacy of the Middle Ages. *Alternate years, three hours.*

HIST 209. RENAISSANCE AND EARLY MODERN EUROPE. An examination of the Renaissance, the formation of nation states in the fifteenth century, the Reformation of the sixteenth century, and the political, social, and intellectual origins of modern Europe before the French Revolution. *Three hours.*

HIST 212. MODERN EUROPE. An examination of European states and the nature of European identity from 1789 to the present, focusing on political, economic, and social revolutions; the impact of the global wars of the twentieth century; and the tensions surrounding European integration from 1945 onward. *Three hours.*

HIST 230. MODERN SOUTH ASIAN HISTORY. This course introduces the major themes, ideas, and events of Modern South Asian history. While each of the modern constituent nations (India, Pakistan, Nepal, Bangladesh, Bhutan, Nepal, and Sri Lanka) will be discussed in comparison to one another, this course will focus on the regions known today as India, Pakistan, and Bangladesh. We will examine social change, intellectual movements, and the political currents of South Asia from the seventeenth century to the present. This class will also include introductions to the cultures of South Asia through food, major holidays, major religions, and contemporary politics. At the end of this class, students will be able to narrate the major events of Modern South Asian history, understand better its cultural and physical geography, and recognize the ways South Asia's past shapes its contemporary roles in the world. *Three hours.*

HIST 231. MODERN LATIN AMERICAN HISTORY. The story of Latin America from the beginning of the colonial period to the present. The class explores the geography and history of those countries colonized by Spain and Portugal in the sixteenth century, which still preserve the influence of Iberian political and social principles today. It also examines the subsequent political, social, and economic development of Latin America, the complicated relationships between individual countries in this region, and the increasing relationships between the region as a whole and the rest of the world.
Alternate years, three hours.

HIST 253. UNITED STATES HISTORY SURVEY. An introductory survey of American history from its colonial origins to the present. This course examines political, social, economic, religious, and cultural developments. Prerequisite: Middle Level Education majors only. *Three hours.*

HIST 260. INDEPENDENT STUDY. Individual study of specialized topics in history. Sophomore standing, permission of the department chair, and a faculty sponsor are required.
One, two or three hours.

HIST 261. BRITISH HISTORY TO 1781. A survey of British history with special emphasis on the development of the common law, parliament, and the British constitution. Recommended for pre-law students. *Alternate years, three hours.*

HIST 262. BRITISH HISTORY SINCE 1781. A survey of British history with special emphasis on Britain as an imperial power and on political, social, and cultural developments at home. *Alternate years, three hours.*

HIST 265. HISTORY OF SPAIN, 1500 TO PRESENT. An introduction to Spanish history from the union of the Crowns of Castile and Aragon to the present day. The central theme of the course is the problem of identity—how have the Iberian peoples identified themselves over time—and the political, religious, economic, and social difficulties historically associated with identity. *Alternate years, three hours.*

HIST 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in history. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

HIST 283. HISTORY OF THE UNITED STATES TO 1865. An introductory survey of American history from its colonial origins until the end of the Civil War. The course examines political, social, economic, religious, and cultural developments. *Three hours.*

HIST 285. HISTORY OF THE UNITED STATES SINCE 1865. An introductory survey of American history from Reconstruction to the present. The course examines political, social, economic, religious, and cultural developments. *Three hours.*

HIST 290. STUDIES IN HISTORY. Specialized subject matter that varies each semester depending upon interests of the instructor and students. *Three hours.*

HIST 317. CONSTITUTIONAL LAW OF THE UNITED STATES I. A study of the development of the United States Constitution through use of the case study method. This course especially focuses on the constitutional powers of the three branches of government, the relationship between state and federal governmental powers, and property rights and economic liberties. Students may not receive credit for both History 317 and Political Science 317. *Three hours.*

HIST 318. CONSTITUTIONAL LAW OF THE UNITED STATES II. A study of the development of the United States Constitution through the use of the case study method. This course especially focuses on the idea of equality and the equal protection clause, due process, privacy and liberty rights, freedom of speech, press and religion and other Bill of Rights issues. Students may not receive credit for both History 318 and Political Science 318. *Three hours.*

HIST 334. AMERICAN CIVIL WAR. An exploration of the American Civil War focused on the war's seminal leaders, decisive moments, formative ideas, and historic presentation. *Alternate years, three hours.*

HIST 336. UNITED STATES MILITARY HISTORY. A study of the socio-political, economic, technological and human aspects of war that traces the development of "the American art of war" from the early colonial period to the present. *Alternate years, three hours.*

HIST 346. BYZANTIUM AND ISLAM. A thematic overview of the pre-modern Byzantine and Islamic worlds, from their common roots in the Mediterranean world of Late Antiquity to the establishment of the Islamic Empires and Kingdoms of the Near East, Asia, and Africa. The course traces the transformation, flourishing, and decline of Byzantium concurrently with the rise of Islam to world dominance. *Alternate years, three hours.*

HIST 349. AMERICAN RELIGIOUS HISTORY. An exploration of religion in America that focuses on the various individuals and religious groups, events, ideas, and organizations that have had the most significant impact on American life. *Alternate years, three hours.*

HIST 350. SPORTS IN AMERICAN HISTORY. An overview of sports in America from colonial times until the present that focuses especially on the relationship between sports and society and issues of race, class, and gender. *Alternate years, three hours.*

HIST 360. INDEPENDENT STUDY. An advanced course for students with substantial background in college history courses. Intensive and independent research into a particular historical question. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

HIST 365. VIETNAM. This course will cover the history of Vietnam and its people from their Bronze Age beginnings through the Indochina Wars of the twentieth century to their evolving position in Southeast Asia at the turn of the new millennium. This course seeks to rectify the overbearing "Hawk" and "Dove" perspectives that see "the Vietnam War" chiefly through the lens of American political and social history. The focus will instead be placed on Vietnam's ability to absorb foreign influences while at the same time adopting these influences to create a vibrant and comparatively strong identity. *Three hours.*

HIST 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in history. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

HIST 372. THE FRENCH REVOLUTION AND NAPOLEON. An investigation of the French Revolution and Napoleonic France. Organized in a seminar format, this course analyzes the causes, major players, events, and consequences of the French Revolution. It explores the significant ideas that influenced or arose out of the French Revolution and the effect these ideas have on our current understanding of politics, society, and human nature. It assesses the pivotal role Napoleon Bonaparte played in the French Revolution and the debate over whether he represents the fruition of, or the antithesis to, the Revolution. Finally, the course examines the concept of revolution, evaluating the description or definitions of revolutions, and similarities between the French and other modern or pre-modern revolution. *Three hours.*

HIST 376. ALEXANDER THE GREAT AND THE HELLENISTIC WORLD. An exploration of the life of Alexander the Great and the Hellenistic world created by his conquests. The course analyzes how the traditions of the Greeks were synthesized with the heritage of western Asia and northeast Africa to shape a world stretching from the Balkans to India. *Alternate years, three hours.*

HIST 378. FOOD AND FEASTING IN THE WESTERN TRADITION. An examination of the mystery and wonder of man as the only animal who eats instead of feeds. The course will analyze the dining patterns and habits of the Hebrews, Greeks, Romans, and early Christians. Through the developments in dining brought about by the Industrial Revolution and the global economy, students will learn that mealtimes are more than a mere intersection of meat and drink. On a deeper level, our meals represent the intersection of theology, philosophy, history, and poetry. This amazing interplay reaches its epic fulfillment in the Feast – a special time at which family, congregations, and local communities gather round to celebrate the Abundance and the Divine. *Three hours.*

HIST 380. TOPICS IN MILITARY HISTORY. Will offer a rotation of advanced topics in military history, ranging in time from the Ancient World to the present-day, and encompassing both Western and non-Western cultures. *Three hours.*

HIST 390. STUDIES IN HISTORY. Specialized subject matter that varies each semester depending upon the interests of the instructor and students. *Three hours.*

HIST 400. SENIOR RESEARCH SEMINAR. A seminar designed to take seniors methodically through the process of writing a substantial research paper in history. It includes selecting a topic, conducting research (mostly in primary sources), constructing a detailed outline, writing, and presenting a paper. This course is designated Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL). *Three hours.*

HIST 460. INDEPENDENT STUDY. An advanced course for students with substantial background in college history courses. Intensive and independent research into a particular historical question. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

HIST 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in history. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

HIST 480. INTERNSHIP IN HISTORY. A semester of intensive study and work, usually off-campus, undertaken by the student with the approval of the faculty of the Department of History. A student must have a minimum QPA of 3.0 and may not have completed an internship in any other department, although exceptions may be made for a GCCI internship. Students are required to keep a journal of weekly activities and complete a project agreed upon with the Department. An internship in history may be taken at any institution that practices Public History. *One to six hours.*

HIST 488. SEMINAR IN HISTORY. An advanced course for junior and senior students desiring an in-depth exploration of one historical problem, involving individual research, discussion, oral reports, and written essays. Prerequisite: Permission of the department. *One, two or three hours.*

HIST 499. HONORS IN HISTORY. Seniors who have shown special aptitude in history may, upon invitation and permission of the department, undertake special research in history. A 30-page historical paper and a defense of the paper before the history faculty are required. *Three hours.*

Latin (LATN)

LATN 101. ELEMENTARY LATIN I. This is the beginning course of the elementary Classical Latin sequence. It assumes no previous knowledge of Latin. Students cover the fundamentals of Latin grammar and syntax while building a basic vocabulary. They will begin to read Latin in sentences and edited short selections. *Offered periodically, three hours.*

LATN 102. ELEMENTARY LATIN II. This course continues the study of Classical Latin grammar and syntax while continuing to build an extensive Latin vocabulary. It emphasizes the student's ability to read basic unedited Latin prose and poetry. *Offered periodically, three hours.*

LATN 201. INTERMEDIATE LATIN I. This course is designed to increase the student's facility in reading Latin prose and poetry from various eras—the Republic, the Empire and Late Antiquity. Strong emphasis is placed on accuracy and efficiency in translation.
Offered periodically, three hours.

LATN 202. INTERMEDIATE LATIN II. Further study of Latin prose and poetry to develop proficiency in reading and translating Latin. The focus will be on extensive readings from select Latin authors from antiquity and the Middle Ages.
Offered periodically, three hours.

LATN 260. INDEPENDENT STUDY. Individual study of specialized topics in Latin. Sophomore standing, permission of the department chair, and a faculty sponsor are required.
One, two or three hours.

LATN 290. STUDIES IN LATIN. Readings and discussion of topics in literature or language. Subject matter varies. *Offered periodically, three hours.*

LATN 360. INDEPENDENT STUDY. An opportunity for third- and fourth-year students to do independent projects in Latin. Prerequisite: Latin 201 and 202; or permission of the instructor. *Two or three hours.*

LATN 460. INDEPENDENT STUDY. An opportunity for third- and fourth-year students to do independent projects in Latin. Prerequisite: Latin 201 and 202; or permission of the instructor. *Two or three hours.*

Management and Marketing

Dr. Kocur, Chair; Dr. Biddle, Dr. Crute, Prof. Havrilla, Dr. Kelley, Dr. R. Miller, Dr. Roy, Dr. J. Smith. Additional Instructional Faculty: Prof. Blaine, Prof. Butler, Prof. DiDonato, Dr. DiStasi, Prof. Hatfield, Prof. J. Miller, Dr. Paschal, Prof. Rosenberger, Dr. Snodgrass, Prof. Warren.

The mission of the Winklevoss School of Business at Grove City College is to equip students to pursue their unique calling to business, preparing them to be effective and ethical leaders in business and society as a whole. This mission incorporates the following learning outcomes:

1. General Business Knowledge and Analytical Skills: Students will demonstrate appropriate level of knowledge, analytical skills, and information literacy necessary in business.
2. Communication Skills: Students will demonstrate the written and verbal skills needed to communicate effectively within the business environment.
3. Ethics: Students will demonstrate a Christian understanding of business, which reflects their moral and ethical responsibilities to all potential stakeholders.
4. Global Perspective: Students will demonstrate an understanding of the global and multicultural issues in the current business environment.
5. Business Analysis Knowledge & Skills: Built on solid abilities in problem solving and critical thinking, our students will demonstrate the knowledge & skills necessary to succeed as analysts in today's fast-paced, technology-enabled business environment. Students develop skills in software programming, statistical analysis, data visualization, and project leadership. In addition to a broad business

management curriculum, students also gain knowledge in one of seven business concentration areas in which to focus their analytical skills.

6. Business Statistics Knowledge & Skills: Built on solid abilities in data analysis and problem solving, our students will demonstrate the knowledge & skills necessary to succeed as data analysts in a business or research environment. Students develop skills in software programming, data management, statistical analysis, and research methods. In addition to learning mathematics and statistics, students also gain knowledge in one of seven business concentration areas in which to focus their data analytic skills.
7. Human Resources Knowledge & Skills: Students will develop an understanding of the knowledge and skills needed for entry level positions in the fields of human resources, employee benefits, compensation & payroll, and risk management. This includes knowledge centering on employment laws, recruitment & retention, labor relations, discipline, benefit administration, compensation structure & management and the risk management process from both a conceptual and experiential standpoint. This includes demonstrating the ability both individually and in team settings of identifying and assessing managerial issues/situations found in these fields of study and to formulate a plan for constructive resolution.
8. International Business Knowledge & Skills: Students will demonstrate an understanding of the major functional areas of business and specialized knowledge in a chosen area of business (marketing, management, economics, finance, accounting, or entrepreneurship), an understanding of international business concepts and trends, and a second-language proficiency by completing an emphasis in Chinese, French, or Spanish.
9. Management Knowledge & Skills: Students will demonstrate entry-level knowledge and skills necessary to manage people and work processes. This includes knowledge of best practices in management and leadership generally and in human resources specifically, the human resource regulatory environment, leadership styles and practices, and current research on the antecedents and consequences of individual and group behavior in organizational contexts. This also includes demonstrating skill in teamwork and in the application of knowledge to realistic organizational problems and challenges.
10. Marketing Knowledge & Skills: Based on a solid understanding of customer motivations and competitor positioning, students will demonstrate the entry-level marketing knowledge and skills necessary to successfully market products and services in a global business environment. These skills will encompass the identification of target audiences, establishment of a marketing strategy, and development of supporting tactical plans. Students will also gain knowledge in specific marketing competencies such as marketing research, new product development, advertising, digital marketing, sales, and retailing that will serve as the building blocks for their marketing skill set.
11. Supply Chain Management Knowledge & Skills: Students will demonstrate entry level knowledge and skills necessary to function in all Supply Chain Management. Students will acquire knowledge of best practices in global supply chain management generally and specific knowledge in procurement, manufacturing, logistics, customer service, sales and operations planning,

data visualization and negotiation. Students will also be required to demonstrate an ability to work in teams and to present outcomes of their work in a classroom setting.

Seven degree programs are offered in the Department of Management and Marketing: Bachelor of Science in Business Analysis, Bachelor of Science in Business Statistics, Bachelor of Science in Human Resource Management, Bachelor of Science in International Business, Bachelor of Science in Management, Bachelor of Science in Marketing and Bachelor of Science in Supply Chain Management. All seven programs integrate the international aspects of business in course content as it applies to appropriate functional areas of study.

In addition to the seven majors offered by the Department of Management and Marketing, the college also offers degree programs in Accounting, Business Economics, Economics, Entrepreneurship, and Finance. For more details on these majors, see the listings in this catalog for the Departments of Accounting and Finance, Economics, and Entrepreneurship.

Course Requirements for a Bachelor of Science Degree in Business Analysis—66-69 hours

Business Core (33 hours):
Accounting 201, 202; Computer Science 141, Finance 202; International Business 205; Management 103, 214, 303, 486; Marketing 104 and Statistics 131.

Economics Core (6 hours):
Economics 101, 102.

Business Analysis Major Requirements (18 hours):
Management 204, 210, 307; and Statistics 132, and six hours from Computer Science 111 and Management 220, or Computer Science 220 and 244.

Business Analysis Concentration* (9-12 hours):
Complete one of the following concentrations:

Accounting: Nine hours: including Accounting 301 plus six hours from any 300-400 level Accounting courses.

Analytics: Mathematics 161, 162, and one of Mathematics 214, 232, 261, 262, or Statistics 331.

Finance: Nine hours from Finance 302, 332, 336, 338, 435, 442, 480, Economics 401, Entrepreneurship 430, or Mathematics 232.

Marketing: Marketing 411, 422, and three hours from Management 325, Marketing 215, 312, 319, 330, 415, 417, 421, or 480.

Operations/Supply Chains: Management 302, 424, and three hours from Management 311, 325, 450, 457, 480, and International Business 417.

Software: Nine hours total: from Computer Science courses beyond Computer Science 220 and/or any Data Science courses. (Note: Computer Science 244 cannot be used to fulfill both the business analysis major core and software concentration requirements.)

Sports Management: Nine hours from Management 213, and six hours from Management 313, 325, 480 (max three hours must be sports analytics oriented), or Exercise Science 201 or 305.

***Note:** Students who successfully complete the requirements for a second major in Accounting, Business Economics, Computer Science, Economics, Entrepreneurship, Finance, International Business, Management, Marketing, or Mathematics are exempt from the Business Analysis Concentration requirement.

Courses that count in the Business Analysis major quality point average (MQPA):

All courses with "ACCT", "COMP", "DSCI", "ENTR", "FNCE", "INBS", "MARK", "MATH", "MNGT" (excluding MNGT 106) prefix, and STAT 131 and 132. A minimum MQPA of 2.00 is required to graduate.

The Business Analysis major prepares graduates for careers in business analysis, data analysis, project leadership, business management, market research, financial analysis, and management analysis.

Course Requirements for a Bachelor of Science Degree in Business Statistics—64-67 hours

Business Statistics Core (43 hours):
Computer Science 141; Mathematics 161, 162, 214*, 261, and Statistics 131, 132, 331, 332, 412, and 414, and six hours from Computer Science 111 and Management 220, or Computer Science 220 and 244.
* Students may substitute Mathematics 222 and Statistics 331 for Mathematics 214.

Business Core (12 hours):
Accounting 201; Finance 202; Management 103; and Marketing 104.

Business Statistics Concentration* (9-12 hours):
Complete one of the following concentrations:

Accounting: Twelve hours: including Accounting 202, 301 plus six hours from any 300-400 level Accounting courses.

Business Analysis: Management 204, 210, and 307.

Economics: Economics 101, 102, and three hours of Economics courses.

Finance: Nine hours from Finance 302, 332, 336, 338, 435, 442, 480, Economics 401, Entrepreneurship 430, or Mathematics 232.

Marketing: Marketing 411, 422, and three hours from Management 325, Marketing 215, 312, 319, 330, 415, 417, 421, or 480.

Operations/Supply Chain: Management 204, 424, and three hours from Management 210, 302, 307, 311, 325, 450, 457, 480, and International Business 417.

Software: Nine hours total: from Computer Science courses beyond Computer Science 220 and/or any Data Science courses. (Note: Computer Science 244 cannot be used to fulfill both the business statistics core and software concentration requirements.)

Sports Analytics: Nine hours from Management 213, and six hours from Management 313, 325, 480 (max three hours must be sports analytics oriented), or Exercise Science 201 or 305.

***Note:** Students who successfully complete the requirements for a second major in Accounting, Business Economics, Computer Science, Economics, Entrepreneurship, Finance, International Business, Management, Marketing, or Mathematics are exempt from the Business Statistics Concentration requirement.

Courses that count in the Business Statistics major quality point average (MQPA):

All courses with "COMP", "DSCI", "MNGT"(excluding MNGT 106), "MATH", and "STAT" prefix. A minimum MQPA of 2.00 is required to graduate.

The Business Statistics major prepares graduates for careers in statistics in applied business contexts. Job titles include market researcher, financial risk analyst, investment analyst, business logistics specialist, management analyst, supply chain analyst, statistician, and others.

Course Requirements for a Bachelor of Science Degree in Human Resource Management—67 hours

Business Core (33 hours):

Accounting 201, 202; Finance 202; International Business 205; Management 103, 110 or 111, 214, 303, 486; Marketing 104 and Statistics 131.

Math/Economics Courses (10 hours):

Economics 101, 102; Mathematics 141 or 161.

Mathematics 141 prepares students in the business applications of calculus, but Mathematics 161 must be taken as a prerequisite for Mathematics 162 and 261.

Human Resource Major Core (15 hours):

Management 433, 457, 458, 462, and 465.

Human Resource Major Electives (9 hours):

Choose three courses from Management 110, 304, 307, 311, 475, 480 (max 3 hours), Accounting 303, Communication Arts 225, Psychology 208, or Psychology 310.

Courses that count in the Human Resource Management major quality point average (MQPA):

All courses with "ACCT", "FNCE", "INBS", "MARK", "MNGT" prefix, excluding MNGT 106. A minimum MQPA of 2.00 is required to graduate.

The Human Resource Management major prepares graduates to pursue a career as a human resource professional in any form of organization including both for-profit and not-for-profit contexts. Students will be prepared to be a human resource generalist in smaller firms, as well as to occupy specialist roles in functional areas such as recruiting, compensation, benefits, training, and risk and insurance in larger firms.

Course Requirements for a Bachelor of Science Degree in International Business—82 hours

Business Core (33 hours):

Accounting 201, 202; Finance 202; International Business 205; Management 103, 110 or 111, 214, 303, 486; Marketing 104 and Statistics 131.

Math/Economics Courses (10 hours):

Economics 101, 102; and Mathematics 141 or 161.

Mathematics 141 prepares students in the business applications of calculus, but Mathematics 161 must be taken as a prerequisite for Mathematics 162 and 261.

International Business Core (9 hours):
Choose three courses from International Business 408, 417, 421, 445 (required for Management and Marketing concentrations); Economics 202, 206, 303; Entrepreneurship 307, 312; or Finance 442 (required for Accounting and Finance concentrations). With advance Department Chair approval, Accounting, Entrepreneurship, Finance, International Business, Marketing, or Management 390 may count toward this requirement. Note: Students completing the Entrepreneurship Concentration may not count ENTR 312 toward the International Business Core.

Business Concentration (12 hours):
Complete one of the following six concentrations:

Accounting: Accounting 301, 303, 321, and any 300-400- level Accounting course.

Economics: Economics 301, 302; and any two Economics courses. Note: Economics 202, 206, and 303 cannot be used to fulfill both the concentration and international business core requirements.

Entrepreneurship: Entrepreneurship 312, 430, and 466; and one course from Entrepreneurship 309, 318, or 423.

Finance: Finance 302, 332; and pick two: Any Finance 300-, 400-, or 500-level course or Economics 401 or 456, or Entrepreneurship 430.

Management: Management 457; and three courses from Management 302, 304, 307, 311, 433, 450, 458, or 475.

Marketing: Marketing 319, 411; and two courses from International Business 417, 421, Management 424; Marketing 215, 216, 312, 415, 417, or 420. Note: International Business 417 and 421 cannot be used to fulfill both the concentration and international business core requirements.

Global Emphasis (6 hours):
Choose two courses from Communication Arts 225; any Global Studies (GOBL) course; or any non-United States History or Political Science course.

Foreign Language Concentration (12 hours):
Choose one of the following three options (for placement and course sequencing, consult with the Department of Modern Languages):

French: One course from French 301, 305, or 340; French 307; and two 200-300-level French courses.

Spanish: Spanish 303 and three 200-300-level Spanish courses.

Other: Twelve credits in a single modern language with the approval of the Chair of the Department of Modern Languages.

Foreign Study Requirement:

At least three hours must be earned outside the United States through an approved study abroad program (ABRD 300), Grove City College travel course, or Grove City College international internship.

Courses that count in the International Business major quality point average (MQPA):

All courses with "ACCT", "ENTR", "FNCE", "FREN", "GOBL", "INBS", "MARK", "MNGT" (excluding MNGT 106), "SPAN" prefix, COMM 225, ECON 303, and STAT 131. A minimum MQPA of 2.00 is required to graduate.

The International Business major focuses on the international context of business and is designed to prepare students for participation in worldwide business activity. This program combines substantial preparation in international business, business, modern languages, and other related international courses. International Business majors are strongly encouraged to take additional advanced courses in culture, literature, and grammar in their chosen language of study and to study an additional foreign language.

Course Requirements for a Bachelor of Science Degree in Management—67 hours

Business Core (33 hours):

Accounting 201, 202; Finance 202; International Business 205; Management 103, 110 or 111, 214, 303, 486; Marketing 104 and Statistics 131.

Math/Economics Courses (10 hours):

Economics 101, 102; and Mathematics 141 or 161.

Mathematics 141 prepares students in the business applications of calculus, but Mathematics 161 must be taken as a prerequisite for Mathematics 162 and 261.

Management Major Core (15 hours):

Management 325, 424, 457, 475, and 433 or 458.

Management Major Electives (9 hours):

Choose nine hours from Accounting 303, Entrepreneurship 312, International Business 417, Management 204, 213, 302, 307, 311, 433, 450, 458, 462, 480, or 490 with Department Chair approval. Note: Management 458 cannot count towards both the Management Major Core and Major Electives. Management 480 may count for up to three hours Management major electives.

Courses that count in the Management major quality point average (MQPA):

All courses with "ACCT", "ENTR", "FNCE", "INBS", "MARK", "MNGT" (excluding MNGT 106) prefix, and STAT 131. A minimum MQPA of 2.00 is required to graduate.

The Management major prepares graduates for the modern challenges facing managers in many types of organizations. These include, but are not limited to, for-profit, not-for-profit, and governmental organizations of any size. Graduates pursue careers a variety of organizational contexts including retail, consulting, financial services, manufacturing, arts and entertainment and many more.

Course Requirements for a Bachelor of Science Degree in Marketing—67 hours

Business Core (33 hours):

Accounting 201, 202; Finance 202; International Business 205; Management 103, 110 or 111, 214, 303, 486; Marketing 104 and Statistics 131.

Math/Economics Courses (10 hours):
Economics 101, 102; Mathematics 141 or 161.
Mathematics 141 prepares students in the business applications of calculus, but Mathematics 161 must be taken as a prerequisite for Mathematics 162 and 261.

Marketing Major Core (15 hours):
Marketing 215, 319, 411, 415, and 422.

Marketing Major Electives (9 hours):
Choose nine hours from International Business 417, Management 311, Management 390 with department chair approval, or Marketing courses 200-level and above.

Courses that count in the Marketing major quality point average (MQPA):
All courses with "ACCT", "ENTR", "FNCE", "INBS", "MARK", "MNGT" (excluding MNGT 106) prefix, and STAT 131. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Science Degree in Supply Chain Management—67 hours

Business Core (33 hours):
Accounting 201, 202; Finance 202; International Business 205; Management 103, 110 or 111, 214, 303, 486; Marketing 104 and Statistics 131.

Math/Economics Courses (10 hours):
Economics 101, 102; and Mathematics 141 or 161.
Mathematics 141 prepares students in the business applications of calculus, but Mathematics 161 must be taken as a prerequisite for Mathematics 162 and 261.

Supply Chain Major Core (15 hours):
Management 204, 210, 311, 424, and International Business 417.

Supply Chain Electives (9 hours):
Choose 9 hours from the following courses: Finance 302, International Business 445, Statistics 132, Marketing 417, Management 120, 302, 307, 433, 450, and 480 (internship must have Supply Chain as primary role).

Courses that count in the Supply Chain Management major quality point average (MQPA):
All courses with "ACCT", "ENTR", "FNCE", "INBS", "MARK", "MNGT" (excluding MNGT 106) prefix, and STAT 131, 132. A minimum MQPA of 2.00 is required to graduate.

Marketing is the broad link between organizations and the marketplace. Every organization must understand both customers and competitors in order to survive. Accordingly, marketing as a discipline comprises diverse career paths, including marketing management, marketing communication, design, customer experience, digital marketing, logistics, sales, and market intelligence. Students who major in Marketing and wish to further specialize are encouraged to consider adding a related minor (or taking additional courses) in design, sales, analytics, digital marketing, entrepreneurship or communication.

Writing, Speaking and Information Literacy Intensive Courses

It is essential for students majoring in the Department of Management and Marketing to possess strong writing, speaking, and information literacy (knowing how to locate, analyze, and use information in decision-making) skills in preparation for careers in business/accounting or graduate studies. The curriculum requirements specifically designed to develop these skills include Management 214, *Business, Ethics, and Society* and Management 486, *Business Policy and Strategy*. Please see course descriptions that follow for more information.

Course Sequencing for the Business Core

For all majors within the Department of Management and Marketing, the following business core courses applicable to the major must be completed before the beginning of the junior year and prior to registering for any 400-level course in the Department: Accounting 201, 202; Management 103, 110 or 111, 214; Statistics 131; Marketing 104; Economics 101, 102; and Mathematics 141 or 161. International Business 205 and Finance 202 must be taken before the beginning of the senior year.

Course Requirements for a minor in Business (18 hours)

(Restricted to non-Business School majors and B.A. in Economics majors only)

A minor in Business shall consist of Accounting 201, 202; Finance 202; Management 103; Marketing 104; Statistics 131.

Course Requirements for a minor in Business Analysis (18 hours)

A minor in Business Analysis shall consist of Statistics 131 and 132; Management 210; Computer Science 141; and six hours from Management 204 and 307, Computer Science 111 and Management 220, or Computer Science 220 and 244.

Course Requirements for a minor in Digital Marketing (18 hours)

A minor in Digital Marketing shall consist of Marketing 104, 215, 328, 330; Entrepreneurship 309; and three hours from Management 325, Entrepreneurship 470, or Marketing 480. Note: Students wishing to receive credit for Marketing 480 – Internship in Digital Marketing – and internship credit toward a Marketing major elective may not use the same internship experience to count for both. Rather, two separate internships must be completed, usually in the summers following the sophomore and junior years.

Course Requirements for a minor in Human Resource Management (18 hours)

(Restricted to non-Human Resource Management majors only)

A minor in Human Resource Management shall consist of Management 103, 433, 457, 458, 462, and 465.

Course Requirements for a minor in International Business (18 hours)

(Restricted to non-International Business majors only)

A minor in International Business shall consist of International Business 205, 445; six hours of 200-level or higher foreign language courses; and two courses from International Business 417, 421, Economics 206, 303, 390, or Entrepreneurship 307.

Course Requirements for a minor in Management (18 hours)

(Restricted to non-Management majors only)

A minor in Management shall consist of including Management 103, 457, 475, and nine additional hours of Management courses 200-level and above, with the exception of Management 214, 303, and 486.

Course Requirements for a minor in Marketing (18 hours)
(Restricted to non-Marketing majors only)

A minor in Marketing shall consist of Marketing 104, 215, 319, 411, 415, and one course from Management 311, or Marketing courses 200-level or above.

Course Requirements for a minor in Sales (18 hours)

A minor in Sales shall consist of Marketing 104, 216, 421; Management 311; and six hours from Management 213, 307; Communication Arts 104; Marketing 312, or 480. Note: Students wishing to receive credit for Marketing 480 – Internship in Sales – and internship credit toward a Marketing major elective may not use the same internship experience to count for both. Rather, two separate internships must be completed, usually in the summers following the sophomore and junior years.

Course Requirements for a minor in Sports Management (18 hours)

A minor in Sports Management shall consist of Management 103, 213, 313, 480 (3 cr); and seven additional hours from Exercise Science 201, 235, 305; Marketing 216, 420; Management 307, 311, 325, or 433.

Course Requirements for a minor in Supply Chain Management (18 hours)

A minor in Supply Chain Management shall consist of Management 204, 424, International Business 417, and three courses from: Finance 302, International Business 445, Management 120, 210, 302, 307, 311, 433, 450, or 480 (internship must have Supply Chain as primary role).

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

International Business (INBS)

INBS 205. GLOBAL BUSINESS ISSUES. Designed to acquaint the student with the dynamic environment in which businesses must operate globally, including the challenges posed by political risk, cultural barriers, and differences in economic and legal systems, as well as those aspects of international business management not associated with traditional functional areas including international trade; foreign currency transactions; theory and institutions; country analysis; and international business strategy. Prerequisites: Sophomore standing or instructor permission. *Three hours.*

INBS 260. INDEPENDENT STUDY. Individual study of specialized topics in international business. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

INBS 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in international business. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

INBS 360. INDEPENDENT STUDY. Individual study of specialized topics in international business. Prerequisites: Junior standing and permission of the department chair. *One, two or three hours.*

INBS 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in international business. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

INBS 390. STUDIES IN INTERNATIONAL BUSINESS. Studies in areas of international business not fully covered by regular departmental offerings. *Three hours.*

INBS 408. SOCIAL ENTREPRENEURSHIP PRACTICUM. Using case studies, lectures, and hands-on exercises, this course clarifies and illustrates the steps necessary to prepare to launch a social enterprise. Topics include the idea generation, business models, organizational structure, staffing, governance, funding, and measurement of social impact. Over the course of the semester, students will prepare business plans for their own social enterprises. Students may only receive credit for only one of International Business 408 or Entrepreneurship 408. *Three hours.*

INBS 417. GLOBAL SUPPLY CHAINS. An understanding of supply chains is essential to the global marketplace including social and cultural dimensions of business practices in global economies; global logistics; political and financial risks; and cross cultural supplier interactions. This course will examine the functions of global supply chains and how various functional organizations including Marketing, Finance, and Human Resources must interact with global supply chains in order to meet their business objectives. The course will also have a strong emphasis on current trends in global supply chains and includes input from experts currently working in the field. Prerequisite: International Business 205 and Junior standing or with permission of the instructor or department chair. *Three hours.*

INBS 421. INTERNATIONAL MARKETING. An introduction to marketing management on a global scale including social and cultural dimensions of marketing; economic environments; political and financial risks; cross-cultural consumer behavior; and international product and channel decisions. Prerequisite: Marketing 104 and International Business 205. *Three hours.*

INBS 445. INTERNATIONAL TRADE. This course surveys policies and international business practices of international trade, including coverage of international logistics, customs and tariffs, export control law, international contracts, resolution of trade disputes, and international trade organizations. Prerequisite: International Business 205.
Three hours.

INBS 460. INDEPENDENT STUDY. Individual study of specialized topics in international business. Prerequisites: Senior standing and permission of the department chair. *One, two or three hours.*

INBS 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in international business. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

INBS 480. INTERNSHIP IN INTERNATIONAL BUSINESS. This is an opportunity for students to participate in a meaningful learning experience under the supervision of both an employer and a Management and Marketing Department faculty member. Most internships take place during the summer months. Students will be graded based on an employer performance evaluation along with a written paper and journal. Prerequisites: Good academic standing and completion of the freshman year of study. *One to six hours.*

Management (MNGT)

MNGT 103. PRINCIPLES OF MANAGEMENT. An introduction to the theory and practice of management. Students are introduced to management history, ethics, global issues, and other challenges. The four basic managerial functions of planning, organizing,

leading, and controlling are explored in detail. Throughout, attention is given to a Christian perspective on these topics. *Three hours.*

MNGT 106. FUNDAMENTALS OF BUSINESS. A general introduction to the organizational environment and operations of contemporary businesses. The course examines the United States business system and how it interacts with global systems; the basic management functions of planning, organizing, leading, and controlling; entrepreneurship and small businesses; marketing processes and consumer behavior; managing operations and information; and financial management. Integrated into these topics are Christian principles that should guide ethical business practices. *Three hours.*

MNGT 110. EXCEL. Nearly all businesses require new hires to be proficient in Excel. Students will learn how to use Excel in a variety of business fields. This course culminates in a final exam that, if successful, will result in students achieving Microsoft certification in Excel. *An additional fee is charged for this course.* *Online, three hours.*

MNGT 111. BUSINESS COMPUTER APPLICATIONS. This course provides business majors with instruction and practical exercises using Microsoft Office to solve business problems. It integrates applications of Microsoft Office into the business environment in such a way that students learn to use the software to prepare reports, design oral presentations, collaborate with one another, and utilize spreadsheets to organize information and summarize data. Business, accounting, financial and scientific problems and applications are emphasized. This course must be taken in the freshman or sophomore year. *Three hours.*

MNGT 120. ADVANCED EXCEL. Nearly all businesses require new hires to be proficient in business uses of Excel. Students will build on the Excel knowledge acquired in Management 110 and demonstrate advanced proficiency. Students will utilize advanced techniques in Excel (macros, nested functions, PivotTables, and Pivot Charts, for example) to answer real-world organizational questions. This course culminates in a final exam that, if successful, will result in students achieving the Microsoft Expert certification in Excel. Prerequisite: Management 110 or MOS Basic Excel Certification. *An additional fee is charged for this course.* *Online, three hours.*

MNGT 204. OPERATIONS MANAGEMENT. Introduction to the design, planning, control and improvement of business operations for both goods-producing and service-rendering organizations. Organizational and management impacts resulting from product development, process oversight and inventory management are explored in detail. *Three hours.*

MNGT 210. DATA VISUALIZATION. This course will study techniques for creating effective visual stories via dashboards. Topics include visual story telling models, exploratory data analysis, visualization software, interaction techniques, graphical perception, color, animation, dimensional data, temporal visualization, and text visualization. Prerequisite: Management 103 and Statistics 131. *An additional fee is charged for this course*. *Three hours.*

MNGT 213 PRINCIPLES OF SPORTS MANAGEMENT AND MARKETING. This course explores the basic concepts and principles of the sport and recreation business. Emphases will be on the principles of management, marketing, finance, and economics applied to sports management and marketing. Topics include event and venue management, legal considerations, sales, promotion, revenue generation, branding, and public relations. *Three hours.*

MNGT 214. BUSINESS, ETHICS, AND SOCIETY. An examination of various ethical and moral issues arising in contemporary business and its activities which affect our society and the world. This course also examines the nature and purpose of economic life and contemporary business, especially from the Christian perspective. This course is designated Writing Intensive (WI) and Information Literacy (IL). Prerequisites: Sophomore standing; and B.S. Winklevoss School majors or Technology Management concentration Applied Science and Engineering majors. *Three hours.*

MNGT 220. SQL FOR BUSINESS ANALYSTS. This course will provide students with a strong foundation in SQL for business analytics, equipping them with the skills needed to extract, transform, analyze, and interpret data for informed decision-making. Students will learn how to write efficient SQL queries, structure databases, and apply SQL techniques to solve real-world business problems. The course is designed for students who want to develop data-driven decision-making skills using SQL. Experience with excel and data handling is beneficial. Prerequisite: Computer Science 141. *Three hours.*

MNGT 260. INDEPENDENT STUDY. Individual study of specialized management topics. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MNGT 261. PROFESSIONAL CERTIFICATION IN PROJECT MANAGEMENT. Students will develop current skills in Project Management that support the business and the business' overarching strategy. This course culminates in a final exam that, if successful, will result in students achieving a current industry-recognized certification. *Three hours.*

MNGT 264. PROFESSIONAL CERTIFICATION IN DATA VISUALIZATION. Students will develop current skills in Data Visualization that support the business and the business' overarching strategy. This course culminates in a final exam that, if successful, will result in students achieving a current industry-recognized certification. This course assumes competence in basic Excel. *Three hours.*

MNGT 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised management-related research. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MNGT 290. STUDIES IN MANAGEMENT. Studies in areas of management not fully covered by regular departmental offerings. *Three hours.*

MNGT 302. LEAN MANAGEMENT. An examination of the general theory of lean management and the twenty keys to workplace improvement. Topics include just-in-time, kanban, supplier development, and skill versatility. Students completing this course may choose to sit for a (fee-based) Lean Six Sigma certification exam. *Three hours.*

MNGT 303. BUSINESS LAW. A survey of law crucial to the conduct of business, including an introduction to the nature of law, legal reasoning, and dispute resolution as well as to the law of contracts, torts, crimes, agency, business associations, and intellectual property. Students may not receive credit for both Management 303 and Entrepreneurship 303. *Three hours.*

MNGT 304. LEGAL ENVIRONMENT OF BUSINESS. Managers need to be prepared to understand and navigate the complex world of federal and state regulation on topics such as employment law, antitrust law, environmental law, consumer protection law, internet law, intellectual property law, and securities law. This course not only provides a thorough

consideration of the applicable law, but also addresses the ethical principles, fundamental values, and policy issues relevant to each topic. Prerequisite: Management 303 or Entrepreneurship 303. *Three hours.*

MNGT 307. PROJECT TEAMS AND LEADERSHIP. This course provides the student with team-building skills, team dynamics, and project management skills in alignment with prevailing project management methodology. Students completing this course may choose to sit for a (fee based) CAPM certification exam offered through PMI. Prerequisite: Sophomore standing. *Three hours.*

MNGT 311. NEGOTIATION. This course is designed to introduce students to the primary approaches to negotiation (integrative and distributive); teach students how to plan for a negotiation and improve a student's confidence in carrying out a negotiation. Students completing this course will be well equipped to conduct professional and personal negotiations in a manner consistent with a biblical worldview. There is a significant emphasis on role-play activities in this course. Prerequisite: Sophomore standing.
Three hours.

MNGT 313 SPORT AND EVENT MANAGEMENT PRACTICUM. This course is designed to introduce students to the logistics of sport event and venue management. Student will obtain hands on experience in planning, organizing, marketing, managing risk, managing facilities, working with stakeholders, and other related activities in the course of administering an actual sporting event. Prerequisites: Management 213 and junior standing.
Two hours.

MNGT 323. ADVANCED BUSINESS LAW. Exploration of advanced legal topics important for business and accounting including negotiable instruments; agency; secured transactions and creditors' rights; bankruptcy; forms of business associations; securities law; and real property. Prerequisite: Management 303. *Three hours.*

MNGT 324. LEGAL ASPECTS OF THE MUSIC BUSINESS. This course is designed to analyze the most important legal issues in the contemporary music industry, including how these issues began, how they have evolved, and where they are headed. Students will explore copyright law, including fair use and public domain, and how it affects sampling, interpolation, and mashups. The course will explore contracts related to songwriting, 360° deals, revenue sharing, and more, in addition to legal documents related to bands, booking, and touring. Students will also explore contemporary and new means of creating and disseminating music, including streaming audio/video and augmented/virtual reality, and explore associated legal implications. Students may only receive credit for one of Entrepreneurship 324, Management 324, or Music 324. *Three hours.*

MNGT 325. MANAGERIAL PERSPECTIVES IN BUSINESS ANALYSIS. This course focuses on developing a managerial understanding of the strategic role data can play in a cross-functional organization. Using lecture, case analysis, and hands-on exercises, this course will prepare students for entry into a data driven business world by highlighting fundamental analytical tools, outlining how technology enables and empowers business decision making, and by exploring cutting edge trends in business analytics and decision making. Additionally, legal and ethical issues raised by a data-driven business world will be discussed from a Christian perspective. Prerequisite: Sophomore standing. Prerequisite: Sophomore standing. *Three hours.*

MNGT 326. INTRODUCTION TO THE BUSINESS OF MUSIC. This course is designed as an introduction to the business of music, providing students with the latest

instruction on best practices for music creators, consumers, and facilitators working in this field. Students will have the opportunity to learn the fundamental principles involved in the entrepreneurial and legal dimensions of the music business, exploring the structural and functional components of this ever-changing and rapidly growing industry. Particular attention will be given to the challenges of starting, growing and managing a music business in the digital era. Students may only receive credit for one of Entrepreneurship 326, Management 326, or Music 326. *Three hours.*

MNGT 360. INDEPENDENT STUDY. Individual study of specialized management topics. Prerequisites: Junior standing and permission of the department chair.
One, two or three hours.

MNGT 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised management-related research. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MNGT 390. STUDIES IN MANAGEMENT. Studies in areas of management not fully covered by regular departmental offerings. *Three hours.*

MNGT 424. SUPPLY CHAIN MANAGEMENT. In today's business environment, the role of Supply Chain Management has become an integral part of assuring that a business can differentiate themselves in the view of their customers. At the conclusion of this course, the student will develop an understanding of all elements of the supply chain and how each contributes to the success of an organization. Significant emphasis will be placed on procurement, logistics, and sales & operations planning. Students may not receive credit for both Management 424 and Entrepreneurship 424. *Three hours.*

MNGT 433. RISK MANAGEMENT AND INSURANCE. An introduction to and study of risk and liability exposures that face businesses and individuals. Topics include risk management techniques, the insurance industry, and employee benefits packages. Prerequisite: Junior or senior standing. *Three hours.*

MNGT 450. QUALITY MANAGEMENT. This course will provide students with an understanding of how Quality Assurance and Quality Control functions are designed and executed in a product or service environment. Topics covered during this course will include: Quality Systems, Quality Standards, Supplier Quality, Statistical Tools and Problem Solving methodologies. Prerequisite: Statistics 131 or equivalent. *Three hours.*

MNGT 457. HUMAN RESOURCES MANAGEMENT. This course examines the principles, policies and practices of human resources important for being an effective manager in today's organizations. Human resource topics include EEOC and legal guidelines, recruitment, selection, training, compensation, employee appraisal, and discipline systems. Prerequisite: Management 103 and junior or senior standing.
Three hours.

MNGT 458. ORGANIZATIONAL BEHAVIOR. An examination of individual, interpersonal, and organizational processes in contemporary organizations emphasizing motivation, job design, performance management, group and team dynamics, leadership, and decision-making. Also covered are organizational culture, design, and change management. The course emphasizes contemporary theories and trends in organizational structures and processes. The course includes extensive use of case studies and applications of theories to management practice. Prerequisite: Management 103. *Three hours.*

MNGT 460. INDEPENDENT STUDY. Individual study of specialized management topics. Prerequisites: Senior standing and permission of the department chair.
One, two or three hours.

MNGT 462. EMPLOYEE COMPENSATION AND BENEFITS. This course covers the breadth and depth of issues related to the professional management of employee benefits and compensation systems. Human resource policies and practices will be discussed. Applicable law, regulation, and case law will be covered. Specific topics include retirement plans, health coverage, paid time off, salary and hourly pay systems, and additional incentive practices. Prerequisite: Management 457. *Three hours.*

MNGT 465. ADVANCED HUMAN RESOURCES. This course provides an in-depth examination of advance topics in human resource management. Emphasized topics include labor relations and collective bargaining, recruitment and retention strategies, employee selection, performance appraisal, and legal issues. Taught as a seminar course. Prerequisite: Management 457. *Three hours.*

MNGT 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised management-related research. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MNGT 475. LEADERSHIP. A study of historical and current perspectives on leadership theory and practice with the incorporation of Christian principles. Leadership theories are made practical through lectures, class activities, case studies, guest speakers, and assignments. Students will learn more about their strengths through assessments and self-reflection. The course is treated as a seminar, and thus focused on discussion and many student-led activities. Prerequisites: Management 103 and junior or senior standing; or instructor permission. *Three hours.*

MNGT 478. SEMINAR IN LIFE MANAGEMENT. This seminar is intended to provide senior students with practical advice for navigating the transition to post-college life. Finances, risk, health, professional responsibilities and interpersonal relationships are important aspects of life that need to be managed. These and other related topics will be addressed in the seminar. Prerequisite: Senior standing. *One hour.*

MNGT 480-481. INTERNSHIP IN MANAGEMENT. This is an opportunity for students to participate in a meaningful learning experience under the supervision of both an employer and a Management and Marketing Department faculty member. Most internships take place during the summer months. Students will be graded based on an employer performance evaluation along with a written paper and journal. Prerequisites: Good academic standing and completion of the freshman year of study. *One to six hours.*

MNGT 486. BUSINESS POLICY AND STRATEGY. This course presents the basic concepts and tools used in strategic business analysis and applies those concepts and tools to the formulation, implementation, and evaluation of organizational business strategy. This course also represents the Grove City College School of Business capstone course. As such it will integrate the knowledge and skills gained across previous business coursework and help the student to form a total business perspective, including the application of Christian values in the workplace. This course is designated Speaking Intensive (SI). Prerequisite: Senior status; majoring in Bachelor of Science degree programs within the departments of Accounting & Finance, Economics, and Management & Marketing. *Three hours.*

Marketing (MARK)

MARK 104. PRINCIPLES OF MARKETING. An introduction to the terms and concepts used in marketing. Study focuses on all aspects of the marketing process, including market analysis and information, consumer and business buying behavior, marketing strategy, the marketing mix, and legal and ethical issues. Discussion covers global, digital, and sustainability implications. The goal is to understand key basic marketing concepts and be able to practically apply knowledge to marketing decisions. Discussion also incorporates the application of Christian values in the workplace. *Three hours*.

MARK 210. DIGITAL MARKETING CERTIFICATIONS. This course will teach students how to create and measure the efficacy of their digital marketing campaigns. The course will introduce students to the power of digital marketing and digital marketing metrics and will culminate in a digital marketing certification. This course is important to anyone wanting to join a business or run one. Excel knowledge or MNGT 110 is suggested prior to or concurrent with taking this course. *Three hours*.

MARK 215. DIGITAL MARKETING. This course provides an in-depth study of the rapidly growing and evolving area of digital marketing. In addition to understanding the basic components of digital marketing, students will focus on learning how specific elements of digital marketing, including websites, social media, and mobile technology can be utilized as integrated parts of a comprehensive marketing plan. Lecture, case studies, guest speakers, and in-class exercises will be utilized to provide understanding and relevancy of this key component within the marketing discipline. In addition, students will also explore ethical issues related to marketing in a digital world from a Christian perspective. Prerequisite: Marketing 104. *Three hours.*

MARK 216. SALES. This course focuses on professional selling from a client-focused, non-manipulative sales perspective. Students will learn and apply the principles of professional selling and the role of sales management through lecture, access to guest speakers in the sales discipline, and hands-on activities. Students will also explore ethical issues found in the sales discipline from a Christian perspective. Prerequisite: Marketing 104. *Three hours.*

MARK 260. INDEPENDENT STUDY. Individual study of specialized marketing topics. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MARK 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised marketing research. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MARK 312. RETAIL MANAGEMENT. An in-depth look at the dynamic field of retail marketing. A balanced blend of theory and application (using current examples) will help students learn how to analyze and develop effective retailing strategies. Emphasized topics include buying, merchandising, and selling functions; inventory, financial, and employee management; and targeting, location and promotion objectives. Study also investigates inherent ethical issues and discusses how Christian principles can be applied. Prerequisite: Marketing 104. *Three hours.*

MARK 319. CONSUMER BEHAVIOR. An examination of consumer decision-making in the marketplace, emphasizing the effects of internal factors such as motivation, personality, learning, emotion, and attitudes; external factors such as culture, subcultures, reference groups, demographics, and social status; and the steps in the consumer decision-

making process. The course incorporates an examination of what it means to be both a Christian and a consumer. Prerequisite: Marketing 104. *Three hours.*

MARK 328. CONTENT MARKETING. Students will probe the subject of content marketing as a core discipline for 21st century entrepreneurs. They will learn essential concepts for strategic content development and web-based thought leadership and will acquire skills for use with practical web applications. Students will engage in a semester-long project using WordPress to publish Internet content for a company or organization, employing techniques learned in a class. The structure of the class will include two teaching sessions per week and a WordPress lab. Students may not receive credit for both Marketing 328 and Entrepreneurship 328. *Three hours.*

MARK 330. SEARCH ENGINE OPTIMIZATION. Students will explore the fundamental principles and best practices in the field of search engine optimization. They will learn and develop the essential knowledge and skills required to achieve favorable organic rank in the most important search engines and will become familiar with and interact with experts in the industry. Case studies and actual business scenarios will be examined in detail. Students will have opportunity to conduct SEO research for small businesses and non-profit organizations in semester-long team projects with other students. Students may not receive credit for both Marketing 330 and Entrepreneurship 330. *Three hours*.

MARK 335. BRAND MANAGEMENT. This course explores the principles and practices of brand management with an emphasis on creating, measuring, and managing brand equity. Students will discover how to build strong brands, create value for consumers and business organizations, and apply methods for assessing brand performance. Topics covered in this course include customer-based brand equity (B2B and B2C), brand positioning, brand architecture, brand associations and communication, and global branding strategies. Ethical challenges in brand management and a Christian perspective of marketing will also be explored. Prerequisite: Marketing 104. *Three hours.*

MARK 360. INDEPENDENT STUDY. Individual study of specialized marketing topics. Prerequisites: Junior standing and permission of the department chair.
One, two or three hours.

MARK 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised marketing research. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MARK 390. STUDIES IN MARKETING. Studies in areas of marketing not fully covered by regular departmental offerings. *Three hours.*

MARK 411. MARKETING RESEARCH. An introduction to the major areas of marketing research and information from a managerial perspective. Students will learn how to determine when and what type of market research to do, what objectives to pursue, and how to assess market research learnings. Incorporating market research within the context of market information, this course explores problem definition, research design, questionnaire development, sampling, interviewing, analysis, and reporting. It incorporates key ethical issues and application of Christian values in the workplace. Prerequisites: Statistics 131, Marketing 104, and junior standing. *Three hours.*

MARK 415. STRATEGIC MARKETING. This capstone marketing course utilizes business course work to date and enables students to demonstrate strategic marketing

mastery and business application in three critical areas: 1) role of marketing in the development of successful strategies, 2) marketing opportunity analysis, and 3) developing, implementing, and managing strategic marketing programs. It applies marketing principles to real world situations through case study analysis and/or project applications, discussions, presentations, and exposure to business professionals. While focused on marketing, discussion will incorporate financial and management strategies. It also incorporates key ethical issues and application of Christian values in the workplace. Prerequisite: Marketing 104 and senior standing. *Three hours.*

MARK 416. SALES MANAGEMENT. This course is focused on the principles, methods, and issues found in professional, business-to-business sales force management. Students will gain exposure to and experience with the responsibilities of a sales manager and an understanding of the strategic role played by sales within an organization. Prerequisites: Management 103 and Marketing 104. *Three hours.*

MARK 417. NEW PRODUCT DEVELOPMENT AND MANAGEMENT. This course encompasses a comprehensive study of the new product development and management process. It is intended for students who are interested in learning how new products and services are developed and managed. Since New Product Development is a cross functional discipline, the content is relevant for students preparing to lead an organization to understand customer needs, to innovate and translate those needs to new products and services, and to profitably grow a business. It incorporates case study analysis and/or project applications, discussions, presentations, and exposure to business professionals. Discussion incorporates key ethical issues and the application of Christian values in the workplace. Prerequisite: Marketing 104. *Three hours.*

MARK 420. ADVERTISING. A critical exploration of the purposes and functions of advertising, public relations and sales promotion in the growth and development of the global market economy. Study focuses on the basic principles of researching, creating, and executing promotional campaigns, and includes an examination of corporate responsibility and Christian ethics in advertising. Prerequisite: Marketing 104 and junior or senior standing. *Three hours.*

MARK 421. INTERNATIONAL MARKETING. An introduction to marketing management on a global scale including social and cultural dimensions of marketing; economic environments; political and financial risks; cross-cultural consumer behavior; and international product and channel decisions. Prerequisite: Marketing 104 and International Business 205. *Three hours.*

MARK 422. MARKETING ANALYTICS. This course explores and utilizes data-driven approaches for solving complex marketing challenges. Through hands-on application, students leverage technology to analyze consumer behavior, optimize marketing campaigns, and deliver actionable insights that inform strategic decision-making. Students will be exposed to marketing analytic tools and techniques used to derive strategic insights, predict pricing, understand customer satisfaction, develop customer segmentation, generate product recommendations, and understand customer sentiments. The curriculum emphasizes ethical applications of analytical methods, compliance with data privacy standards, and the transition of technical findings into executive-level recommendations. Prerequisites: Marketing 104, Management 110, Statistics 131, and Junior standing or permission of the instructor. *Three hours.*

MARK 426. MUSIC MARKETING. This course will provide students with an overview of key music marketing principles, terms, and practices, which together form the foundation

for all music marketing plans. Students will dig into the key areas of opportunities for musicians, including publicity, advertising, promotion (online and traditional), digital distribution, touring, licensing/synch, and radio. Students will learn what companies and partners to work with to reach their core fans, how to communicate with them, and the ways to leverage the changes and new opportunities that the internet offers to marketers. In addition, they will learn marketing ideas to help them describe their vision, identify a market need, analyze an artist's fan base, learn from their competitors, set marketing plan goals, and find the perfect mix of new marketing strategies ranging from branding, product, price, place, promotion, and marketing information systems. Students may only receive credit for one of Entrepreneurship 426, Marketing 426, or Music 426. Prerequisite: Marketing 104. *Three hours.*

MARK 460. INDEPENDENT STUDY. Individual study of specialized marketing topics. Prerequisites: Senior standing and permission of the department chair. *One, two or three hours.*

MARK 468. INNOVATION FOR IMPACT. Innovation and creativity are widely recognized as drivers of success in today's world for both individuals and organizations. Whether entities are nonprofits, startups, small companies, large companies, or governmental units, they are all looking to employ people who understand innovation. This course will provide students with an understanding of how different entities can innovate using design thinking methodology. As we explore how to innovate in concept, we will use that knowledge to attack problems faced by real organizations in our own community to explore how applying design thinking methodologies can have true impact on real-world organizations. Students will emerge from this course with a toolbox of innovation techniques, real project work that they can use as examples of their practice of those techniques, and the confidence that they are creative and innovative people. Students may not receive credit for both Marketing 468 and Entrepreneurship 468. *Three hours.*

MARK 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised marketing research. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MARK 480-481. INTERNSHIP IN MARKETING. This is an opportunity for students to participate in a meaningful learning experience under the supervision of both an employer and a Management and Marketing Department faculty member. Most internships take place during the summer months. Students will be graded based on an employer performance evaluation along with a written paper and journal. Prerequisites: Good academic standing and completion of the freshman year of study. *One to six hours.*

Mathematics

Dr. M. Jackson, Chair; Dr. Bancroft, Dr. R. Drai, Dr. Flanders, Dr. Kettinger, Dr. McIntyre, Dr. Thompson.

Course Requirements for Bachelor of Science Degree in Applied Statistics (70-75 hours):

Statistics Core Requirements (18 hours):

Statistics 131, 132, 331, 332, 412, and 414

Math Core Requirements (22-23 hours):
Mathematics 125, 161, 162, 210 or 213, 222, and 261

Computer Science Core Requirements (12 hours):
Computer Science 141, 220, 244 and Data Science 431

Math Elective (3 hours):
Choose one Mathematics course 300 level or higher excluding Mathematics 305, 306, 307, and 488.

Application Concentration (15-19 hours):
Complete one of the following concentrations:

Biology: Biology 101, 102, 233, 234, and three hours from 300-400 level Biology courses

Chemistry: Chemistry 111 and 113, or 105; 112 and 114, 227, 241, and three hours from 300-400 level Chemistry courses

Computer Science: Computer Science 155, 435, Data Science 201, and six additional hours from Computer Science courses at the 200-level or above.

Exercise Science: Exercise Science 101 and twelve additional hours of Exercise Science courses with at least six of those hours at the 300-400 level (excluding Exercise Science 305).

Physics: Physics 101, 102, 135, 234, and three hours from 300-400 level Physics courses.

Political Science: Political Science 104, 201, one of Political Science 204 or 205, and six hours from 300-400 level Political Science courses.

Psychology: Psychology 101 and twelve additional hours of Psychology courses excluding Psychology 201, with at least six of those hours at the 300-400 level.

Social Work: Social Work 101, 264, 342, 382, and three hours from 300-400 level Social Work courses.

Sociology: Sociology 101, 377, 473, and six hours from 300-400 level Sociology courses.

Courses that count in the Applied Statistics major quality point average (MQPA):
All courses with “MATH” or "STAT" prefix, with the exception of Mathematics 110, 111, 115, 118, 119, 141, 151, 152, 237, and 240. A minimum MQPA of 2.00 is required to graduate.

The completion of a minor or major in a field of science, engineering, exercise science, or social science will count as a concentration. (Minors or majors in Mathematics or Computer Science do not count as a concentration.)

Course Requirements for Bachelor of Science Degree in Mathematics—49-54 hours

Math Core Requirements (30-31 hours):
Mathematics 125, 161, 162, 210 or 213, 222, 261, 421, 465, and 488.

Math Electives (12 hours):
Choose three courses from Mathematics 303, 365, 422, 466, or 467, Statistics 331, 332. At least one course must be Statistics 332, Mathematics 422, 466, or 467.

Choose one additional course from Mathematics 232, 262, 303, 365, 422, 466, and 467, Statistics 331, 332

Major-Related Requirements (7-11 hours):
Computer Science 141; Physics 101, or Physics 121 and 122.

Courses that count in the Mathematics major quality point average (MQPA):
All courses with "MATH" prefix, with the exception of Mathematics 110, 111, 115, 118, 119, 141, 151, 152, 237, and 240. MQPA also includes Statistics 331 and 332. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Science Degree in Mathematics and Secondary Education Certification—89-94 hours

This program fulfills the requirements of the full mathematics major and the requirements of the Commonwealth of Pennsylvania for secondary mathematics certification.

Math Core Requirements (39-40 hours):
Mathematics 125, 161, 162, 210 or 213, 222, 240, 261, 303, 421, 465, 488, and Statistics 331.

Math Electives (3 hours):
Choose one course from Statistics 332; Mathematics 422, 466, and 467.

Major-Related Requirements (7-11 hours):
Computer Science 141; Physics 101, or Physics 121 and 122.

Education requirements (40 hours):
Education 102, 202*, 203, 204, 215, 271, 317, 375, 450, 488; and Special Education 102 and 103. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Mathematics and Secondary Education Certification major quality point average (MQPA):

All courses with "MATH" prefix, with the exception of Mathematics 110, 111, 115, 118, 119, 141, 151, 152, 237. MQPA also includes Statistics 331 and 332. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification. Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

Every graduating mathematics major will receive a thorough introduction to mathematical ideas as well as to problem solving skills and strategies. Moreover, every graduate should be able to communicate technical ideas, both orally and through the use of a written document and should also have an established ability to learn how to use a computer algebra system in particular and other library and electronic resources in general in order to generate, locate, evaluate, and use information. To this end, mathematics majors receive instruction in the use of *Mathematica* in the calculus sequence (Mathematics 161, 162, and 261) and also acquire a working knowledge of a computer program in Computer Science 141. They also gain experience in researching and presenting results, both orally and through writing a substantial technical paper, in Mathematics 488 *Seminar of Mathematics*, which satisfies the Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL) requirements within the major. Applied Statistics majors gain their experience researching, writing, and delivering their results orally in their Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL) course, Statistics 412 *Data Analysis Research Methods*.

Course requirements for a concentration in Actuarial Science (58-63 hours)

Students majoring in Mathematics can also earn a concentration in Actuarial Science by completing Mathematics 306, Statistics 331, 332, and two of Mathematics 232, 262, 303, 365, 422, 466, or 467 with one course being at the 300-400 level for their math electives; Accounting 201; Finance 202; Finance 332 or 334; and Management 433. Students must also write a paper on probability or statistics in Mathematics 488. Students are also encouraged to take additional courses from Economics 101, 102, 302, and 442. The Mathematics 306 requirement is waived for students who pass the first actuarial exam on their own.

Course Requirements for a minor in Mathematics (22 hours)

(Restricted to majors outside the Department of Mathematics)

A minor in Mathematics will consist of 22 hours, including Mathematics 210 or 213, and 222 but excluding Mathematics 110, 111, 115, 118, 119, 125, 151, 152, 237, 240, 305, 306, and 307. Statistics 331 and Statistics 332 may be included in place of mathematics courses.

Course Requirements for a minor in Statistics (24 hours)

(Restricted to non-Applied Statistics and non-Business Statistics majors)

A minor in Statistics will consist of 24 hours including Mathematics 161, 162, 261, and Statistics 131, 132, 331, and 332.

Students interested in graduate school in mathematics are specifically advised to take Mathematics 365, 422, 466, and 467.

Students who are enrolled in College Algebra, Pre-Calculus, or one of the calculus courses and determine that they are not properly placed may change to another course within the pre-calculus/calculus sequence on or before the sixteenth class meeting (twelfth class meeting if currently in College Algebra or Pre-Calculus). The student must have the approval of the current instructor and the instructor of the course to which the student intends to move. The student must complete and return the Drop Back Form to the Registrar's Office. If dropping back creates a conflict with another course in the student's schedule, other options will need to be considered.

College Math Courses Taken in High School

Transfer credit may be awarded for mathematics courses that are equivalent or comparable to those offered by the Grove City College Department of Mathematics and completed with a grade of "C" or better. Any such courses taken before entering Grove City College must be listed in the catalog of the college of transfer as courses offered for degree credit to that college's undergraduates, must be taken in a classroom setting where most of the students are college undergraduates, and must be organized and taught by college faculty.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Mathematics (MATH)

MATH 110. COLLEGE ALGEBRA. Designed to help prepare students for success specifically in Business Calculus as well as in Pre-Calculus, this course offers a thorough treatment of linear and quadratic equations and inequalities, rational and radical equations, and functions and their graphs. A basic understanding of high school algebra is presumed. **This course does not satisfy the Quantitative/Logical Reasoning requirement**.

Three hours.

MATH 111. PRE-CALCULUS. Designed to help prepare students for success in Physics 121 or Calculus I, this course offers a thorough treatment of function theory, analytic geometry, exponential and logarithmic functions, and trigonometry. This course assumes competence in two years of high school algebra and knowledge of basic analytic geometry. *Three hours.*

MATH 115. THE HISTORY OF MATHEMATICS. This course provides college-level experience in mathematics and its history within the liberal arts tradition. Students will learn about the development in various cultures of several significant mathematical topics. They will be in a position to recognize the impact of some mathematical discoveries on the course of history, including in the arts and technology. They will also be able to recognize the critical importance of the application of some mathematical techniques in the contemporary world. *Three hours.*

MATH 118. FINITE MATHEMATICS. An introduction to a variety of topics from finite mathematics such as sets, counting, basic probability and statistics, linear systems, matrix algebra, and linear programming (graphical solutions). Time permitting, additional topics such as linear programming with the simplex method, Markov chains, and game theory will be considered. This course requires competence in fundamental algebra skills. *Fall semester, three hours.*

MATH 119. TOPICS IN CONTEMPORARY MATHEMATICS. This course will consist of a survey of a number of mathematical ideas on an introductory level. Topics may include graph theory, symmetry, sequences, fractals, fair-division algorithms, apportionment, financial math, and voting theory. This course requires only basic algebra skills and so is recommended to meet the Quantitative/Logical Reasoning requirement. *Spring semester, three hours.*

MATH 125. EXPERIMENTAL MATHEMATICS. This course serves as an introduction into the mathematics major and to thinking mathematically. Students will be exposed to mathematical topics that form the curriculum beyond calculus as well as basic programming and mathematical proofs. A large part of the class will be mathematical experiments where the students are asked to generate data using code they write, find patterns in the data generated, establish conjectures, and work to prove their conjectures. Corequisite: Mathematics 161. *Fall semester, three hours.*

MATH 141. BUSINESS CALCULUS. The differential and integral calculus of elementary functions with applications in business and economics. Students may not receive credit for both Mathematics 141 and 161. Mathematics 161, not 141, is the prerequisite for 162. *Four hours.*

MATH 151. SURVEY OF MATHEMATICS I. This course (along with Math 152) is a conceptual exploration of mathematical topics related to elementary and middle school mathematics, and is part of a two-course, six-hour mathematics requirement specifically designed for elementary education and early childhood majors. Content studied includes critical thinking and problem solving, logic, sets, relations and functions, numeration systems and whole-number computation, integers, and elementary number theory. Restricted to Elementary, Special Education with Elementary, Middle Level, and Music Education majors only. *Fall semester, three hours.*

MATH 152. SURVEY OF MATHEMATICS II. This course continues the exploration of selected topics from the elementary and middle school mathematics curriculum, including

rational and real numbers, probability, statistics, geometry, and measurement. Prerequisite: Mathematics 151 or permission of instructor. *Spring semester, three hours*.

MATH 161. CALCULUS I. A first course in calculus that assumes no prior study of the subject. Topics include limits and continuity, differentiation, curve sketching, the fundamental theorem of calculus, definite and indefinite integrals, and applications. Prerequisite: High school mathematics including algebra, analytic geometry, and trigonometry. Students may not receive credit for both Mathematics 141 and 161.
Four hours.

MATH 162. CALCULUS II. A continuation of Math 161 covering the topics: exponential, logarithmic and inverse trigonometric functions, techniques of integration, parametric equations, sequences, infinite series, and Taylor series. Prerequisite: Mathematics 161 or permission of instructor. *Four hours.*

MATH 210. COMBINATORICS. A study of the foundations of mathematics in the context of combinatorial analysis with an emphasis on mathematical writing. Representative topics include set theory, functions, proof techniques, induction, enumeration techniques, the pigeon-hole principle, binomial and multinomial coefficients, the principle of inclusion-exclusion, and generating functions. Corequisite: Mathematics 162.
Fall semester, three hours.

MATH 213. DISCRETE MATHEMATICS FOR COMPUTER SCIENCE. A study of the foundations of mathematics with an emphasis on concepts related to theoretical mathematical methods and computer science. Topics include mathematical logic, set theory, algorithms, complexity of algorithms, integers, a variety of proof techniques, combinatorics, relations, graphs and digraphs, and trees. Corequisite: Mathematics 162.
Fall semester, four hours.

MATH 214. APPLIED PROBABILITY AND LINEAR ALGEBRA. An overview of probability and linear algebra, with an emphasis on applications and concepts for computer science. Topics include probability distributions, counting, conditional probability, matrix operations, vector properties, change of bases, Markov chains, and eigenvalues and eigenvectors. Students will not be permitted to receive credit for all three of Mathematics 214, 222, and Statistics 331. Prerequisite: Mathematics 162. *Spring semester, four hours.*

MATH 222. LINEAR ALGEBRA. A study of the theory of matrices and their applications including systems of linear equations, determinants, vector spaces, eigenvalues and eigenvectors, linear transformations, diagonalization, and Gram-Schmidt orthogonalization. Students will not be permitted to receive credit for all three of Mathematics 214, 222, and Statistics 331. Prerequisite: Mathematics 162. *Spring semester, four hours.*

MATH 230. SURVEY OF MATHEMATICS III. This course explores the mathematical topics that form the grades 5-8 curriculum, including ratios and proportions, algebra, relations and functions, geometry, statistics, and probability. Prerequisite: Mathematics 152 or permission of instructor. *Alternate years, fall semester, three hours*.

MATH 232. FINANCIAL MATHEMATICS. This is an introduction to interest theory and the mathematics of investment. The topics include interest rates, valuation of annuities, loan repayment, valuation of bonds, rates of return, term structure, and cash-flow duration and immunization. This course is intended to prepare students for the actuarial exam FM/2. Prerequisites: Mathematics 141 or 161; and Accounting 201. Corequisite: Finance 202.
Fall semester, three hours.

MATH 237. TOPICS FOR MATH EDUCATION. This course will be taught in an independent format covering mathematical material useful for math education majors. Students may only receive credit for this course once. Prerequisite: Mathematics 151 or 152, or permission of instructor. *One hour.*

MATH 240. MATHEMATICS FOR SECONDARY EDUCATION. A course designed for the secondary teacher candidate in mathematics. Topics covered are history of mathematics; logic; graph theory; proportional reasoning; problem solving and critical thinking; geometry; algebra and functions; and other material applicable to secondary teachers of mathematics. Required for mathematics secondary education majors. Open to elementary and middle level education majors with mathematics concentration. Prerequisite: Mathematics 210 or 213, or Corequisite: Mathematics 222.
Alternate years, spring semester, three hours.

MATH 260. INDEPENDENT STUDY. Individual study of specialized topics in mathematics. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MATH 261. CALCULUS III. The final course in the three-semester calculus sequence covering: polar coordinates, vectors and the geometry of three-dimensional space, vector functions, partial derivatives, multiple integrals and vector calculus. Prerequisite: Mathematics 162. *Four hours.*

MATH 262. DIFFERENTIAL EQUATIONS. A study of the elementary theory and methods for analytic solution of ordinary differential equations, with applications, including first order equations, higher order linear equations, Laplace transform methods, and series solutions (time permitting). Prerequisite: Mathematics 162. *Spring semester, three hours.*

MATH 263. NUMERICAL DIFFERENTIAL EQUATIONS. The study and application of numerical methods for solving differential equations including Euler's method, Runge-Kutta methods, multi-step methods, and solutions of systems of equations. Corequisite: Mathematics 262 or permission of the instructor. *Spring semester, one hour.*

MATH 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in mathematics. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MATH 303. COLLEGE GEOMETRY. This course explores various modern geometries from an axiomatic point of view. Topics such as sets of axioms and finite geometries, Euclidean and non-Euclidean geometries, geometric transformations, and possibly neutral geometry will be thoroughly examined. Prerequisite: Mathematics 210 or 213, and 222.
Spring semester, three hours.

MATH 305. PUTNAM PROBLEM GROUP. The Putnam Exam is a national undergraduate mathematics competition consisting of 12 challenging problems administered on the first Saturday in December. The course will consist of meeting once a week to work on problems and discuss problem solving strategies. Students not meeting the prerequisite are invited to audit the course. Students may take the course up to four times for credit. Prerequisite: Mathematics 162. *Fall semester, one hour.*

MATH 306. ACTUARIAL MATHEMATICS. An in-depth study of calculus-based probability and statistics topics covered by the Society of Actuaries first actuarial exam, Exam P. Topics include general probability, univariate probability distributions, and

multivariate probability distributions with applications to risk and insurance. Students taking this course are required to obtain the recommended review manual and to register for and take Exam P. Students may take this course at most twice for credit. Corequisite: Statistics 332 and instructor approval. *Spring semester, one hour.*

MATH 307. INVESTIGATIONS IN MATHEMATICS RESEARCH. An introduction to mathematics research. Teams of two to four students will investigate mathematical phenomena experimentally, detect patterns, create conjectures, and attempt to prove the conjectures and verify the patterns. Students may take this course at most three times for credit. Prerequisite: Mathematics 210 or 213. *Spring semester, one hour.*

MATH 360. INDEPENDENT STUDY. An opportunity for junior and senior students, with a minimum of eighteen hours in mathematics, to do intensive independent study of specialized topics. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MATH 365. COMPLEX VARIABLES. An introduction to the theory of functions of a complex variable including complex numbers; analytic functions; derivatives and integrals of functions of a complex variable; Taylor and Laurent series; and mappings by functions of a complex variable. Prerequisite: Mathematics 261.
Alternate years, fall semester, three hours.

MATH 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in mathematics. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MATH 390. STUDIES IN MATHEMATICS. A series of lectures/discussions on topics from such areas as combinatorics, number theory, algebra, geometry, statistics, computer applications, analysis, and topology. Prerequisite: Permission of the instructor.
One, two or three hours.

MATH 421. ABSTRACT ALGEBRA. An introduction to formal axiomatic systems and the elementary theory of groups and rings. Prerequisite: Mathematics 210 or 213, and 222.
Three hours.

MATH 422. NUMBER THEORY. This course is, in part, an application of some of the ideas encountered in Math 421. Various results from the theory of finite groups, particularly results about the structure of finite cyclic groups, will be established and used to prove classical results of elementary number theory. The course will also cover arithmetic functions, the structure of Z_n^*, special numbers, and additional topics as time allows. Prerequisite: Mathematics 421. *Alternate years, spring semester, three hours.*

MATH 460. INDEPENDENT STUDY. An opportunity for junior and senior students, with a minimum of eighteen hours in mathematics, to do intensive independent study of specialized topics. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MATH 465. CLASSICAL ANALYSIS. This course is an introduction to real analysis and includes a rigorous treatment of the structure of the real number system; sequences; limits; continuity; uniform continuity; open and closed sets; compact sets; differentiation; the Riemann integral; and possibly topics from infinite series; sequences and series of functions; pointwise and uniform convergence; and possibly generalizations to *n*-dimensional or metric spaces. Prerequisites: Mathematics 210 or 213, and Mathematics 261. *Three hours.*

MATH 466. INTERMEDIATE ANALYSIS. A continuation of the study of real analysis through rigorous treatment of material in several of the following areas: metric spaces and continuity; multivariable calculus; convergence and completeness; measure theory; and functional analysis. Prerequisites: Mathematics 222 and 465.
Alternate years, spring semester, three hours.

MATH 467. TOPOLOGY. This course introduces students to point-set topology: a way of generalizing ideas from geometry and analysis. Topics include basic set theory, topological spaces, bases, metric spaces, continuity, connectedness, separation axioms, convergence, compactness and metrizability. Prerequisites: Mathematics 222 and either Mathematics 210 or 213. *Alternate years, fall semester, three hours.*

MATH 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in mathematics. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MATH 480. INTERNSHIP IN MATHEMATICS. This is an opportunity for Mathematics majors to participate in a meaningful learning experience under the supervision of both an employer and department faculty member. *One to six hours.*

MATH 488. SEMINAR IN MATHEMATICS. A course for seniors that includes independent reading and research, student presentations, preparation for the Graduate Record Exam and Major Field Test and faculty lectures on advanced topics in mathematics. This course is designated Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL). Prerequisite: Senior standing. *Two hours.*

MATH 499. HONORS IN MATHEMATICS. A course available to junior and senior students on an individual basis. Prerequisite: Consent of the department chair.
One, two or three hours.

Statistics (STAT)

STAT 131. STATISTICAL METHODS I. An introduction to the basic methods and techniques of statistical inference including probability distributions, descriptive statistics, confidence intervals, hypothesis testing, and parametric and nonparametric hypothesis testing. Students may only receive credit for either Statistics 131 or Psychology 201.
Three hours.

STAT 132. STATISTICAL METHODS II. The course builds on the material form Statistical Methods I and covers techniques for creating effective predictive models. Topics include simple regression models, multiple regression models, model building, model analysis, time series and forecasting, and experimental design. Students will learn the basics of statistical software and begin to understand some concepts behind machine learning. Prerequisite: Statistics 131 or Psychology 201 and permission of instructor. *Three hours.*

STAT 331. THEORY OF STATISTICS I. An introduction to probability and mathematical statistics, including counting techniques; probability spaces; independence; conditional probability; distributions of discrete and continuous random variables; expected values, moments and moment-generating functions; random vectors and their distributions. A computer algebra system is used. Students will not be permitted to receive credit for all three of Mathematics 214, 222, and Statistics 331. Corequisite: Mathematics 261 or permission of instructor. *Fall semester, three hours*.

STAT 332. THEORY OF STATISTICS II. The continued study of mathematical statistics including transformations of random variables and vectors; sampling distributions; the Central Limit Theorem; properties of point estimates of parameters; maximum-likelihood estimates; confidence intervals; hypothesis testing; contingency tables; simple and linear regression; and one-way analysis of variance. Statistical software and a computer algebra system are used. Prerequisite: Statistics 331. *Spring semester, three hours.*

STAT 412. DATA ANALYSIS RESEARCH METHODS. This course examines the fundamentals of research approaches and methods of statistical sciences. The course will explore the entire research task including problem definition, literature review, experimental design, data collection, analysis, and communication of conclusion. This course will have the opportunity to culminate in basic research posters and presentations for local and/or national conferences. This course is designated Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL). Prerequisite: Statistics 132. *Fall semester, three hours.*

STAT 414. ADVANCED ANALYTICAL METHODS. This course will explore in detail how to conduct non-linear analysis. Optimization techniques will focus on non-integer as well as integer programming problems. Stochastic modeling techniques will be presented by way of coding systems of non-normal distributions. Queueing theory will also be studied. Students will have the opportunity to code basic simulations. Prerequisite: Statistics 331. *Spring semester, three hours*.

Mechanical Engineering

Dr. Bardy, Chair; Dr. M. Clauss, Assistant Chair; Dr. Anderson, Dr. Beevers, Dr. Dixon, Dr. Fair, Dr. Kohler, Dr. Li, Dr. Richards.

MECHANICAL ENGINEERING DEPARTMENT MISSION STATEMENT, OBJECTIVES, AND OUTCOMES

Mechanical Engineering (ME) is a broad discipline that develops technological solutions to societal problems in order to benefit mankind. Examples of areas where we find these challenges are transportation, power generation, energy conversion, product design, manufacturing, sustainability, and production. Mechanical engineering education includes such diverse topics as materials science, engineering design and analysis, thermodynamics, solid and fluid mechanics, heat transfer, manufacturing processes, system dynamics, teamwork, and project management. Our graduates apply their skills to a vast array of problems. For instance, mechanical engineers develop renewable energy systems, new medical devices, more fuel-efficient automobiles, climate control systems for buildings, and so on. Mechanical engineers enjoy employment in a wide variety of areas including research, design, manufacturing, production, technical marketing and sales, and management. At Grove City College, we strive to develop our students' God given talents and abilities so that they may better serve the world around them.

The ME Department at Grove City College offers a program leading to the Bachelor of Science in Mechanical Engineering (BSME) degree. The program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Mechanical engineers must be proficient at both oral and written communications to communicate their solutions and designs with other engineers and society in general. Toward that end, the ME curriculum incorporates Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL) instruction within the core course requirements.

The mission of our program is to produce graduates who can pursue leadership roles in the mechanical engineering profession. The following program educational *objectives* enable GCC mechanical engineers to meet this mission in the years following graduation:

1. Graduates will be successfully employed in the mechanical engineering profession or in an alternative field. Many of our graduates will assume leadership roles in these positions and be recognized as effective communicators and team members.
2. Graduates will engage in life-long learning through self-study, employer sponsored continuing education courses or workshops, or through formal graduate level education leading to an advanced degree.
3. Graduates will demonstrate ethical behavior in the workplace and will carry out their professional duties in a manner that is consistent with a Christian worldview.

Our graduates possess the following student *outcomes* upon graduation:

1. An ability to identify, formulate, and solve complex problems applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

These outcomes are met over a 4-year curriculum that starts with an exposure to the fundamentals of science and engineering and culminates in our senior capstone design experience.

Freshman Year–Introduction to the fundamentals of physics, calculus, engineering computations, the profession of engineering, and the design process. Students also learn to use Creo, a state-of-the-art CAD tool.

Sophomore Year–Emphasis on the analysis associated with problems in statics and dynamics, fundamentals of chemistry in materials science; introduction to thermodynamics; and overview of design and manufacturing process. Students are exposed to modern machine shop practice through the fabrication of an individual project involving machining, fabrication, and assembly.

Junior Year–Analysis skills are honed in engineering math, mechatronics, fluid mechanics, heat transfer, and mechanics of materials. Sound experimental and design techniques are reinforced in the required laboratory sequence. Students receive a solid grounding in dynamic systems analysis and simulation, machine design, and stress analysis.

Senior Year–A major, year-long capstone design experience includes the design and realization of an engineering product. Extensive computer-aided design and manufacturing includes the use of Creo to document, analyze and fabricate designs. Advanced manufacturing techniques covered include conventional and investment casting, injection molding, CNC machining, and TIG/MIG welding. To assure the ability to work

professionally, students must complete at least 13 hours of Mechanical Engineering electives, choosing a minimum of three credit hours in a both the Mechanical Systems and the Thermal Systems areas. In addition, at least six credit hours must be 400-level courses, and a maximum of 4 credit hours may be earned through one and two credit courses.

Mechanical Systems Electives:

MECE 303 Computer-Aided Manufacturing
MECE 390 Special Mechanical Engineering Topics
MECE 408 Mechanical Vibrations
MECE 410 Kinematics and Dynamics of Machinery
MECE 415 Finite Element Analysis
MECE 428 Biomechanics
MECE 498 Honors in Mechanical Engineering
MECE 260, 360, 460 Independent Study – indicated by instructor
MECE 270, 370, 470 Independent Research – indicated by instructor
ENGR 411 Control Systems
ROBO 301 Introduction to Robotics
ROBO 302 Mobile Robots

Thermal Systems Electives:

MECE 321 Advanced Thermodynamics
MECE 391 Special Mechanical Engineering Topics
MECE 414 Heating, Ventilation, and Air Conditioning
MECE 416 Survey of Renewable Energy Systems
MECE 419 Propulsion and Power
MECE 421 Applied Fluid Mechanics
MECE 499 Honors in Mechanical Engineering
MECE 260, 360, 460 Independent Study – indicated by instructor
MECE 270, 370, 470 Independent Research – indicated by instructor

Technical Electives:

ENGR 209 SolidWorks – Modeling and Simulation
ENGR 304 Design of Experiments
ENGR 305 Introduction to LabVIEW
ENGR 317 Mechatronics II
ENGR 390 Special Engineering Topics
ENGR 412 Modern Control Theory
ENGR 482 Cross Cultural Internship for Engineers
ENTR 304 Intellectual Property Protection
MECE 260, 360, 460 Independent Study – indicated by instructor
MECE 270, 370, 470 Independent Research – indicated by instructor

NOTE: Additional electives may be offered at the discretion of the department.

Course Requirements for Bachelor of Science Degree in Mechanical Engineering—98 hours

Mechanical Engineering Core (49 hours)

Engineering 120, 401, 402, 451, 452; Mechanical Engineering 107, 109, 201, 210, 211, 212, 214, 251, 252, 311, 312, 316, 325, 326, 351, 352.

Engineering Core (6 hours)

Engineering 156, 216, 301.

Math/Science Core (30 hours)

Chemistry 105 or 111 and 113; Engineering 274; Mathematics 161, 162, 261, 262; Physics 101, 102.

Mechanical Engineering Electives* (13 hours)

Students must complete at least 13 hours of Mechanical Engineering electives, choosing a minimum of three credit hours in a both the Mechanical Systems and the Thermal Systems areas. In addition, at least six credit hours must be 400-level courses, and a maximum of 4 credit hours may be earned through one and two credit courses.

Mechanical Systems electives

Mechanical Engineering 260, 270, 303, 360, 370, 390, 408, 410, 415, 428, 460, 470, 498, Engineering 411, Robotics 301, or 302.

Thermal Systems electives

Mechanical Engineering 260, 270, 321, 360, 370, 391, 414, 416, 419, 421, 460, 470, or 499.

Technical Electives

Mechanical Engineering 260, 270, 360, 370, 460, 470, Engineering 209, 304, 305, 317, 390, 412, and 482, or Entrepreneurship 304.

**A combined total of up to three credit hours for independent study, independent research, faculty-mentored research, and honors courses can be applied towards the Engineering Electives requirements.*

Courses that count in the Mechanical Engineering major quality point average (MQPA):

All courses with "MECE" and "ROBO" prefix; and all "ENGR" prefix except ENGR 480. A minimum MQPA of 2.00 is required to graduate.

MECHANICAL ENGINEERING (MECE) MAJOR
FOUR-YEAR PLAN

FRESHMAN YEAR	Fall	Spr.	SOPHOMORE YEAR	Fall	Spr.
Physics 101-102	4	4	Mathematics 261-262	4	3
Engineering 156	-	2	Mech. Engineering 201	3	-
Mathematics 161-162	4	4	Mech. Engineering 210	-	3
Mech. Engineering 107	2	-	Mech. Engineering 211-212	3	3
Mech. Engineering 109	2	-	Mech. Engineering 214	-	3
Engineering 120	-	3	Mech. Engineering 251-252	1	1
HUMA 100 – HUMA course	1	3	Chemistry 105 or 111, 113	4	-
Writing Requirement	3	-	SSFT course	2	-
General Electives	-	1	Humanities course	-	3
	16	17		17	16

JUNIOR YEAR	Fall	Spr.
Engineering 216-274	3	3
Humanities course	3	3
Foundations of Social Science	3	-
Mech. Engineering 311-312	3	3
Mech. Engineering 316	-	3
Mech. Engineering 325-326	3	3
Mech. Engineering 351-352	1	1
	16	16

SENIOR YEAR	Fall	Spr.
Engineering 401-402	1	1
Engineering 301	-	1
Engineering 451-452	3	3
Mech. Engineering Electives	9	4
Humanities course	3	-
General Elective	-	3
Humanities 300	-	2
	16	14

Course Requirements for a minor in Robotics (22 hours)

A minor in Robotics will consist of Robotics 301, 302; Engineering 301; a 6-credit robotics-related capstone project (Engineering 451 and 452); and nine hours from Computer Science 445, Electrical Engineering 310, Engineering 317, 411, 412, Mechanical Engineering 316, or 410.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Engineering Core Courses (ENGR)

ENGR 120. NUMERICAL COMPUTING FOR ENGINEERS. This course introduces students to applied numerical computation, with an emphasis on solving typical engineering problems. Sequential logic programming is taught using MATLAB. Topics include array and scalar operators, program control elements, graphic and text I/O, internal and user-defined functions. Students are introduced to numerical methods such as root finding, solutions to systems of linear equations, linear regression, and numerical integration and differentiation. Basic understanding of high school physics is highly recommended. Corequisite: Mathematics 161. *Three hours.*

ENGR 156. INTRODUCTION TO ENGINEERING. Introduces students to the engineering profession and the design process. Course lectures and assignments include the design process; problem definition and solution; oral and written communications; group dynamics; public responsibility; current global engineering challenges; and engineering ethics. A group design project is required. *Two hours.*

ENGR 209. SOLIDWORKS: MODELING AND SIMULATION. An introduction to Solidworks Design and Engineering Software. The primary objective is to adequately utilize Solidworks for parametric modeling. Instruction will include parametric modeling and simulation to validate student designs. Additional modules will be included as an overview; specifically Electrical Design and Visualization/Animation. Projects will utilize both Additive and Subtractive Manufacturing methods to test modelling accuracy.

Spring semester, two hours.

ENGR 216. MECHATRONICS I. A survey for non-electrical engineering majors covering the basic principles of circuit analysis, electronics, instrumentation, and electromechanical energy conversion, with computer applications. Prerequisites: Mathematics 162, Physics 102, and Engineering 120 or Computer Science 141. *Three hours.*

ENGR 274. MATHEMATICAL METHODS IN ENGINEERING. A course for engineering and science majors covering selected topics in probability and statistics, linear algebra, discrete mathematics, and numerical methods as applied to the solution of problems in engineering and science. Students who receive credit for Mathematics 213, 222, and

Statistics 331 may not receive credit for Engineering 274. Prerequisite: Mathematics 162. *Three hours.*

ENGR 290. SPECIAL ENGINEERING TOPICS. Special topics in the areas of new engineering development based on student demand and faculty interest. Specific subject matter varies each semester with prerequisites and credit hours announced in advance of registration. *One, two, three or four hours.*

ENGR 301. ETHICS IN ENGINEERING. This course investigates ethical decision-making from a Christian perspective as it applies to engineering and robotics. It includes an overview of approaches to ethical decision-making, as well as particular issues raised by the robotics field, such as robots making military decisions, privacy issues with in-home robots, issues with emotional bonds, etc. Prerequisite: Engineering 156. *One hour.*

ENGR 304. DESIGN OF EXPERIMENTS. Design of experiments for engineering design optimization and analysis. An introduction to the statistically designed experimental techniques commonly used by engineers for design and process optimization, including ANOVA, factorial, CCD, Taguchi, and I-optimal designs. Prerequisite: Junior status or permission of instructor. *One hour.*

ENGR 305. INTRODUCTION TO LABVIEW. Introduction to LabVIEW. Presents the fundamentals of the LabVIEW graphical programming environment. This visual programming language is from National Instruments and is commonly used for data acquisition, instrument control, and industrial automation. Students will gain a basic understanding of LabVIEW programming practices and will develop LabVIEW applications for data acquisition, data analysis, and real-time control. *One hour.*

ENGR 317. MECHATRONICS II. An introduction to the field of mechatronics for Mechanical, Electrical, and Computer Engineering majors. Topics include sensors and instrumentation, power electronics and motor drives, actuators and motion systems, and digital control using sensor feedback. Prerequisites: Engineering 216 or Electrical Engineering 201. *Spring semester, three hours.*

ENGR 390. SPECIAL ENGINEERING TOPICS. Special topics in the areas of new engineering development based on student demand and faculty interest. Specific subject matter varies each semester with prerequisites and credit hours announced in advance of registration. *One, two, three or four hours.*

ENGR 401. ENGINEERING DESIGN. A study of the principles and methods of designing engineering systems in today's society including the design process; decision making in design; data analysis and verification of performance; ethical and environmental impact. The early stages of the design process are emphasized, including identifying needs, requirements specification, planning, and evaluating design alternatives. Prerequisite: Senior standing in Engineering or applied science and engineering. *Fall semester, one hour.*

ENGR 402. ENGINEERING SENIOR SEMINAR. A study of engineering practice topics to include intellectual property, risk management, reliability, managing people, and project economics. Principles and methods for analyzing the economic feasibility of engineering projects including interest, depreciation, rate-of-return, economic life, replacement costs, and comparison of alternative designs. Prerequisites: Senior standing in Engineering or applied science and engineering. *Spring semester, one hour.*

ENGR 411. CONTROL SYSTEMS. A study of the design and analysis of feedback control systems using classical techniques. Topics include modeling of mechanical and electrical dynamic systems, a review of Laplace transform techniques, steady-state error, transient response, stability, root locus design methods, Bode analysis/stability margins, and Bode compensator design. Includes MATLAB/Simulink simulations and hands-on projects. Prerequisite: Electrical Engineering 201 or Engineering 216; Mechanical Engineering 316 or Electrical Engineering 221; and Engineering 274, Mathematics 214, or Mathematics 222. *Fall semester, three hours.*

ENGR 412. MODERN CONTROL THEORY. Analysis and design of feedback control systems using modern control modeling and design techniques. Topics include state space modeling of mechanical and electrical systems, design of state-space controllers and observers, Kalman filtering, and an introduction to advanced topics such as robust control, optimal control (LGR/LQG), and others. Includes MATLAB/Simulink simulations and hands-on projects. Prerequisite: Engineering 411. *Spring semester, three hours.*

ENGR 451. CAPSTONE DESIGN LABORATORY I. An advanced lab course requiring the student to complete their senior design project. The capstone design project is initiated, defined and documented. Extensive technical writing and oral presentation skills are employed. For electrical/computer engineering majors, this will include performing experiments in control systems, digital communication systems, and initiation of work with the senior design team. For mechanical engineering majors this will include 3-D computer-aided design and manufacturing techniques and experiments related to their senior project. For applied science and engineering majors, this will include a bio-technology project or project management element. Written reports and oral presentations are required. This course is designated Writing Intensive (WI) and Speaking Intensive (SI). Prerequisites: Senior standing in Engineering or applied science and engineering. *Fall semester, three hours.*

ENGR 452. CAPSTONE DESIGN LABORATORY II. An advanced lab course requiring student teams to complete their group design project. Written reports and oral presentations are required. This course is designated Speaking Intensive (SI). Prerequisites: Senior standing in Engineering or applied science and engineering; Engineering 451. *Spring semester, three hours.*

ENGR 480. INTERNSHIP IN ENGINEERING. An opportunity for junior or senior engineering majors to participate in an extended work experience (six months or more) under the supervision of an on-site manager and a department faculty member. Products of the internship will include an evaluation by the on-site manager, a journal of the internship experience, and a paper describing the experience and relating it to academic theory. This course may be repeated a maximum of three times. Prerequisite: Permission from the department chair. *One to six hours.*

ENGR 482. CROSS CULTURAL INTERNSHIP FOR ENGINEERS. The Cross-Cultural Internship for Engineers provides students with an opportunity to apply engineering knowledge and professional skills in a cultural context different from their own home culture. This course provides an opportunity for international students to gain credit for working at an internship in the United States, while domestic students gain credit for working outside of the United States. Students are expected to demonstrate effective communication, professional and ethical responsibility, teamwork, and adaptability in diverse cultural and organizational settings. Required components include an on-site manager evaluation, a reflective journal documenting technical tasks and cultural

observations, and a final paper analyzing the experience in relation to academic theory, engineering practice, and global and cultural factors. Credit may be received a maximum of two times. A minimum of 320 work hours (8-week experience with 40-hour work weeks) is necessary. Permission of the department chair is required. *One hour.*

Mechanical Engineering (MECE)

MECE 107. ENGINEERING GRAPHICS. A study of the principles of engineering drawing, including detailed part drawings. Students will learn to read and create detailed technical drawings. Topics include orthographic and pictorial views, section views, and auxiliary views. Dimensioning and tolerancing in accordance with ANSI Y14.5, including geometric dimensioning and tolerancing is emphasized. Basic understanding of high school trigonometry is highly recommended. *Fall semester, two hours.*

MECE 109. INTRO TO SOLID MODELING. An introduction to basic CAD modeling. Students will be introduced to mechanical engineering terminology and mechanical components such as screws, gears, shafts, etc. An introduction to CAD solid modeling with Creo, including basic part and assembly models is also included. A small design project will introduce CAD design tools, including additive manufacturing. *Fall semester, two hours.*

MECE 201. FUNDAMENTALS OF MATERIALS SCIENCE. Models of crystalline and molecular structures are presented to explain the diverse properties of metallic; polymeric and ceramic materials; including atomic bonding and crystal structure; elastic and plastic deformation; phase of equilibria and transformation; thermal processing; and corrosion. Corequisites: Chemistry 105, or Chemistry 111 and 113.
Fall semester, three hours.

MECE 210. DESIGN FOR MANUFACTURING. Introduction to manufacturing processes, including part characteristics, economic production quantities, materials, and design recommendations. Emphasis is placed on process and material selection and design for manufacturability. The course includes plant tours. Prerequisites: Mechanical Engineering 107, 109, and 201. *Spring semester, three hours.*

MECE 211. MECHANICS I. Static equilibrium of particles and rigid bodies; analysis of structures, trusses, and cables; friction; centroids and moments of inertia; methods of virtual work; and energy are addressed. Engineering applications are also incorporated. Prerequisites: Mathematics 162 and Physics 101. *Fall semester, three hours.*

MECE 212. MECHANICS II. A study of rectilinear and curvilinear motion of particles and rigid bodies; kinetics of particles and rigid bodies; relative motion, work, and energy; impulse and momentum are taught along with engineering applications. Prerequisite: Mechanical Engineering 211. *Spring semester, three hours.*

MECE 214. THERMODYNAMICS. The study of the fundamental principles and some applications of classical thermodynamics. Topics include properties of pure substances; heat, work, and mass transfer; first law of thermodynamics; second law of thermodynamics; entropy; gas power cycles; vapor power cycles; and refrigeration cycles. Prerequisite: Mathematics 162. *Spring semester, three hours.*

MECE 251. MECHANICAL SYSTEMS LABORATORY I. A lab course designed to introduce students to engineering practices including dimensioning, gaging and measuring, machining operations, manufacturing processes, and engineering standards for fasteners, threads, etc. Hands-on application will be taught through an individual project involving machining, fabrication, and assembly. Materials testing laboratories are also part of this

course. This course is designated Information Literacy (IL). Prerequisite: Sophomore standing in mechanical engineering or by permission of the instructor. Corequisites: Mechanical Engineering 107 and 201. *Fall semester, one hour.*

MECE 252. MECHANICAL SYSTEMS LABORATORY II. A lab course designed to introduce students to engineering experimental techniques, including planning, controls, basic instrumentation, and basic data analysis. Prerequisites: Engineering 120, Mechanical Engineering 251, and Physics 101. *Spring semester, one hour.*

MECE 260. INDEPENDENT STUDY. Individual study of specialized topics in mechanical engineering. Sophomore standing, permission of the department chair, and a faculty sponsor are required. A combined total of up to three credit hours for independent study, independent research, and honors courses can be applied towards one of the following: Mechanical Systems, Thermal Systems, or Technical Electives.
One, two or three hours.

MECE 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in mechanical engineering. Sophomore standing, permission of the department chair, and a faculty sponsor are required. A combined total of up to three credit hours for independent study, independent research, and honors courses can be applied towards one of the following: Mechanical Systems, Thermal Systems, or Technical Electives.
One, two or three hours.

MECE 303. COMPUTER-AIDED MANUFACTURING. Introduction to computer-aided manufacturing using Creo CAD/CAM software. Students will learn to program CNC machine tools, including three axis mills, lathes, and wire EDM machines, as well as basic pattern and mold design for sand casting, injection molding, and vacuum forming. Prerequisite: Mechanical Engineering 107 and 109. *Three hours.*

MECE 311. MECHANICS OF MATERIALS. Fundamentals of mechanics of materials, including stress and strain; axial loading; Hooke's Law and Poisson's ratio; torsion; bending; transverse loading; stress and strain transformations; beam analysis; and buckling. Prerequisites: Mathematics 262 and Mechanical Engineering 210 and 212.
Fall semester, three hours.

MECE 312. STRESS ANALYSIS AND DESIGN OF MACHINE COMPONENTS. Application of stress analysis to static, fatigue, and surface fatigue failures. Design of shafts, including limits and fits and bearing selection. Design and selection of machine elements such as screws, bolted joints, springs, gears, brakes, etc. Prerequisite: Mechanical Engineering 311. *Spring semester, three hours.*

MECE 316. SYSTEM DYNAMICS. Modeling and analysis of dynamic systems consisting of mechanical, electrical, and electromechanical elements. Development of system models using transfer functions, block diagrams, and state variable methods. System analysis in the time and frequency domains. Includes MATLAB/Simulink simulations. Prerequisites: Mathematics 262 and Mechanical Engineering 212; or Physics 303 and either Engineering 120 or Computer Science 141. *Spring semester, three hours.*

MECE 321. ADVANCED THERMODYNAMICS. Application of thermodynamic principles to energy conversion engineering. Topics include equations of state, fluid properties, conservation of energy, second law of thermodynamics, power cycles, exergy analysis, gas and gas-vapor mixtures, chemical reactions and equilibrium. Students will

learn to use property databases to design and analyze energy conversion systems. Prerequisite: Mathematics 261 and Mechanical Engineering 214.
Fall semester, three hours.

MECE 325. FLUID MECHANICS. The study of steady and unsteady flow of primarily incompressible fluids; the application of the conservation laws of mass, momentum, and energy to fluid systems; the control volume approach to distributed systems; and the application of experimental techniques to problems. Prerequisites: Mathematics 261, 262; and Mechanical Engineering 211 or Physics 303 (for majors) or Physics 121 (for non-majors). *Fall semester, three hours.*

MECE 326. HEAT TRANSFER. The fundamentals of heat transfer by conduction, convection, and radiation; application to practical heat transfer devices; engineering analysis of heat exchangers; and design problems solved by analytical, numerical, and computer methods. Prerequisites: Mechanical Engineering 214, Physics 340, or Chemistry 346; and Mechanical Engineering 325. *Spring semester, three hours.*

MECE 351. INSTRUMENTATION LABORATORY. A lab course that reinforces the lab techniques introduced in Mechanical Engineering 251-252. Experiments chosen from strain analysis, first and second order systems, and frequency analysis. Mechanical Engineering 351 is designed to fulfill the requirements for a Writing Intensive (WI) course in the Mechanical Engineering major. Prerequisite: Mechanical Engineering 252. Corequisite: Mechanical Engineering 311. *Fall semester, one hour.*

MECE 352. THERMAL/FLUIDS LABORATORY. A lab course that reinforces the lab techniques introduced in Mechanical Engineering 251-252. Experiments chosen from thermodynamics, fluid mechanics, and heat transfer. Corequisite: Mechanical Engineering 326. *Spring semester, one hour.*

MECE 360. INDEPENDENT STUDY. Individual study of specialized topics in mechanical engineering. Junior standing, permission of the department chair, and a faculty sponsor are required. A combined total of up to three credit hours for independent study, independent research, and honors courses can be applied towards one of the following: Mechanical Systems, Thermal Systems, or Technical Electives. *One, two or three hours.*

MECE 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in mechanical engineering. Junior standing, permission of the department chair, and a faculty sponsor are required. A combined total of up to three credit hours for independent study, independent research, and honors courses can be applied toward one of the following: Mechanical Systems, Thermal Systems, or Technical Electives.
One, two or three hours.

MECE 390. SPECIAL MECHANICAL ENGINEERING TOPICS. Special topics in mechanical engineering based on student demand and faculty interest. Specific subject matter varies each semester with prerequisites and credit hours announced in advance of registration. This course can be used to satisfy a portion of the mechanical systems elective requirements in Mechanical Engineering. *One, two, three or four hours.*

MECE 391. SPECIAL MECHANICAL ENGINEERING TOPICS. Special topics in mechanical engineering based on student demand and faculty interest. Specific subject matter varies each semester with prerequisites and credit hours announced in advance of registration. This course can be used to satisfy a portion of the thermal systems elective requirements in Mechanical Engineering. *One, two, three or four hours.*

MECE 408. MECHANICAL VIBRATIONS. A study of the dynamic response of lumped parameter systems with one and two degrees of freedom subjected to periodic and non-periodic excitation; applications to the control of undesirable vibrations in machines; theory of seismic instruments; and an introduction to distributed parameter systems. Prerequisites: Mechanical Engineering 311 and 316. *Fall semester, three hours.*

MECE 410. KINEMATICS AND DYNAMICS OF MACHINERY. Modeling, analysis, and design of linkages, cams, and gear trains, including machine dynamics. Introduction to dynamic systems modeling using computer-aided analysis, including Creo. Prerequisite: Mechanical Engineering 311. *Spring semester, three hours.*

MECE 414. HEATING, VENTILATION, AND AIR-CONDITIONING. Analysis and design tactics for systems used to condition air in buildings. Topics include psychometrics, air filters, thermal properties of wall construction(s), solar heat gains, aspects of heat load calculations, sizing of water systems and pumps, sizing of duct systems and fans, and refrigeration. Prerequisite: Mechanical Engineering 326. *Fall semester, three hours.*

MECE 415. FINITE ELEMENT ANALYSIS. A study of the finite element method and its application to mechanical engineering problems. Topics include basic concepts; stiffness matrices; truss structures; flexure elements; method of weighted residuals; interpolation functions; and applications to heat transfer, fluid mechanics, solid mechanics, and structural dynamics. Prerequisites: Engineering 274, Mechanical Engineering 312 and 326. *Fall semester, three hours.*

MECE 416. SURVEY OF RENEWABLE ENERGY SYSTEMS. A survey of the technical and social aspects of alternative and renewable energy systems. Topics include hydropower, wind energy, solar power, biomass, fuel cells and hydrogen economy, nuclear power, and geothermal and ocean energy. Prerequisite: Mechanical Engineering 326. *Spring semester, three hours.*

MECE 419 PROPULSION AND POWER. Fundamental topics in fluid flow and thermodynamics will be used to design and analyze different types of propulsion and power systems. Topics include design and operation of subsonic/supersonic aircraft engines, propulsion design for rocket or satellite systems, and performance analysis for stationary or marine gas turbines. Component design for nozzles, diffusers, compressors, and combustors will also be discussed. Throughout the course, MATLAB or other computer programs will be used to conduct parametric studies of engine performance under different operating conditions or design configurations. Prerequisite: Mechanical Engineering 214 and 326. *Fall semester, three hours.*

MECE 421. APPLIED FLUID MECHANICS. Advanced treatment and application of the equations and empirical data that describe fluid phenomena in both internal and external fluid systems. Introduction to techniques important to research and design in fluid applications, specifically computational and experimental fluid dynamics. Among the topics covered are potential flow, added mass, boundary layer flow, lubrication theory and bearings, turbomachinery, turbulence, non-Newtonian fluids, compressible flow, and biofluid dynamics. Prerequisite: Mechanical Engineering 326. *Fall semester, three hours.*

MECE 428. BIOMECHANICS. The course will explore the key topics within the contemporary field of biomechanics—the application of mechanics to biological systems—with the goal of preparing students for further work in cutting-edge fields such as biomedical engineering, novel propulsion systems, and other biologically-inspired engineering. Among the topics covered are biomaterials, mechanical properties of biological structures,

biomimetic robotics, terrestrial locomotion, swimming, flying, prosthetics, external and internal fluid flows, efficiency, blood flow, experimental techniques, and flow visualization. Prerequisites: Mechanical Engineering 311 and 325, or Physics 232, or Mathematics 161 and Physics 121 and Biology 102. *Spring semester, three hours.*

MECE 460. INDEPENDENT STUDY. Individual study of specialized topics in mechanical engineering. Senior standing, permission of the department chair, and a faculty sponsor are required. A combined total of up to three credit hours for independent study, independent research, and honors courses can be applied towards one of the following: Mechanical Systems, Thermal Systems, or Technical Electives. *One, two or three hours.*

MECE 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in mechanical engineering. Senior standing, permission of the department chair, and a faculty sponsor are required. A combined total of up to three credit hours for independent study, independent research, and honors courses can be applied towards one of the following: Mechanical Systems, Thermal Systems, or Technical Electives.
One, two or three hours.

MECE 498. HONORS IN MECHANICAL ENGINEERING. Seniors (and in some instances, juniors) who have shown special aptitude in mechanical engineering may, with consent of the department, undertake special research and design problems. This course may be used to satisfy a portion of the mechanical systems elective requirements in Mechanical Engineering. A combined total of up to three credit hours for independent study, independent research, and honors courses can be applied towards the Mechanical Systems Engineering elective requirements. Cannot be repeated for more than a total of three credit hours. *One, two or three hours.*

MECE 499. HONORS IN MECHANICAL ENGINEERING. Seniors (and in some instances, juniors) who have shown special aptitude in mechanical engineering may, with consent of the department, undertake special research and design problems. This course may be used to satisfy a portion of the thermal systems elective requirements in Mechanical Engineering. A combined total of up to three credit hours for independent study, independent research, and honors courses can be applied towards the Mechanical Thermal Systems Engineering elective requirements. Cannot be repeated for more than a total of three credit hours. *One, two or three hours.*

Robotics (ROBO)

ROBO 301. INDUSTRIAL ROBOTS. Presents the fundamentals of robot mechanisms, kinematics, dynamics, and controls. Topics include forward and inverse kinematics, differential motion and velocities, dynamics and force control, path and trajectory planning, actuators and drive systems, and sensors used in robotic systems. The basics of robotic control systems are briefly presented. The use of vision systems in robotics is introduced. Two lectures and one lab per week. Prerequisite: Electrical Engineering 221 or Mechanical Engineering 316, robotics minor, or permission of instructor. *Fall semester, three hours.*

ROBO 302. MOBILE ROBOTS. An introduction to the basic principles of mobile robots, including mechanical, sensory, and cognitive systems necessary for successful operation. Topics will include hardware, locomotion, sensors, control schemes, localization, and navigation. Hands-on lab experiences with real robots and a final project supplement lecture material. Two lectures and one lab per week. Prerequisites: Physics 101; Mathematics 261; and Engineering 274 or Mathematics 214. *Spring semester, three hours.*

Modern Languages

Dr. Madsen, Chair; Dr. Carruth, Dr. Killam, Dr. Ruane, Dr. Studeny, Dr. Velázquez Lazcano. Additional Instructional Faculty: Prof. Velázquez.

Language Placement Guidelines

Students who have had prior exposure to a language but have not received AP credit or college credit in the language must take the Foreign Language Placement Exam before registering for their first modern languages course at Grove City College. In the case of students receiving credit for French or Spanish through CLEP or Cambridge, the Foreign Language Placement Exam must also be taken before registering for their first modern languages course at Grove City College if a student earned credit below the 202-level. For CLEP or Cambridge credits in other languages below the 202-level, B.A. students may complete approved testing for a potential 202-level waiver during their first year at GCC; consult the Modern Languages Chair for details. This includes incoming freshmen, transfer students, and current students.

See details on language placement in the General Education Requirements World Language information. After initial placement, a student's progression into advanced courses will be determined by successful completion of prerequisites.

Students should only take the exam once unless given permission to repeat the exam by the department. They are expected to adhere to Grove City College's Academic Integrity Policy. That is, the work should be the student's own and should not contain that which has been knowingly obtained from another. The use of notes, dictionaries, translating tools, textbooks, and all other forms of assistance during the placement test are prohibited.

If it becomes apparent that a student in his/her first term of study of a language at Grove City College has been placed in a class that is inappropriate for his/her abilities, he/she may be placed back or advanced at the option of the Department. This may be done no later than the end of the third week of classes. Note: Students that choose to repeat a course may do so in accordance with the repeat credit policy found in the Academic Policies section.

Note: **Language study is progressive and sequential. For example, 101 must be followed by 102, 102 by 201, and 201 by 202.** However, study abroad course sequencing and numbering may vary; with approval from the Modern Languages Department, study abroad language coursework with different numbering *may* also count toward the credits for the language requirement.

Course Requirements for Bachelor of Arts Degree in French—30 hours

French Core Requirements (30 hours):

French 201 and 202, or two 300-level French electives (excluding French 362); French 301; 305 or 340; French 307 and 308; two French literature courses from French 320, 321, 325, 326, 331, or 332; and two French electives (six hours) at the 300-level (excluding French 362).

Courses that count in the French major quality point average (MQPA):

All courses with "FREN" prefix, excluding FREN 101 and FREN 102. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Arts Degree in French and K-12 Education Certification—75 hours

French Core Requirements (32 hours):
French 201 and 202, or two 300-level French electives; French 301; 305 or 340; French 307, 308, 362; two French literature courses from French 320, 321, 325, 326, 331, or 332; and two French electives (six hours) at the 300-level.

Education Requirements (43 hours):
Education 102, 202*, 203, 204, 215, 271, 307, 316, 375, 450, 488; and Special Education 102 and 103. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the French and K-12 Education Certification major quality point average (MQPA):
All courses with "FREN" prefix, excluding FREN 101 and 102. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification. Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

Course Requirements for Bachelor of Arts Degree in Spanish—33 hours

Spanish Language Core Requirements (18 hours):
Spanish 201 and 202, or two 300-level Spanish electives (excluding Spanish 362); Spanish 303, 305, 306, and 308.

Literature and Culture Core Requirements (9 hours):
Spanish 344; one course from Spanish 320, 330, 331; and one course from Spanish 321, 325, 328.

Spanish Electives (6 hours):
Any two 300- or 400-level Spanish courses (excluding Spanish 362).

Courses that count in the Spanish major quality point average (MQPA):
All courses with "SPAN" prefix, excluding SPAN 101, 102. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Arts Degree in Spanish and K-12 Education Certification—78 hours

Spanish Language Core Requirements (20 hours):
Spanish 201 and 202, or two 300-level Spanish electives; Spanish 303, 305, 306, 308, and 362.

Literature and Culture Core Requirements (9 hours):
Spanish 344; one course from Spanish 320, 330, 331; and one course from Spanish 321, 325, 328.

Spanish Electives (6 hours):
Any two 300- or 400-level Spanish courses.

Education Requirements (43 hours):

Education 102, 202*, 203, 204, 215, 271, 307, 316, 375, 450, 488; and Special Education 102 and 103. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Spanish and K-12 Education Certification major quality point average (MQPA):

All courses with "SPAN" prefix, excluding SPAN 101 and 102. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification. Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

International Business Major

This program leads to a Bachelor of Science degree, combining business and modern language studies. Consult the Department of Management and Marketing for program requirements.

Classical Languages

Consult the Department of Biblical and Theological Studies for Biblical Hebrew and New Testament Greek. Latin course descriptions, as well as the requirements for the Classical Studies minor, are listed in the Department of History offerings.

Writing Intensive/Speaking Intensive/Information Literacy Studies

The Department of Modern Languages stresses the acquisition of skills in speaking, writing, and analysis/research. The following courses are designated as Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL): French 307 (WI); French 305, 340 (SI); French 320, 32l, 325, 326, 331, 332 (IL) for the French major; and Spanish 303 (SI); Spanish 320, 321, 325, 328, 330, 331 (WI) and (IL) for the Spanish major.

Course Requirements for a minor in French (18 hours)

A minor in French will consist of 18 hours of French courses beyond French 101 and 102, excluding French 362.

Course Requirements for a minor in International Studies (18-21 hours)

A minor in International Studies will consist of 18-21 required hours, including:

(1) intermediate modern language competency (0-3 hours) demonstrated by:

a) completion of a 202 course or higher in a widely spoken modern language other than the student's native language or

b) with approval from the Modern Languages department, a placement test or other evidence of proficiency equivalent to the completion of a 202-level language class;

(2) academic study abroad for at least 6 weeks at the college level or an approved international internship for at least 6 weeks (note: in the event of a personal, regional, or international crisis, the student may petition the department chair to modify or waive this requirement);

(3) 3 hours from Communication Arts 225, Global Studies 300, Psychology 200, or Sociology 103;

(4) and 15 hours from the following courses, with no more than 3 courses from any one of these emphasis areas:

(a) International History: History 144, 212, 230, 231, 262, 265, 365, and 290 or 390 with approval depending on the topic.

(b) International Politics: Political Science 201, 311, 333, 341, 342, 344.

(c) Global Economics: International Business 205, 421, 445; Economics 202, 206.

(d) Advanced Modern Language: Any 300-level French or Spanish language classes except French/Spanish 362; or 300-level classes in another modern language through transfer/study abroad.
(e) Global Society, Religion, and Culture: Art 202; Bible 250, 251; English 205, 206, 250, 324, 325; Music 330 [note: two-credit course]; Social Work 280; and any courses with a "GOBL" prefix. GOBL 150 (1-credit) is strongly encouraged since it prepares the student to study abroad.

Course Requirements for a minor in Spanish (18 hours)

A minor in Spanish will consist of 18 hours of Spanish courses beyond Spanish 101 and 102, excluding Spanish 362.

Course Requirements for a concentration in Professional Spanish (9 hours)

A concentration in Professional Spanish will consist of two classes selected from Spanish 315, 316, and 318, and one 3-hour conversation or writing course from Spanish 303 or 306.

Course Requirements for a Modern Language Certification in French (6 hours)

A language certification in French will consist of 6 hours, including:

1. French 305 or 340 and one other 300-level French course. Students must complete all necessary pre-requisites in the Beginning and Intermediate sequence (French 101, 102, 201, and 202) or place out of these courses on the basis of the Modern Language Department's placement test.
2. Take the Oral Proficiency Interview (OPI or OPIc) through Language Testing International, Inc. (LTI), the testing arm of the American Council on the Teaching of Foreign Languages (ACTFL). Students pay the cost of the exam. A minimum score of intermediate low is required.
3. Maintain a GPA/QPA of 3.0 or higher for the two 300-level classes taken at the College for the language certification.

Course Requirements for a Modern Language Certification in Spanish (6 hours)

A language certification in Spanish will consist of 6 hours, including:

1. Spanish 303 and one other 300-level Spanish course. Students must complete all necessary pre-requisites in the Beginning and Intermediate sequence (Spanish 101, 102, 201, and 202) or place out of these courses on the basis of the Modern Language Department's placement test.
2. Take the Oral Proficiency Interview (OPI or OPIc) through Language Testing International, Inc. (LTI), the testing arm of the American Council on the Teaching of Foreign Languages (ACTFL). Students pay the cost of the exam. A minimum score of intermediate low is required.
3. Maintain a GPA/QPA of 3.0 or higher for the two 300-level classes taken at the College for the language certification.

Study Abroad

Study abroad is strongly encouraged for language majors. Selection of a program and specific courses takes place in consultation with the Office of Global Programs, the Department of Modern Languages Chair, individual modern language advisors, and the Registrar. Detailed information about the Grove City College Study Abroad program is available by accessing www.gcc.edu/Home/Academics/Study-Abroad-Programs. Language majors seeking assistance regarding program options, transfer of credits,

application forms, deadlines, letters of recommendation, and other matters related to study abroad may contact the Modern Languages Department Chair.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

French (FREN)

FREN 101. ELEMENTARY FRENCH I. . The first of a two-semester novice sequence that moves students towards functional proficiency in the four skill areas (reading, writing, listening, speaking) while increasing their cultural literacy of the French-speaking world (including regions in Europe, Africa, and North America). Intended for students with no prior exposure to the French language or with a low level of communicative proficiency, this course emphasizes successful communication in real-life situations through authentic cultural productions and a basic understanding of the main elements of French grammar. Taught in French. Students who have previously studied French must take the placement exam before enrolling in French 101. *Three hours.*

FREN 102. ELEMENTARY FRENCH II. The second of a two-semester novice sequence that moves students towards functional proficiency in the four skill areas (reading, writing, listening, speaking) while increasing their cultural literacy of the French-speaking world (including regions in Europe, Africa, and North America). This course continues to reinforce successful communication skills through increased exposure to and use of cultural productions in order to confidently build on formulas and complex sentence utterances at the oral and written capacity. Taught in French. Prerequisite: French 101 or placement exam. *Three hours*.

FREN 201. INTERMEDIATE FRENCH I. The first of a two-semester intermediate sequence that focuses on refining and solidifying interpersonal communication skills (speaking listening, writing, reading). Students progress toward paragraph-length discourse in speaking and writing while expanding their command of intermediate-level vocabulary and grammar. Students also acquire awareness of history, cultural practices, and perspectives from reading, listening and watching cultural productions from throughout the French-speaking world. Through in-class discussions, students develop the knowledge and wisdom to navigate intercultural situations. Taught in French. Prerequisite: French 102 or placement exam. *Three hours.*

FREN 202. INTERMEDIATE FRENCH II. The second of a two-semester intermediate sequence that hones interpersonal communication skills (speaking, listening, writing, reading). Students continue to develop greater facility with paragraph-length discourse in speaking and writing; this includes review and reinforcement of essential grammatical concepts. Students seek wisdom by interacting with cultural productions (e.g. film, music, literature) from the French-speaking world, while also acquiring the knowledge and skills necessary for successful cross-cultural communication. Taught in French. Prerequisite: French 201 or placement exam. *Three hours.*

FREN 260. INDEPENDENT STUDY. Individual study of specialized topics in French. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

FREN 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in French. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

FREN 301. UNDERSTANDING FRANCE AND THE FRENCH. Students gain insight into modern day France and her people through an understanding of her recent history, institutions, conventions, and cultural products. A variety of sources (articles, films, essays, etc.) will facilitate discussion of key aspects of French society. Taught in French. Prerequisite: French 202 or placement exam. *Alternate years, three hours.*

FREN 305. TOPICS IN FRENCH AND FRANCOPHONE STUDIES. Students hone skills of description, narration, and evaluation through the observation and discussion of various cultural elements of the French-speaking world. Different topics will be studied in different semesters and may include gastronomy, fashion, sports, music, places (such as Paris), or major cultural figures. This course is designated Speaking Intensive (SI) and may be repeated for credit provided the topic is different. Taught in French. Prerequisite: French 202 or placement exam. *Offered periodically, three hours.*

FREN 307. FRENCH COMPOSITION AND STYLE. The purpose of this course is to refine students' overall ability to write in French, both at the level of content/structure, as well as grammatically. Through a process-based approach to typical written assignments in the francophone world, students will hone their ability to communicate clearly and with greater sophistication. To prepare for writing their own compositions, students will read texts in the target genres in order to identify effective argumentation, style, and tone. Subsequently, students will be able to observe models of structuring ideas and opinions in French, throughout the francophone experience, and then to compare them with their own ability to do so in English. The course will review and parse key grammatical structures that frequently impede mastery for students at an advanced level. However, rather than providing an exhaustive approach to the presentation and review of grammar, this course invites students to deduce through observation and practice how grammar and syntax function. This course is designated Writing Intensive (WI). Prerequisite: French 202 or placement exam. *Three hours*.

FREN 308. APPLIED PHONETICS. Offering both a theoretical and practical approach to the French phonetic system, this course guides students through the sounds and prosody of French as contrasted with English with the help of the International Phonetic Alphabet. In addition to learning to identify and transcribe all French phonemes, students will improve their own pronunciation and intonation via extensive oral practice and individualized feedback. Required of French majors and those desiring teacher certification in French. Taught in French. NOTE: Students who grew up speaking French are not eligible to take this class unless granted permission by the instructor. Prerequisites: French 202 or placement exam. *Alternate years, three hours.*

FREN 315. BUSINESS FRENCH. Through this course, students acquire the linguistic skills and cultural information they need to prepare for the *Chambre de commerce et d'industrie de Paris* examinations. They familiarize themselves with business practices of the Francophone world. They are exposed to key French business topics and to essential career practices, as well as to cultural concepts particular to French businesses. Areas of concentration are: 1. La Correspondance; 2. La micro-informatique, Internet, le courier électronique; 3. La recherche d'un emploi; 4. La typologie des entreprises; 5. L'organisation des enterprises; 6. Le marketing; 7. La banque et les moyens de paiement; 8. Les transports et le commerce international. Taught in French. Prerequisite: French 300-level course. *Offered periodically, three hours.*

FREN 320. MEDIEVAL AND EARLY MODERN FRENCH LITERATURE. A survey of French literature from its beginnings in the eleventh century to the seventeenth century.

Through fiction, poetry, essays, treatises, emblems, and images, this course explores the relationships among literary creation, political events, religious movements, artistic innovations, and scientific discoveries. Readings may include *La Vie de Saint Alexis*, *The Song of Roland*, Marguerite de Navarre, Rabelais, Ronsard, Montaigne, Descartes, Pascal, and Madame de Lafayette. This course is designated Information Literacy (IL). Taught in French. Prerequisite: French 300-level course or by permission.

Offered periodically, three hours.

FREN 321. 18th THROUGH 21st CENTURY FRENCH LITERATURE. An introduction to French literary development from the eighteenth to the twenty-first century. From Louis XIV's absolute monarchy through the French Revolution to two World Wars and decolonization, these centuries provoked rich and diverse literary production, often as a means of social and political engagement. Authors may include Voltaire, Rousseau, Diderot, Stendhal, Hugo, Balzac, Flaubert, Zola, Modiano, Duras, Queneau, Condé, Ben Jelloun, Nothomb, etc. This course is designated Information Literacy (IL). Taught in French. Prerequisite: French 300-level course or by permission.

Offered periodically, three hours.

FREN 325. FRENCH THEATRE. A course designed to give students an overview of the history and evolution of theater in the French-speaking world. Readings may include Molière, Corneille, Racine, Beaumarchais, Hugo, Sartre, Ionesco, Beckett, and Césaire. This course is designated Information Literacy (IL). Taught in French. Prerequisite: French 300-level course or by permission. *Offered periodically, three hours.*

FREN 326. CINEMA. This course aims to provide students with the tools to understand and analyze films and other visual media. Students will gain technical knowledge of cinema and its analysis alongside a study of the history of French-language cinema from the era of the Lumière brothers (1895) to the present, including film noir and la Nouvelle Vague. The class will study enduring classics as well as examples of popular films in order to better understand French society, culture, and history. This course is designated Information Literacy (IL). Taught in French. Prerequisite: French 202 (French 307 is strongly encouraged but not required). *Offered periodically, three hours*.

FREN 331. POETRY. The goal of this course is to enable students to express themselves with increased sophistication and to practice "*explication de textes*", this staple of French classical education. Students will study the biographies and also selected texts by nineteenth- and twentieth- century poets from France and the francophone world: Hugo, Nerval, Baudelaire, Mallarmé, Verlaine, Rimbaud, Valéry, Senghor, and Césaire. This course is designated Information Literacy (IL). Taught in French. Prerequisite: French 300-level course or by permission. *Offered periodically, three hours.*

FREN 332. CARIBBEAN AND AFRICAN LITERATURE IN FRENCH. The goal of this course is to familiarize students with the vibrant literary scene in French-speaking regions outside of Europe, with an emphasis on the Caribbean, North Africa, and Sub-Saharan Africa. The course may include novels, essays, or short stories by authors such as Suzanne Dracius (Martinique), Patrick Chamoiseau (Martinique), Albert Memmi (Tunisia), Assia Djebar (Algeria), Alain Mabanckou (Republic of Congo), and Leonora Miano (Cameroon). This course is designated Information Literacy (IL). Taught in French. Prerequisite: French 300-level course, or by permission. *Offered periodically, three hours.*

FREN 340. MOMENTS IN FRENCH AND FRANCOPHONE HISTORY. Through the study of historical events and developments in the French-speaking world, students expand

on the skills of description and narration acquired in French 305 and move toward more sophisticated modes of discourse, such as discussing abstract ideas, constructing arguments, and hypothesizing. Different topics will be studied in different semesters and may include the beginnings of the French language, philosophical ideas (e.g. Enlightenment, existentialism), Medieval culture, the Renaissance, Louis XIV and Versailles, French colonization and its aftermath, France in WWII, etc. This course is designated Speaking Intensive (SI) and may be repeated for credit provided the topic is different. Taught in French. Prerequisites: French 300-level course, or by permission.

Offered periodically, three hours.

FREN 360. INDEPENDENT STUDY. Individual study of specialized topics in French. Junior standing, permission of the department chair, and a faculty sponsor are required.

One, two or three hours.

FREN 362. ASPECTS OF LANGUAGE LEARNING. A course designed to provide opportunities to teach various grammar aspects of the French language, and to examine and implement a variety of technical aspects and resources in the foreign language curriculum in preparation for student teaching. Teacher candidates will regularly reflect on their teaching experiences and will develop a portfolio of materials representing their teaching in the target language. Required of all students desiring teacher certification in a foreign language. Taught in English. *Two hours.*

FREN 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in French. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

FREN 390. STUDIES IN FRENCH. Readings and discussion of topics in literature or language. Subject matter varies. Taught in French. *One, two or three hours.*

FREN 460. INDEPENDENT STUDY. Individual study of specialized topics in French. Senior standing, permission of the department chair, and a faculty sponsor are required.

One, two or three hours.

FREN 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in French. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

FREN 480. INTERNSHIP IN FRENCH. This is an opportunity for advanced French students to participate in a meaningful learning experience under the supervision of both an employer and department faculty member. Most internships take place during the summer months. *One to six hours.*

Spanish (SPAN)

SPAN 101. ELEMENTARY SPANISH I. This course is intended for students with no previous study of Spanish or those who have a low level of communicative proficiency. Classroom activities foster oral communication and provide practice in grammar, reading, and writing. Students develop skills applicable to real-life situations. Culture is presented through examining native speaker perspectives towards their own products and practices and encouraging cross-cultural comparisons. Taught in Spanish. Students who have previously studied Spanish must take the placement exam before enrolling in Spanish 101.

Three hours.

SPAN 102. ELEMENTARY SPANISH II. Continuation of Spanish 101. Further development of practical novice- to intermediate-level communication skills including listening, speaking, reading, writing. Students acquire cultural knowledge through continued exposure to cultural products, practices, perspectives and they engage in cross-cultural comparisons. Taught in Spanish. Prerequisite: Spanish 101 or placement exam. *Three hours.*

SPAN 201. INTERMEDIATE SPANISH I. This course is appropriate for students who have completed Spanish 101 and 102. Classroom activities encourage interpersonal communication at the intermediate level along with continued application of grammar to speaking, reading, and writing. Students develop their ability to produce paragraph-length writing and expand their command of intermediate-level vocabulary. Cultural awareness continues to be emphasized through the examination of products, practices and perspectives from throughout the Spanish-speaking world. Taught in Spanish. Prerequisite: Spanish 102 or placement exam. *Three hours.*

SPAN 202. INTERMEDIATE SPANISH II. Continuation of Spanish 201. Further development of interpersonal communication at the intermediate level while encouraging communication at the advanced level on the ACTFL scale. Students develop greater facility with paragraph-length discourse in writing. Students seek wisdom by interacting with cultural practice, perspectives, products and productions (e.g. music and texts) from the Spanish-speaking world, while also acquiring the knowledge and skills necessary for successful cross-cultural communication. Taught in Spanish. Prerequisite: Spanish 201 or placement exam. *Three hours.*

SPAN 260. INDEPENDENT STUDY. Individual study of specialized topics in Spanish. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

SPAN 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Spanish. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

SPAN 303. CONVERSATION. This course examines contemporary cultural and social trends in Spain, the United States, and Latin America and trains students in interpersonal and presentational communication with a professional focus while offering a review of key grammatical structures. This course is designated Speaking Intensive (SI). Required of all Spanish majors and those desiring teacher certification in Spanish. Taught in Spanish. Prerequisite: Spanish 202 or placement exam. *Three hours.*

SPAN 305. APPLIED PHONETICS. This course is a systematic examination of how the sounds of Spanish are produced. By learning and applying phonetic and phonological principles, this course is intended to help students improve their pronunciation. It also introduces the linguistic variation of Spanish in Spain, the United States, and Latin America. Students learn to identify and comprehend the dialects of Spanish and will be trained in using this skill in professional settings. Required of all Spanish majors and those desiring teacher certification in Spanish. Taught in Spanish. Prerequisite: Spanish 202 or placement exam. Spanish 202 may be taken concurrently with permission from the department. *Three hours.*

SPAN 306. COMPOSITION AND GRAMMAR. This class offers an engaging encounter with advanced Spanish grammar by creating real-life scenarios and situations where students can apply what they learn. Students practice how to target their discourse to specific

audiences using particular formats, for instance, presentations, formal and informal letters, emails, and other academic and professional reports. Taught in Spanish. Required of all Spanish majors and of those desiring teacher certification in Spanish. Prerequisite: Spanish 202 or placement exam. *Three hours.*

SPAN 308. INTRODUCTION TO LITERATURE AND FILM. Introduction to techniques of literary and film analysis via study of representative works by major authors and filmmakers of the Spanish-speaking world. Taught in Spanish. Prerequisite: Spanish 202 or placement exam. *Three hours.*

SPAN 315. PROFESSIONAL SPANISH. This course focuses on the evolution and current state of fields such as business, healthcare, translation, and media in Spain, the United States, and Latin America. The course will study historical and legal contexts, offer in-depth learning and practice of specific vocabulary and structures relevant to those fields, and develop cultural competency applicable to professional situations. This course also provides an opportunity for students to create a portfolio of documents in Spanish that may be used in a job search and, when possible, the completion of an applied learning project. Taught in Spanish. Prerequisite: Spanish 303 or 306. Instructor permission may be granted to take the class concurrently with or after Spanish 202. *Offered periodically, three hours.*

SPAN 316. BUSINESS CULTURE IN THE HISPANIC WORLD. This course offers an overview of the process of industrialization and the evolution of the markets of goods and services in Latin America. Students also learn about salaries, labor contracts, and important cases involving business ethics. The course concludes with a study of the rise of Hispanic global brands and their impact in today's economy. Students read biographies, articles and short stories, and examine different types of media. Taught in Spanish. Prerequisite: Spanish 303 or 306. Instructor permission may be granted to take the class concurrently with or after Spanish 202. *Offered periodically, three hours.*

SPAN 317. SPACE AND URBAN DESIGN IN LATIN AMERICA. In the Latin American plaza, many different conceptions of how public space is defined and utilized converge, from the Mesopotamian boulevard to the markets, teocallis, and kanchas of the indigenous civilizations of the New World. Through a journey that highlights the key ideas and moments of the history of public space, this class examines the creation of the plaza in Latin America and invites students to make connections with the evolution of Main Street in the United States. Students also explore questions relative to the future of public areas and how redevelopment efforts may affect culture and society in general. Taught in Spanish. Prerequisite: Spanish 308. *Offered periodically, three hours.*

SPAN 318. MINISTRY IN SPANISH. An exploration of the historical events, denominational involvement, and important leaders of Latino Protestantism and their effect on the current climate of the Latino church in the United States and Latin America. Students read works from contemporary professors of Hispanic studies and pastoral leadership and interact with pastors and missionaries working with Latino churches. The course introduces vocabulary needed to communicate in Spanish in church and mission settings along with common scripture and worship songs from Latin American countries. Taught in Spanish. Prerequisite: Spanish 303 or 306. Instructor permission may be granted to take the class concurrently with or after Spanish 202. *Offered periodically, three hours.*

SPAN 320. CONTEMPORARY SPAIN. A study of the events and ideas which have shaped Spain with an emphasis on literary works and authors, cultural achievements and traditions, and the evolution of socioeconomic and political structures from the 20th century to the present. Through readings, videos, discussions and presentations, students will

develop an understanding of how Spain's rich history contributes to the daily life of contemporary Spain (politics, religion, family, social issues and other current topics) and influences the ways in which Spaniards view themselves and the world. Students will read online Spanish news sources regularly. This course is designated Information Literacy (IL) and Writing Intensive (WI). Taught in Spanish. Prerequisites: Spanish 308 and one of Spanish 303, 305, or 306. *Offered periodically, three hours.*

SPAN 321. FOUNDATIONS OF LATIN AMERICAN SOCIETIES. An exploration of the civilization, culture, literature, and artistic forms of pre-Columbian societies and the changes, challenges, and opportunities brought by the processes of conquest and colonization. Students read firsthand accounts and chronicles of this period as well as the questions and objections raised by members of the Church to how colonization was being implemented. The course examines the contributions of the African populations to Latin American societies and concludes with a study of the Baroque period, including architecture, poetry, and painting. Taught in Spanish. This course is designated Information Literacy (IL) and Writing Intensive (WI). Prerequisite: Spanish 308 and one of Spanish 303, 305, or 306. *Offered periodically, three hours.*

SPAN 325. INDEPENDENCE AND NATIONAL IDENTITIES IN LATIN AMERICA. A study of the situation of the Spanish colonies in the 18th century and its most recognized cultural productions. This course explores the causes and effects of independence, the power struggles that ensued after the foundation of the Latin American nations, and the role played by foreign powers in the establishment of national identities during the end of the 19th century. Students read travel accounts, chronicles of everyday life, manifestos, and the foundational narratives of the young republics, including novels and poetry. The course concludes with the social and aesthetic conditions that produced *Modernismo*, one of Latin America's most recognized artistic periods. Taught in Spanish. This course is designated Information Literacy (IL) and Writing Intensive (WI). Prerequisites: Spanish 308 and one of Spanish 303, 305, or 306.
Offered periodically, three hours.

SPAN 328. PEACE AND RECONCILIATION IN LATIN AMERICA. An exploration of the most representative poetry, essays, film, short stories, art, and fiction of the 20th century in Latin America. The course investigates the main causes and effects of civil conflict in this geographical area and introduces students to the reconciliation and peace processes that took place during the end of the last century. This course is designated Information Literacy (IL) and Writing Intensive (WI). Taught in Spanish. Prerequisites: Spanish 308 and one of Spanish 303, 305, or 306. *Offered periodically, three hours.*

SPAN 330. MEDIEVAL AND GOLDEN AGE SPAIN. A study of representative authors and works of the Middle Ages, Renaissance, and Golden Age. This course explores the development of Spanish poetry, narrative, and theater in its historical and cultural contexts. Readings may include the *Cantar de Mio Cid*, *El Conde Lucanor, El Libro de Buen Amor,* Jorge Manrique, Garcilaso de la Vega, Fray Luis de León, San Juan de la Cruz, *El Quijote*, Lope de Vega, etc. This course is designated Information Literacy (IL) and Writing Intensive (WI). Taught in Spanish. Prerequisites: Spanish 308 and one of Spanish 303, 305, or 306. *Offered periodically, three hours.*

SPAN 331. THE SPANISH ENLIGHTENMENT AND ITS AFTERMATH. A study of Spanish Romanticism, Realism, and Generation of '98 with readings from authors such as Espronceda, Zorrilla, Bécquer, Rosalía de Castro, Galdós, Pardo Bazán, Blasco Ibáñez, Unamuno, and Baroja. Nineteenth-century Spain is characterized by enormous political and

social instability. This course explores how increasing tensions between *las dos Españas*, as well as other cultural developments inspired generations of authors. Taught in Spanish. This course is designated Information Literacy (IL) and Writing Intensive (WI). Prerequisites: Spanish 308 and one of Spanish 303, 305, or 306.

Offered periodically, three hours.

SPAN 335. FILM IN THE HISPANIC WORLD. An exploration of topics in film in the Hispanic world, including history, national productions, and genres. Taught in Spanish. Prerequisites: Spanish 308 and one of Spanish 303, 305, or 306.

Alternate years, three hours.

SPAN 344. HISPANICS IN THE U.S. A study of the lifestyles, heritage, influence, thoughts, and experiences of Cuban, Puerto Rican, Mexican American, Dominican, and other Spanish speakers in the United States today. Through extensive reading, videos and discussion, we will explore contemporary issues and topics of interest such as demographics, immigration, discrimination, workers' rights, education, the arts, customs, beliefs and daily life. The course will foster a greater awareness of the similarities and differences existing between these communities, as well as their contributions to American society. Of particular interest to students of Spanish, sociology, and political science. Taught in Spanish. Required of all Spanish majors and those desiring teacher certification in Spanish. Prerequisites: Spanish 308 and one of Spanish 303, 305, or 306.

Alternate years, three hours.

SPAN 360. INDEPENDENT STUDY. Individual study of specialized topics in Spanish. Junior standing, permission of the department chair, and a faculty sponsor are required.

One, two or three hours.

SPAN 362. ASPECTS OF LANGUAGE LEARNING. A course designed to provide opportunities to teach various grammar aspects of the Spanish language, and to examine and implement a variety of technical aspects and resources in the foreign language curriculum in preparation for student teaching. Teacher candidates will regularly reflect on their teaching experiences and will develop a portfolio of materials representing their teaching in the target language. Taught in English. Required of all students desiring teacher certification in a foreign language. *Two hours.*

SPAN 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Spanish. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

SPAN 390. STUDIES IN SPANISH. The topics of this course will vary each semester, addressing a variety of themes in linguistics or matters of cultural, social, and historical importance in the Hispanic world, including, but not limited to, Spain, Latin America, and Hispanics in the United States. Taught in Spanish.

Offered periodically, one, two or three hours.

SPAN 460. INDEPENDENT STUDY. Individual study of specialized topics in Spanish. Senior standing, permission of the department chair, and a faculty sponsor are required.

One, two or three hours.

SPAN 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in Spanish. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

SPAN 480. INTERNSHIP IN SPANISH. This is an opportunity for advanced Spanish students to participate in a meaningful learning experience under the supervision of both an employer and department faculty member. Most internships take place during the summer months. *One to six hours.*

Global Studies (GOBL)

These courses are designed for students who wish to gain familiarity with cultures and literatures other than their own. Prior knowledge of a foreign language is unnecessary. None of the courses below may be counted toward fulfillment of the requirements for a language major.

GOBL 150. CROSS-CULTURAL TRAINING FOR STUDY ABROAD. This course prepares students to thrive in cultures other than their own. It is intended for students who are about to study abroad. It is designed to help students understand the general character of the cross-cultural experience and to explore learning and coping strategies when outside one's native cultural environment. Topics include cultural values and assumptions, intercultural communication, and cross-cultural problems and adjustment. *One hour.*

GOBL 260. INDEPENDENT STUDY. Individual study of specialized topics in global studies. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

GOBL 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in global studies. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

GOBL 290. STUDIES IN MODERN LANGUAGE. Readings and discussion of topics in literature or language. Subject matter varies. *One, two or three hours.*

GOBL 300. INTERNATIONAL MANNERS AND MORES. This course equips students to recognize and appreciate cultural differences, their origins, and how they manifest in a variety of contexts. By exploring other customs and ways of thinking, this course prepares students to engage respectfully and effectively on the international stage. Of special value for students of any major who plan to work, study, and/or travel abroad, yet the principles studied and skills gained apply just as readily to interacting with any community or institution with a particular way of doing things. *Offered periodically, three hours.*

GOBL 301. GLOBAL FRANCE: HISTORY, LITERATURE, AND FILM. Today, French is spoken in over 29 countries. Additionally, France is home to significant sub-Saharan African and Maghrebi diasporas, and France has the largest Islamic population of Western Europe. Through literature (i.e. Mouloud Feraoun, *The Poor Man's Son*; Gisèle Pineau, *Exile: According to Julia*), film (i.e. *Days of Glory, The Battle of Algiers, La Haine, Timbuktu*), and historical texts, this class will examine France from a transnational perspective, focusing on French presence abroad (from the lens of political, military, and economic interests), perspectives on that presence, and waves of immigration from former colonies to metropolitan France. We will also consider historical and contemporary debates about French laïcité (secularism) in relation to religious (Jewish, Islamic, Protestant, and Catholic) communities. Taught in English. *Offered periodically, three hours.*

GOBL 305. FOUND & LOST IN TRANSLATION. A course designed to introduce students to the field of Translation Studies through the analysis of the use of subtitles, translations, and adaptations for films, television series, music, and literature. Students will

learn how to read and consume translations through assigned texts and media, including those which pertain to the world of business, medicine, and politics, for example. The course will deal with ethical and political issues associated with who translates and interprets for whom, the consequences of not translating, and the stakes involved in translations deemed to be inadequate. Students will grapple with how translation, interpretation, and adaptation, broadly understood, contribute to their familiarity with other cultures.
Offered periodically, three hours.

GOBL 310. LATINO AND LATIN AMERICAN LITERATURE AND CULTURE. A survey covering representative Latin American and U.S. Latino cultural production with an emphasis upon the study of Hispanic perspectives and the integration of Christian thought. Taught in English. *Offered periodically, three hours.*

GOBL 360. INDEPENDENT STUDY. Individual study of specialized topics in global studies. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

GOBL 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in global studies. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

GOBL 390. STUDIES IN MODERN LANGUAGE. Readings and discussion of topics in literature or language. Subject matter varies. *One, two or three hours.*

GOBL 460. INDEPENDENT STUDY. Individual study of specialized topics in global studies. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

GOBL 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in global studies. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

Music, Theatre, and Art

Dr. Tedford, Chair; Dr. Erb, Associate Chair; Prof. Craig, Prof. Gilbert, Dr. Hasper, Dr. Huebert, Dr. Mueller, Dr. P. Munson, Dr. M. Smith. Additional Instructional Faculty: Prof. Agnew, Prof. Bauer, Prof. Bennett, Dr. Billock, Prof. Chu, Prof. DeArmitt, Dr. Dugan, Prof. Fennell, Dr. Fitch, Prof. Garvey, Prof. Heasley, Prof. Heid, Dr. Jang, Prof. Kohanski, Prof. May, Prof. Phelps, Dr. Piastro-Tedford, Prof. Purifoy, Prof. Pysola, Prof. Sanders, Prof. Sheffer, Prof. Venesky, Prof. Walczak, Prof. Wasilko, Prof. D. Wolfe , Prof. Young.

Course Requirements for Bachelor of Music Degree in Music—49 hours

Music Core (30 hours):
Music 103, 104, 105, 106, 203, 204, 205, 219, 331, 332, 335; Music 230, 309, or 330; Music 473, 474, or 476; and Music 317 or 318.

Applied Music (8 hours):
Students must complete a minimum of eight (8) credits in their primary applied instrument. Students must take an applied lesson in their primary area every semester they are enrolled at the college.

Ensemble (7 hours with a total of 10 occurrences):
Students must complete 7 credit hours in any combination of Music 100 Band, Music 101 Concert Choir, or Music 102 Orchestra. An additional 3 ensembles (credit or non-credit) must be completed, choosing from Music 100, 101, 102, 114, 115, 116, 117, 118, or 119. Students whose primary applied area is vocal, wind, string, or percussion (not piano, organ, guitar, or harp) must participate in an ensemble using their primary applied area every semester that they are enrolled in the program. All other applied areas must enroll in at least one transcript-listed ensemble each semester. Students must have a total of 10 occurrences of enrolled ensembles (7 credited ensembles and 3 additional credit or non-credit ensembles) to fulfill the degree requirement.

Recital Attendance Requirement:
Music majors must register each semester for Music 199, which requires attendance at a predetermined number of faculty, senior and student recitals.

Music Electives (4 hours):
Choose four hours from Music and Music Education course offerings.

Recommended music electives include Music 223, 224, 230, 303, 304, 311, 325, 326, 330, 360, 403, 426, 460, and 488.

Courses that count in the Music major quality point average (MQPA):
All courses with "MUSI" prefix. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for Bachelor of Music Degree in Music/Business—66 hours

Music Core (34 hours):
Music 103, 104, 105, 106, 203, 204, 205, 219, 221, 331, 332, 335; Music 230, 309, or 330; Music 321 or 322; and Music 473, 474, 476, or 480.

Applied Music (8 hours):
Students must complete a minimum of eight (8) credits in their primary applied instrument/voice. Students must take an applied lesson in their primary area every semester they are enrolled at the college.

Music Method Block (2 hours):
Choose two courses from Music 107, 108, 207, 209, and 307.

Ensemble (7 hours with a total of 10 occurrences):
Students must complete 7 credit hours in any combination of Music 100 Band, Music 101 Concert Choir, or Music 102 Orchestra. An additional 3 ensembles (credit or non-credit) must be completed, choosing from Music 100, 101, 102, 114, 115, 116, 117, 118, or 119. Students whose primary applied area is vocal, wind, string, or percussion (not piano, organ, guitar, or harp) must participate in an ensemble using their primary applied area every semester that they are enrolled in the program. All other applied areas must enroll in at least one transcript-listed ensemble each semester. Students must have a total of 10 occurrences of enrolled ensembles (7 credited ensembles and 3 additional credit or non-credit ensembles) to fulfill the degree requirement.

Recital Attendance Requirement:
Music majors must register each semester for Music 199, which requires attendance at a predetermined number of faculty, senior and student recitals.

Music Business Core Requirements (18 hours):

Students must complete Accounting 201, Finance 202, Management 103, Marketing 104, and six hours from Communication Arts 300, 303, or any courses with an ACCT, ECON, MARK, or MNGT prefix. A maximum of three credits of 480 courses can count toward these hours.

Courses that count in the Music/Business major quality point average (MQPA):

All courses with "MUSI", "ACCT", "ECON", "FNCE", "MARK", "MNGT" prefixes, excluding MNGT 106. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for Bachelor of Music Degree in Music and PreK-12 Education Certification—101 hours

The Pennsylvania Department of Education recognizes this major as an approved program for meeting the requirements of the Instructional I (Provisional) teaching certificate. For teacher certification requirements, see the Dept. of Education section.

Music Core (42 hours):

Music 103, 104, 105, 106, 107, 108, 203, 204, 205, 207, 209, 219, 221, 305 or 306, 307, 317, 318, 331, 332, 335; Music 230, 309, or 330; and Music 473, 474, or 476.

Applied Music (10 hours):

Students must complete a minimum of a one-credit lesson for each semester except the student teaching semester in their primary applied instrument (seven credits); two (2) one-credit piano lessons or piano classes (Music 311 can be taken to fulfill one of these courses) or Music 129; and one (1) one-credit guitar lesson or guitar class.

Ensemble (7 hours with a total of 10 occurrences):

Students must complete a total of 7 credit hours in Music 100 Band, Music 101 Concert Choir, and Music 102 Orchestra. Specifically, students must take a minimum of two hours of Music 100 (comprising of one semester of Marching Band and one semester of Concert Band); two hours of Music 101; two hours of Music 102; and one additional hour using their primary applied area. An additional 3 ensembles (credit or non-credit) must be completed, choosing from Music 100, 101, 102, 114, 115, 116, 117, 118, or 119. Students whose primary applied area is vocal, wind, string, or percussion (not piano, organ, guitar, or harp) must participate in an ensemble using their primary applied area every semester that they are enrolled in the program. All other applied areas must enroll in at least one transcript-listed ensemble each semester. Students must have a total of 10 occurrences of enrolled ensembles (7 credited ensembles and 3 additional credit or non-credit ensembles) to fulfill the degree requirement.

Recital Attendance Requirement:

Music education majors must register each semester, except the student teaching semester, for Music 199**,** which requires attendance at a predetermined number of faculty, senior, and student recitals.

Professional Education Requirements (42 hours):

Education 102, 202*, 203, 488; Music Education 202, 213, 214, 313, 314, 372, 373, 435, 437; Special Education 102 and 104. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Music and PreK-12 Education Certification major quality point average (MQPA):

All courses with 'MUSE", "MUSI" and "EDUC" prefix; Special Education 102 and 103. A minimum MQPA of 2.00 is required to graduate. The minimum QPAs to be certified are 3.00 for the cumulative CQPA and 2.75 for the MQPA. Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

Course Requirements for Bachelor of Music Degree in Music Ministry—79 hours

Music Core (36 hours):

Music 103, 104, 105, 106, 203, 204, 205, 209, 219, 221, 311, 331, 332, 335; Music 107, 108, 207, or 307; Music 230, 309, or 330; Music 473, 474, 476, or 480; Music 317 or 318.

Applied Music (10 hours):

Students must complete a minimum of a 1-credit lesson in their primary area (Music 151-192) for at least six semesters (1- or 2-credit option each semester) and complete an additional four credit hours from the following courses: Music 123, 124, 125, 126, 135, 137, 151, 152, 155, 156, 161, 162, 185, or 186.

Ensemble (7 hours with a total of 10 occurrences):

Students must complete 7 credit hours in any combination of Music 100 Band, Music 101 Concert Choir, or Music 102 Orchestra. An additional 3 ensembles (credit or non-credit) must be completed, choosing from Music 100, 101, 102, 114, 115, 116, 117, 118, or 119. Students whose primary applied area is vocal, wind, string, or percussion (not piano, organ, guitar, or harp) must participate in an ensemble using their primary applied area every semester that they are enrolled in the program. All other applied areas must enroll in at least one transcript-listed ensemble each semester. Students must have a total of 10 occurrences of enrolled ensembles (7 credited ensembles and 3 additional credit or non-credit ensembles) to fulfill the degree requirement.

Recital Attendance Requirement:

Music majors must register each semester for Music 199, which requires attendance at a predetermined number of faculty, senior and student recitals.

Music Ministry Requirements (26 hours):

Bible 100, 120, 140, and 247; Music 325; one of Bible 211, 215, or 314; one of Bible 220 or 340; one of Bible 240 or 346; and choose two hours from Bible 248 and 347, Music 305, or Music 306.

Courses that count in the Music Ministry major quality point average (MQPA):

All courses with "MUSI" and "BIBL" prefixes. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for Bachelor of Music Degree in Music Performance—72-74 hours

Music Core (32 hours):

Music 103, 104, 105, 106, 203, 204, 205, 219, 331, 332, 335; Music 230, 309, or 330; Music 376, 377, or 378; Music 471, 472, or 475; and Music 317 or 318.

Music Electives (8-10 hours):
Students must complete a minimum of ten (10) credits of Music elective courses (8 credits for those pursuing a Vocal Concentration). Recommended music electives include Music 223, 224, 230, 303, 304, 311, 325, 326, 330, 360, 403, 426, 460, and 488.

Recital Attendance Requirement:
Students must register each semester for Music 199, which requires attendance at a predetermined number of faculty, senior and student recitals.

Performance Concentration (30-34 hours):
Choose one of the following options:

Instrumental Music Concentration

Concentration Core:
Music 305, 328, 334, and one of Music 107, 108, 207, or 307.

Ensemble (7 hours with a total of 15 occurrences):
Students must complete 7 credit hours through participation in Music 100 Band or Music 102 Orchestra (across 7 semesters). An additional 8 ensembles (credit or non-credit) must be completed, choosing from Music 100, 102, 114, 115, 117, or 118. Students must have a total of 15 occurrences of enrolled ensembles (7 credited ensembles and 8 additional credit or non-credit ensembles) to fulfill the degree requirement.

Applied Music:
Students must complete a one-hour lesson in their primary applied instrument each semester (8 semesters).

Piano Concentration

Concentration Core:
Music 129, 224, and 327.

Ensemble (7 hours with a total of 11 occurrences):
Students must complete 7 credit hours through participation in Music 100 Band, Music 101 Concert Choir, or Music 102 Orchestra (across 7 semesters). An additional 4 ensembles (non-credit) must be completed, choosing from Music 114, 115, 116, 117, 118, or 119. Students must have a total of 11 occurrences of enrolled ensembles (7 credited ensembles and 4 additional non-credit ensembles) to fulfill the degree requirement.

Applied Music:
Students must complete a one-hour piano lesson (Music 152) each semester (8 semesters). Students must also complete two (2) one-half hour organ lessons (Music 155).

Vocal Concentration

Concentration Core:
Music 209, 211, 212, 223 or 225 (take four hours), and 333.

Ensemble (7 hours with a total of 15 occurrences):
Students must complete 7 credit hours through participation in Music 101 Concert Choir (across 7 semesters). An additional 8 ensembles (non-credit) must be completed, choosing from Music 116 or 119. Students must have a

total of 15 occurrences of enrolled ensembles (7 credited ensembles and 8 additional non-credit ensembles) to fulfill the degree requirement.

Applied Music:
Students must complete a one-hour voice lesson (Music 162) each semester (8 semesters).

Courses that count in the Music Performance major quality point average (MQPA):
All courses with "MUSI" prefixes. A minimum MQPA of 2.00 is required to graduate.

Applied Music

Private lessons are offered in piano, organ, voice, strings, brass, woodwinds, guitar, harp, and percussion.

Piano classes offer group instruction in a piano lab to develop skills in playing solo literature, accompaniment, harmonization, and transposition. Classes are available at various levels of proficiency.

Voice classes offering group instruction in the techniques of voice production are available at beginning and intermediate levels.

Guitar classes are available at beginning and intermediate levels.

Ensemble

Credit may be earned for membership in performing organizations during each semester. Ensembles offered for credit include Concert Band, Concert Choir, Marching Band, and Orchestra. Other ensembles are available on a non-credit basis.

The Music Department has designated courses within the Bachelor of Music degree as Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL). These courses provide the necessary skills that will be needed by a professional music educator, performer, conductor, composer, or scholar. Music 203, and 204 are designated as SI courses. They provide the music student with skills necessary to speak in front of an audience as part of a performance and to deliver oral presentations in the music content area. Music 331, 332, and 335 are designated as IL and WI courses. They provide the music student with an introduction to music research skills encompassing use of musical scores, recordings, traditional library sources and Internet use. Implementing the IL and WI skills provides the necessary skills used in all areas of the music profession. Music 221 is also an IL course. This music technology course provides the student with MIDI experience, sound technology, and information access through the Internet.

Course Requirements for a minor in Music (18 hours)

A minor in Music will consist of Music 103, 104, 105; Music 331 or 332; a minimum of three, ½ hour juried lessons**,** choosing from Music 151-192; two semesters participation (for credit) in Music 100, 101, or 102; and three additional hours of Music electives. In addition, while enrolled as a music minor, students must register each semester for Music 198**,** which requires attendance at four recitals per semester; perform in at least two student recitals while enrolled as a music minor; and attend all Music Department meetings each semester. Note: All prospective Music Minors must pass an audition before being admitted into the music minor program.

Course Requirements for a minor in Musical Theatre (21 hours)

A minor in Musical Theatre will consist of Music 103, 105, 161 or 162 (minimum 3 credits); Music 222, Theatre 210 and 251, and five additional hours choosing from Music 161, 162, 222, Theatre 211, 213, 217, 262, 320, and 351. Note: All prospective Musical

Theatre minors must pass an audition before being admitted into the Musical Theatre minor program.

Course Requirements for a minor in Studio Art (21 hours)

A minor in Studio Art will consist of one 2D Art course from Art 101, 105 or 121; one 3D Art course from Art 103, 104 or 111; one Art History course from Art 201 or 202; and 12 additional hours from Art 101, 103, 104, 105, 107, 111, 121, 201, 202, 207, 290, 320, 323, 390, Design 101, 102, or 210.

Course Requirements for a minor in Theatre (24 hours)

This minor is open to all students with a love for theatre and an interest in supplementing their academic major with a program that will develop appreciation of dramatic literature and skills in the various arts and crafts of the theatre. Twenty-four hours are required, including:

Theatre Core (12 hours):
English 250; Theatre 251, 261, and 259 (taken three times).

Elective options (12 hours) Choose twelve hours from the following:
English 252, 302, 351, or 352; Theatre 255, 262, 320, 351, or 384. English or Theatre 260, 290, 360, 390, 460, or 480 courses may also count as elective options but must be pre-approved by the department chair and must relate directly to theatre studies.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Music (MUSI)

MUSI 100. BAND. ***Fall Semester*:** The college marching band begins its year with band camp one week before classes begin in the fall. The band performs at home football games, selected away football games, and high school band festivals. ***Spring Semester*:** The symphonic band performs all styles of concert literature and presents two concerts during the semester. Auditions are held during the first week of each semester. *One hour.*

MUSI 101. CONCERT CHOIR. Concert choir members prepare, study, and present choral literature. The choir performs two concerts each semester, as well as for special campus services when applicable. Auditions are held during the first week of each semester. *One hour.*

MUSI 102. ORCHESTRA. The college orchestra performs a repertoire of classical as well as modern music. The orchestra performs one concert during the fall semester and two during the spring semester. Seating auditions are held the first week of fall semester, with new member auditions during the first week of spring semester. *One hour.*

MUSI 103. MUSIC THEORY I. The first in a sequence of four music theory courses. This course covers fundamentals of music as well as beginning musical analysis, counterpoint, and four-part writing. Prerequisite: Music major, music minor, or with the permission of the instructor. *Three hours.*

MUSI 104. MUSIC THEORY II. The second in a sequence of four music theory courses. This course covers part-writing and analysis including all diatonic chords and tonic, dominant, and pre-dominant functions. Prerequisite: Music 103. *Two hours.*

MUSI 105. AURAL SKILLS I. An aural skills and sight singing class including melodic dictation, interval recognition, and chord identification. *Two hours.*

MUSI 106. AURAL SKILLS II. A continuation of Music 105, including all intervals, melodic dictation with large leaps, melodic and harmonic error detection, and chord identification including I, ii, iii, IV, V, and vi triads. Prerequisite: Music 105. *Two hours.*

MUSI 107. BRASS METHODS. Class instruction in the brass instruments with emphasis on development of the instrumental program in the schools. Prerequisite: Music major and minors only, or with the permission of the instructor. *One hour.*

MUSI 108. PERCUSSION METHODS. Class instruction in percussion instruments with emphasis on development of the instrumental program in the schools. Prerequisite: Music major and minors only, or with the permission of the instructor. *One hour.*

MUSI 109. MUSIC THEORY FUNDAMENTALS. This course is an introduction to the concepts and terms used in music theory that prepares students for college level music theory. In this course students will learn to read and write music notation, apply music theory to a piano keyboard, and construct scales and intervals. *Two hours.*

MUSI 114. GROVE CITY COLLEGE WIND ENSEMBLE. The Wind Ensemble is a select group of instrumental music students. This 45-member ensemble performs music of an academic nature including contemporary, classical, and standard wind literature. Enrollment is open to students of all majors by audition. Auditions are held during the first week of fall semester. *Zero hours.*

MUSI 115. GROVE CITY COLLEGE CHAMBER ORCHESTRA. The Chamber Orchestra is a select group of string players and other select wind and percussion students who must audition to join. This ensemble performs more challenging works from the string and chamber repertoires. The group presents music in each orchestra concert and other selected performances during the academic year. Auditions are held during the first week of fall semester. *Zero hours.*

MUSI 116. GROVE CITY COLLEGE TOURING CHOIR. The Touring Choir is comprised of selected vocalists who are committed to striving for excellence in the choral art. The choir sings for campus events, area churches, and takes a ten-day tour during a spring semester break. Auditions are held during the first week of fall semester. *Zero hours.*

MUSI 117. GROVE CITY COLLEGE JAZZ ENSEMBLE. The Jazz Ensemble is an advanced instrumental performing group. This group performs Swing, Bebop, Latin, Fusion, and other modern styles of jazz literature. Improvisational and advanced comping skills are highly desirable for membership in this ensemble. The Jazz Ensemble performs two college concerts per year in addition to several off-campus events. Musicians are selected by an open audition process during the 1st and 2nd week of the fall semester. *Zero hours.*

MUSI 118. GROVE CITY COLLEGE STAGE BAND. The Stage Band is an instrumental performing group that plays less demanding literature that develops jazz style, articulation, and phrasing. While improvisation skills are not required for this group, they are encouraged and developed. Musicians are selected by an open audition process during the 1st and 2nd week of the fall semester. The Stage Band typically performs two college concerts per year. *Zero hours.*

MUSI 119. GROVE CITY COLLEGE SINGERS. The Grove City College Singers is comprised of auditioned female vocalists who are interested in singing a variety of sacred

and secular vocal literature. In addition to two formal concerts during the academic year, the ensemble sings at a variety of campus venues. Auditions are held during the first two weeks of the fall semester. *Zero hours.*

MUSI 123. PIANO CLASS I. The first in a sequence of piano classes, this course is intended for students with no background in piano playing. Skills developed in this course include: reading pitch and rhythm; repertoire in five-finger positions in various keys; white-key major and minor scales in two octaves, hands separately; introduction of changes of position (thumb crossing, finger substitution, extension, contraction, leap); I and V 6/5 chords in all major keys. *One hour.*

MUSI 124. PIANO CLASS II. The second in a sequence of piano courses, this course is intended for students who have the basic skills developed in Music 123 Piano Class I. The course includes: repertoire with easy changes of position; black-key major and minor scales in two octaves, hands separately; chord progressions I-V in all major and minor keys; harmonization using I and V 6/5; and sight-reading in five-finger positions. See instructor for placement. *One hour.*

MUSI 125. PIANO CLASS III. The third in a sequence of piano courses, this course is intended for students who have acquired the basic skills developed in Music 124 Piano Class II. The course includes: intermediate level repertoire by standard composers; all major scales, two octaves, hands together; chord progressions I-IV-V-I in major and minor keys; harmonization using I, IV 6/4, and V 6/5 chords in major and minor keys; and sight-reading easy pieces with minimal changes of position; and transposing of simple melodies. See instructor for placement. *One hour.*

MUSI 126. PIANO CLASS IV. The fourth in a sequence of piano courses, this course is intended for students who have attained the skills covered in Music 125 Piano Class III. The course includes: standard repertoire at the intermediate and advanced-intermediate levels; all major scales, two octaves, hands together; chord progressions I-IV-ii-V7-I in major and minor keys; harmonization using I, IV 6/4, and V 6/5 in various accompaniment patterns; sight-reading early intermediate repertoire; introduction of hymn playing, reading open score (SATB), and playing easy accompaniments. See instructor for placement. *One hour.*

MUSI 129. ACCOMPANYING: VOCAL AND INSTRUMENTAL. This course provides instruction in the art of accompanying singers and instrumentalists on the piano. Various musical aspects are addressed, including phrasing and tempo, metrical pulse, tonal balance, recitative, orchestra reductions, alto and tenor clefs, transposing instruments, and musical style periods. Practical issues include page turning, proper deportment on stage, and rehearsal techniques. Prerequisite: Piano skills above the intermediate level.
Alternate years, two hours.

MUSI 131. ORGAN CLASS. This course is for music as well as non-music majors interested in the organ and its literature. The course also studies the history and design of the organ as well as acoustics and liturgical architecture. *One hour.*

MUSI 135. GUITAR CLASS I. This is an introductory course designed to provide the student with a means of self-expression through playing the guitar. *One hour.*

MUSI 137. GUITAR CLASS II. This course is for the student who has a basic knowledge of the guitar. This course includes teaching correct methods for learning flamenco techniques, aural and visual analysis, and performance harmonizing. *One hour.*

MUSI 141. BEGINNING VOICE CLASS. This course teaches vocal production and song presentation. Individuals demonstrate and perform for class members. *One hour.*

MUSI 144. INTERMEDIATE VOICE CLASS. This course teaches vocal production and song presentation for students with previous experience. Individuals demonstrate and perform for class members. *One hour.*

MUSI 151-152. PRIVATE PIANO LESSON. This course consists of one-half hour for one credit (151) or one full hour for two credits (152) of individual instruction at the piano. The level of repertoire will depend upon the technical and musical abilities of the student. *One or two hours.*

MUSI 155-156. PRIVATE ORGAN LESSON. This course consists of one-half hour for one credit (155) or one full hour for two credits (156) of individual instruction at the organ. The student will study literature appropriate to the organ and also work on technical development. *One or two hours.*

MUSI 161-162. PRIVATE VOICE LESSON. This course consists of one-half hour for one credit (161) or one full hour for two credits (162) of private instruction in voice. Vocal production, language training, and performance skills for the individual singer are taught. *One or two hours.*

MUSI 163-164. PRIVATE STRING LESSON - CELLO. This course consists of one-half hour for one credit (163) or one full hour for two credits (164) of individual instruction on the cello. Students will improve technical skill as well as become familiar with string literature for the cello. *One or two hours.*

MUSI 165-166. PRIVATE STRING LESSON - VIOLIN/VIOLA. This course consists of one-half hour for one credit (165) or one full hour for two credits (166) of individual instruction on the violin or viola. Students will improve technical skill as well as become familiar with string literature for the violin or viola. *One or two hours.*

MUSI 167-168. PRIVATE BRASS LESSON - FRENCH HORN. This course consists of one-half hour for one credit (167) or one full hour for two credits (168) of individual instruction on French horn. Included in the instruction are techniques for developing embouchure; fingerings and their alternates; and solo repertoire for the French horn. *One or two hours.*

MUSI 169-170. PRIVATE BRASS LESSON - TROMBONE. This course consists of one-half hour for one credit (169) or one full hour for two credits (170) of individual instruction on the trombone. Special emphasis is placed on slide positions, embouchure, trigger fingerings, and appropriate repertoire. *One or two hours.*

MUSI 171-172. PRIVATE BRASS LESSON - TRUMPET. This course consists of one-half hour for one credit (171) or one full hour for two credits (172) of individual instruction on the trumpet. The student will become familiar with solo repertoire as well as fingerings and their alternates, tone quality, embouchure, and breathing techniques. *One or two hours.*

MUSI 173-174. PRIVATE BRASS LESSON - BARITONE/TUBA. This course consists of one-half hour for one credit (173) or one full hour for two credits (174) of individual instruction for the student to develop proficiency on one of the lower brass instruments: baritone/euphonium or tuba. Playing techniques; fingerings and their alternates; tone

quality; embouchure; and a variety of appropriate literature for the instrument will be presented. *One or two hours.*

MUSI 175-176. PRIVATE BASSOON LESSON. This course consists of one-half hour for one credit (175) or one full hour for two credits (176) of individual instruction on the bassoon. The student will become familiar with fingerings, embouchure, reed making, and bassoon literature. *One or two hours.*

MUSI 177-178. PRIVATE CLARINET LESSON. This course consists of one-half hour for one credit (177) or one full hour for two credits (178) of individual instruction on the clarinet. The student will gain mastery of the basic techniques of performance including literature, intonation, hand position, articulation, fingerings, and embouchure. *One or two hours.*

MUSI 179-180. PRIVATE OBOE/ENGLISH HORN LESSON. This course consists of one-half hour for one credit (179) or one full hour for two credits (180) of individual instruction on the oboe or English horn. The student will become familiar with fingerings, embouchure, reed making and literature. *One or two hours.*

MUSI 181-182. PRIVATE PERCUSSION LESSON. This course consists of one-half hour for one credit (181) or one full hour for two credits (182) of individual instruction on all of the percussion instruments. The course teaches playing techniques, fundamentals of each instrument, and literature. *One or two hours.*

MUSI 183-184. PRIVATE FLUTE LESSON. This course consists of one-half hour for one credit (183) or one full hour for two credits (184) of individual instruction for the student who is interested in developing knowledge of flute literature; technique; tone quality and vibrato; fingerings; and embouchure. *One or two hours.*

MUSI 185-186. PRIVATE GUITAR LESSON. This course consists of one-half hour for one credit (185) or one full hour for two credits (186) of individual instruction for the student wishing to concentrate on techniques and fundamentals of guitar playing. Instruction is given on chords, harmonic structure, scales, and literature. *One or two hours.*

MUSI 187-188. PRIVATE HARP LESSON. This course consists of one-half hour for one credit (187) or one full hour for two credits (188) of individual instruction at the harp. Must have prior harp or piano experience. *One or two hours.*

MUSI 189-190. PRIVATE STRING LESSON - BASS. This course consists of one-half hour for one credit (189) or one full hour for two credits (190) of individual instruction on the string bass. Students will improve technical skill as well as become familiar with string literature for the bass. *One or two hours.*

MUSI 191-192. PRIVATE SAXOPHONE LESSON. This course consists of one-half hour for one credit (191) or one full hour for two credits (192) of individual instruction on the saxophone. The student will gain mastery of the basic techniques of performance including literature, intonation, hand position, articulation, fingerings, and embouchure. *One or two hours.*

MUSI 193-194. PRIVATE COMPOSITION LESSON. This course consists of one-half hour for one credit (193) or one full hour for two credits (194) of individual instruction on musical composition. This course teaches techniques for writing for instrumental and vocal ensembles, solo works, and small ensembles. *One or two hours.*

MUSI 195-196. PRIVATE CONDUCTING LESSON. This course consists of one-half hour for one credit (195) or one full hour for two credits (196) of individual instruction on musical conducting. This course teaches techniques for conducting and rehearsing bands, choirs, or orchestras. *One or two hours.*

MUSI 198. MUSIC RECITAL ATTENDANCE FOR MUSIC MINORS. Students fulfill this requirement by attending four recitals each semester they are enrolled as music minors. Students minoring in music must register for this course each semester. *Zero hours.*

MUSI 199. MUSIC RECITAL ATTENDANCE FOR MUSIC MAJORS. Students fulfill this requirement by attending a predetermined number of faculty, senior and student recitals each semester. Music majors, other than those in Music Education, must register for this course each semester. Music Education majors must register for this course each semester, except for the student teaching semester. The student's academic advisor will monitor compliance with this requirement. *Zero hours*.

MUSI 203. MUSIC THEORY III. The third in a sequence of four music theory courses. Forms and analysis are covered, including binary form, ternary form, variations, rondo and sonata form. In addition, the elements of chromatic harmony, including harmonic sequences, applied chords, tonicization, modulation, modal mixture, Neapolitan chords, and augmented chords are studied. This course is designated Speaking Intensive (SI). Prerequisite: Music 103 and 104. *Two hours.*

MUSI 204. MUSIC THEORY IV. The fourth in a sequence of four music theory courses. This course covers tonal ambiguity, enharmonic modulation, altered common tone chords, chromatic sequences, intervallic cells, and the division of the octave. Twentieth-century topics and techniques are studied, including impressionism, neo-classicism, quartal harmony, serialism, set theory, minimalism, and electronic techniques. This course is designated Speaking Intensive (SI). Prerequisite: Music 203. *Two hours.*

MUSI 205. AURAL SKILLS III. The third in a sequence of four courses that develop aural recognition through sight singing and dictation. Skill sets include recognition of harmonic and melodic intervals, modes, triads and seventh chords, and harmonic progressions. Prerequisites: Music 105 and 106. *Two hours.*

MUSI 206. AURAL SKILLS IV. The fourth in a sequence of four courses that develop aural recognition through sight singing and dictation. Skill sets include compound intervals, melodic dictation with modulating melodies, and progressions with seventh chords and secondary harmony. Prerequisite: Music 205. *Two hours.*

MUSI 207. WOODWIND METHODS. Class instruction in the woodwind instruments with emphasis on the development of the instrumental program in the schools. Prerequisite: Music Major/ Minors only or with the permission of the instructor. *One hour.*

MUSI 209 VOCAL METHODS. An overview course aimed at music education and voice performance majors including instruction concerning the mechanics of vocal sound production, vocal teaching methods, and identifying and correcting vocal faults in the private studio and the choral setting. Prerequisite: Music major and minors only, or with the permission of the instructor. *One hour.*

MUSI 211. VOCAL DICTION: ENGLISH/GERMAN. This course is aimed at music education and voice performance majors and will include instruction concerning the

International Phonetic Alphabet; diction rules for singing in English and German; and the accurate pronunciation of sung English, and German. The course meetings will consist of lecture, audio/video examples, and class participation. *Alternate years, two hours.*

MUSI 212. VOCAL DICTION: FRENCH/ITALIAN. This course is aimed at music education and voice performance majors and will include instruction concerning the International Phonetic Alphabet; diction rules for singing in French and Italian; and the accurate pronunciation of sung French and Italian. The course meetings will consist of lecture, audio/video examples, and class participation. *Alternate years, two hours.*

MUSI 219. BEGINNING CONDUCTING. A study of the fundamentals of conducting and rehearsal strategies with an emphasis on beginning instrumental and choral techniques. Emphasis is placed on developing baton technique and hand gestures, score study, and developing a comprehensive approach to conducting. *Two hours.*

MUSI 221. MUSIC TECHNOLOGY. This course provides the student with music notation experience, audio processing experience, background in music industry practices (including music copyright) and provides experience with creating social-media rich websites. This course is designated Information Literacy (IL). Prerequisite: Music majors only. *Three hours.*

MUSI 222. MUSICAL THEATRE WORKSHOP. This course is designed to educate students about the musical theatre genre and all of its sub-genres through research, writing, rehearsal, and performance, and to improve their singing, acting, and performance skills. The main focus of class meetings will be rehearsal of assigned scenes according to registered students' abilities. Students will learn at least one musical theatre scene, memorize it, block it, and perform it in a public performance at the end of the semester. Course may be repeated. *Two hours.*

MUSI 223. OPERA WORKSHOP. This course will introduce the student to selected scenes from operas. There will be a focus on scene analysis and character development within the context of an operatic role. Class will encourage singers to integrate the vocal and physical connection of theater with language and music. Course may be repeated. *Two hours*.

MUSI 224. PIANO PEDAGOGY. This course explores aspects of the piano teaching profession, including techniques and methods for various ability levels, repertoire selection, and the business aspects of the career field. *Alternate years, one hour.*

MUSI 225. OPERA WORKSHOP. This course will introduce the student to selected scenes from operas. There will be a focus on scene analysis and character development within the context of an operatic role. Class will encourage singers to integrate the vocal and physical connection of theater with language and music. Course may be repeated. *One hour*.

MUSI 230. JAZZ HISTORY. A study of the literature and culture of jazz music and jazz musicians of the 20th and 21st centuries. The course discusses the people, history, and compositions of jazz with a focus on the musical characteristics that define early jazz, swing, bebop, fusion, experimental and modern jazz styles. Although a background in music is helpful, it is not required. *Two hours.*

MUSI 260. INDEPENDENT STUDY. Individual study of a specialized topic(s) in music. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours.*

MUSI 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in music. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours.*

MUSI 290. STUDIES IN MUSIC. Intensive examination of an area of music not fully covered by regular departmental offerings. Subject matter varies each semester. *Offered periodically, one, two, or three hours.*

MUSI 302. LITERATURE OF MUSIC. A non-technical survey of the great musical compositions of Western civilization by way of classroom listening. Recommended for non-music majors. *Two hours.*

MUSI 303. COUNTERPOINT. A study of the contrapuntal style and practices of Palestrina and other masters of the sixteenth century; compositions of modal counterpoint in two, three and four parts. Prerequisite: Music 203 or 204. *Alternate years, one hour.*

MUSI 304. ORCHESTRATION. A study of the variety and characteristics of the brass, reed, string and percussion instrument families, progressing from solo instruments through scoring for full band and orchestra. The ability to read music and a basic understanding of music theory is desirable but not required. Prerequisite: Music 204. Students may receive credit for one of Music 304 or Music 305. *Two hours.*

MUSI 305. INSTRUMENTAL ARRANGING. This course provides hands-on instruction in the methods and techniques of making musical arrangements for various combinations of instruments. Topics include instruments families and characteristics, standard instrumental ensembles, and the rhythm section in pop, jazz, and contemporary arranging. Prerequisite: Music 203 or instructor permission. *Two hours.*

MUSIC 306. VOCAL ARRANGING. This course provides hands-on instruction in the methods and techniques of making musical arrangements for various vocal ensembles in various genres. Topics include vocal ranges and characteristics, standard vocal ensembles, and case studies such as the music of John Rutter, Arvo Part, Franz Schubert, Leonard Bernstein, the Beatles, Zac Brown Band, Beach Boys, Manhattan Transfer, and the Pentatonix. Prerequisite: Music 203 or instructor permission. *Two hours.*

MUSI 307. STRING METHODS. Class instruction in the string instruments of the orchestra; methods of instruction for younger orchestra, with emphasis on the principles of tone production, intonation, bowing, and phrasing. Prerequisite: Music major and minors only, or with the permission of the instructor. *One hour.*

MUSI 309. FORM AND ANALYSIS. This course explores the structure of music through the lens of specific structural functions and processes (tonality, meter, and texture). The course examines the musical idioms, forms, andstructures that serve as the basis of Western music of the Common Practice Period, and provides a framework for understanding the music of other cultures and time periods. Classroom activities include in-class analysis, score study, and student presentations. Reading assignments from the textbook and individual homework are assigned on most days to provide an opportunity for students to further engage with the musical concepts. Prerequisites: Music 203 and 205. *Two hours.*

MUSI 311. KEYBOARD HARMONY. Skills development in the use of the keyboard as a classroom and worship tool. The course focuses on chord progressions, sequences, modulations, and harmonization used to work in educational and worship settings. Students taking this course should have basic piano skills. *Alternate years, one hour.*

MUSI 317. ADVANCED CHORAL CONDUCTING. A course for students desiring further experience in conducting advanced choral material. Prerequisite: Music 219. *Two hours.*

MUSI 318. ADVANCED INSTRUMENTAL CONDUCTING. A course for students desiring further experience in conducting advanced instrumental material. Prerequisite: Music 219. *Two hours.*

MUSI 321. MIDI SEQUENCING AND SOUND PRODUCTION. This course is designed to give students advanced, in-depth practice and training in the usage of a digital audio workstation program toward the end of being a proficient user of such programs. Major topics will include (but not necessarily be limited to) quantization, automation, dynamic pitch shifting, sampling, analog synthesis, and wavetable synthesis. *Three hours.*

MUSI 322. LIVE SOUND PRODUCTION. This course is designed to give students advanced knowledge and practice with setting up and using live sound systems toward the end of creating high quality performances and events. Major topics will include (but not necessarily be limited to) livestreaming, diagraming sound systems, interpreting specifications, mixer/console usage, and gain structure. *Three hours.*

MUSI 324. LEGAL ASPECTS OF THE MUSIC BUSINESS. This course is designed to analyze the most important legal issues in the contemporary music industry, including how these issues began, how they have evolved, and where they are headed. Students will explore copyright law, including fair use and public domain, and how it affects sampling, interpolation, and mashups. The course will explore contracts related to songwriting, 360° deals, revenue sharing, and more, in addition to legal documents related to bands, booking, and touring. Students will also explore contemporary and new means of creating and disseminating music, including streaming audio/video and augmented/virtual reality, and explore associated legal implications. Students may only receive credit for one of Entrepreneurship 324, Management 324, or Music 324. *Three hours.*

MUSI 325. CHURCH MUSIC. A historical and theological study of church music, a study of hymns and practical application. *Three hours.*

MUSI 326. INTRODUCTION TO THE BUSINESS OF MUSIC. This course is designed as an introduction to the business of music, providing students with the latest instruction on best practices for music creators, consumers, and facilitators working in this field. Students will have the opportunity to learn the fundamental principles involved in the entrepreneurial and legal dimensions of the music business, exploring the structural and functional components of this ever-changing and rapidly growing industry. Particular attention will be given to the challenges of starting, growing and managing a music business in the digital era. Students may only receive credit for one of Entrepreneurship 326, Management 326, or Music 326. *Three hours.*

MUSI 327. PIANO LITERATURE. This course is a study of the literature for the piano, beginning with works of the 17th century intended for harpsichord, and ending with the 20th century works for the modern piano. The course includes a general overview of keyboard music in each historical era, as well as a selective list of works from each era for in-depth

study. The historical approach highlights the development of the instrument and the development of compositional styles, performance practices, pianistic idioms, and playing techniques. *Alternate years, two hours.*

MUSI 328. WIND LITERATURE. This course has been designed to prepare instrumental music majors to analyze, aurally and visually, the repertoire of the modern-day concert band. Topics to be explored include, but are not limited to, various time periods, genres and geographical influences on concert wind band composition; analysis of compositions for various compositional elements and historical background; and compositional form, instrumentation, pedagogy, and performance practices. *Alternate years, two hours.*

MUSI 330. WORLD MUSIC: A SELECTIVE SURVEY OF NON-WESTERN MUSIC. This course will study the musical systems of Asian music, comparing and contrasting the musical/cultural traditions of East Asia, South Asia, Southeast Asia, and Oceania (including, but not limited to, China, Japan, Korea, Thailand, Vietnam, Cambodia, and Indonesia), and the Middle East. *Alternate years, two hours.*

MUSI 331. MUSIC HISTORY I. A survey of music in Western civilization from ancient Greece to 1750. This course is designated Writing Intensive (WI) and Information Literacy (IL). Prerequisite: Humanities 204. *Three hours.*

MUSI 332. MUSIC HISTORY II. A survey of music in Western civilization from 1750 to 1900. This course is designated Writing Intensive (WI) and Information Literacy (IL).Prerequisite: Humanities 204. *Three hours.*

MUSI 333. VOCAL LITERATURE. This course will provide an overview of art songs composed in German, French, Italian, and English from the 17th through 21st centuries. The main objective of this course is to improve students' knowledge of core vocal literature in the art song genre through investigation into composers' lives, works, compositional style, and composers' relationships with poets and poetry. Issues of interpretation and performance practices will also be addressed. *Alternate years, two hours.*

MUSI 334. ORCHESTRAL LITERATURE. This course has been designed to prepare instrumental music majors to analyze, aurally and visually, the repertoire of the modern-day symphony orchestra. Topics to be explored include, but are not limited to, various time periods, genres and geographical influences on orchestral composition; analysis of compositions for various compositional elements and historical background; and compositional form, instrumentation, pedagogy, and performance practices.
Alternate years, two hours.

MUSI 335. MUSIC HISTORY III. A survey of music in Western civilization from 1900 to the present. This course is designated Writing Intensive (WI) and Information Literacy (IL). Prerequisite: Humanities 204. *Two hours.*

MUSI 360. INDEPENDENT STUDY. Individual study of a specialized topic(s) in music. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours.*

MUSI 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in music. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours.*

MUSI 376. JUNIOR INSTRUMENTAL RECITAL. The junior recital represents a preliminary step toward the senior capstone recital, which is the culmination of study in an area of applied performance. The recitalist demonstrates knowledge of the technique, repertoire, and stylistic interpretation that has been acquired in the applied area during the previous semesters of study. The junior recital is a one-half hour public performance. Prerequisites: Music major with junior standing. *One hour.*

MUSI 377. JUNIOR PIANO RECITAL. The junior recital represents a preliminary step toward the senior capstone recital, which is the culmination of study in an area of applied performance. The recitalist demonstrates knowledge of the technique, repertoire, and stylistic interpretation that has been acquired in the applied area during the previous semesters of study. The junior recital is a one-half hour public performance. Prerequisites: Music major with junior standing. *One hour.*

MUSI 378. JUNIOR VOICE RECITAL. The junior recital represents a preliminary step toward the senior capstone recital, which is the culmination of study in an area of applied performance. The recitalist demonstrates knowledge of the technique, repertoire, and stylistic interpretation that has been acquired in the applied area during the previous semesters of study. The junior recital is a one-half hour public performance. Prerequisites: Music major with junior standing. *One hour.*

MUSI 390. STUDIES IN MUSIC. Intensive examination of an area of music not fully covered by regular departmental offerings. Subject matter varies each semester.
Offered periodically, one, two or three hours.

MUSI 403. COMPOSITION. An elective course in music composition. This course discusses the fundamentals of music composition in terms of melody, harmony, form, texture and timbre with both an historical perspective (referencing masterpieces from the 12th through 21st centuries) and the opportunity to develop a personal compositional style. The bulk of the course is devoted to work on original student compositions. Prerequisite: Music 204. *Two hours.*

MUSI 426. MUSIC MARKETING. This course will provide students with an overview of key music marketing principles, terms, and practices, which together form the foundation for all music marketing plans. Students will dig into the key areas of opportunities for musicians, including publicity, advertising, promotion (online and traditional), digital distribution, touring, licensing/synch, and radio. Students will learn what companies and partners to work with to reach their core fans, how to communicate with them, and the ways to leverage the changes and new opportunities that the internet offers to marketers. In addition, they will learn marketing ideas to help them describe their vision, identify a market need, analyze an artist's fan base, learn from their competitors, set marketing plan goals, and find the perfect mix of new marketing strategies ranging from branding, product, price, place, promotion, and marketing information systems. Students may only receive credit for one of Music 426, Marketing 426, or Entrepreneurship 426. Prerequisite: Marketing 104.
Three hours.

MUSI 460. INDEPENDENT STUDY. Individual study of a specialized topic(s) in music. Senior standing, permission of the department chair, and a faculty sponsor are required.
One, two or three hours.

MUSI 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in music. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

MUSI 471. SENIOR CAPSTONE VOICE RECITAL. The senior capstone recital represents the culmination of study in an area of applied performance. The recitalist demonstrates knowledge of the technique, repertoire, and stylistic interpretation that has been acquired in the applied area during the previous semesters of study. The senior recital is a one-hour public performance. Prerequisites: Music major with senior standing.
Two hours.

MUSI 472. SENIOR CAPSTONE PIANO RECITAL. The senior capstone recital represents the culmination of study in an area of applied performance. The recitalist demonstrates knowledge of the technique, repertoire, and stylistic interpretation that has been acquired in the applied area during the previous semesters of study. The senior recital is a one-hour public performance. Prerequisites: Music major with senior standing.
Two hours.

MUSI 473. SENIOR CAPSTONE VOICE RECITAL. The senior capstone recital represents the culmination of study in an area of applied performance. The recitalist demonstrates knowledge of the technique, repertoire, and stylistic interpretation that has been acquired in the applied area during the previous semesters of study. The senior recital is a one-half hour public performance. Prerequisites: Music major with senior standing.
One hour.

MUSI 474. SENIOR CAPSTONE PIANO RECITAL. The senior capstone recital represents the culmination of study in an area of applied performance. The recitalist demonstrates knowledge of the technique, repertoire, and stylistic interpretation that has been acquired in the applied area during the previous semesters of study. The senior recital is a one-half hour public performance. Prerequisites: Music major with senior standing.
One hour.

MUSI 475. SENIOR CAPSTONE INSTRUMENTAL RECITAL. The senior capstone recital represents the culmination of study in an area of applied performance. The recitalist demonstrates knowledge of the technique, repertoire, and stylistic interpretation that has been acquired in the applied area during the previous semesters of study. The senior recital is a one-hour public performance. Prerequisites: Music major with senior standing.
Two hours.

MUSI 476. SENIOR CAPSTONE INSTRUMENTAL RECITAL. The senior capstone recital represents the culmination of study in an area of applied performance. The recitalist demonstrates knowledge of the technique, repertoire, and stylistic interpretation that has been acquired in the applied area during the previous semesters of study. The senior recital is a one-half hour public performance. Prerequisites: Music major with senior standing.
One hour.

MUSI 480. INTERNSHIP IN MUSIC. This is an opportunity for Music majors to participate in a meaningful learning experience under the supervision of both an employer and department faculty member. Most internships take place during the summer months.
One to six hours.

MUSI 488. SEMINAR IN MUSIC. Available only by permission of the department and the instructor involved. *One, two or three hours.*

MUSI 499. HONORS IN MUSIC. A course beyond the regular requirements for the music major. Available only to students with senior status and on an individual basis. *One hour.*

Music Education (MUSE)

MUSE 202. INTRODUCTION TO MUSIC EDUCATION. This course is designed for students majoring in music education. This course is intended to be taken concurrently with Foundations of Teaching (EDUC 202). This course focuses a close lens on the many facets of music education, including the historical and philosophical foundations of music education, special education in the music classroom, curriculum/lesson/unit planning and assessment, as well as the political and social issues facing music educators today. This course requires students to participate in class discussions and to write a formal paper focusing on a topic relevant to the course. Corequisite: Education 202. *One hour.*

MUSE 213. PREK-4 ELEMENTARY MUSIC PEDAGOGY. A study of music methods, pedagogy, materials, and applications for the PreK-4 elementary music teacher. Directed field experience in the PreK-4 schools is required. *Two hours.*

MUSE 214. MIDDLE LEVEL MUSIC PEDAGOGY. A study of music methods, pedagogy, materials, and applications for the middle level (grades 5-8) music teacher. Directed field experience in the middle level schools is required. *Two hours.*

MUSE 313. SECONDARY CHORAL AND GENERAL MUSIC PEDAGOGY. A study of music methods, pedagogy, materials, and applications for the secondary (grades 9-12) general and vocal music teacher. Directed field experience in the secondary choral classroom/school is required. *Two hours.*

MUSE 314. SECONDARY INSTRUMENTAL MUSIC PEDAGOGY. A study of music methods, pedagogy, materials, and applications for the secondary (grades 9-12) instrumental music teacher. Directed field experience in the secondary schools is required. *Two hours.*

MUSE 315. MUSIC METHODS FOR ELEMENTARY TEACHERS. A study of music materials and teaching methods designed to prepare the early childhood, elementary, and middle level teacher to engage students in musical learning experiences. Prerequisites: Sophomore standing; Elementary Education, Middle Level Education, and Special Education majors only. *One hour.*

MUSE 372. SECONDARY FIELD EXPERIENCE (SECOND LEVEL). An internship course designed to permit K-12 Music majors to engage in an observational and participatory field experience as approved by the instructor. Prerequisite: Music PK-12 major. *One hour.*

MUSE 373. SECONDARY FIELD EXPERIENCE (THIRD LEVEL). An internship course designed to permit K-12 Music majors to engage in pre-student teaching. Participatory field experience approved by the instructor. Prerequisite: Music PK-12 major. *One hour.*

MUSE 435. STUDENT TEACHING, ELEMENTARY MUSIC. Senior level Music Education credential candidates student teach in elementary public schools an equivalency of five days per week for seven weeks and attend one practicum session per week. Corequisite: Music Education 437. *Eight hours.*

MUSE 437. STUDENT TEACHING, SECONDARY MUSIC. Senior level Music Education credential candidates student teach at the junior/middle school and/or high school levels in the public secondary schools, an equivalency of five days per week for seven weeks and attend one practicum session per week. Corequisite: Music Education 435. *Eight hours.*

Theatre (THEA)

THEA 209. SOCIAL DANCING I. This course explores the history, rhythm, steps and styles of the Foxtrot, Waltz, Tango, Cha-Cha, Rumba and Swing. Students will learn the basic skills and information necessary to develop and continue one's interest in ballroom dancing, in addition to learning the fundamentals of lead/follow technique, dance etiquette, cooperation with a partner, and the ability to identify and distinguish music for each dance. *One hour.*

THEA 210. INTRODUCTION TO MUSICAL THEATRE. This class is a survey of the development of musical theatre as a performing art form in America from 1750 to the present. By looking at musical theatre from multiple perspectives – historical, cultural, political, social, aesthetic – the class will explore the ways in which musicals both reflect and embody values and trends of the cultural landscape in which they were written. Included will be practical study of the format of the libretto and musical score in relationship to the major musical theatre genre. *Three hours.*

THEA 211. INTRODUCTION TO DANCE. This course explores various movement disciplines including elements of Ballet, Jazz, Modern Dance, Folk Dance, Musical Theater, Lyrical and Hip Hop while investigating the history and cultural value of dance. No prior dance experience is necessary. *One hour.*

THEA 213. **JAZZ AND CONTEMPORARY DANCE.** This course explores various movement disciplines including elements of Ballet, Jazz, Modern Dance, Musical Theater, Lyrical and Hip Hop while investigating the history and cultural value of dance. This course is more appropriate for the student with previous dance experience. *One hour.*

THEA 215. DANCE COMPOSITION AND CHOREOGRAPHY. This advanced course explores various movement disciplines including elements of Jazz, Modern, Contemporary, Musical Theater, Lyrical and Choreography while investigating the history and cultural value of dance. This course is more appropriate for the student with previous dance experience. Prerequisite: Theatre 213. *One hour.*

THEA 216. SOCIAL DANCING II. This advanced level course continues the exploration of the rhythm, steps and styles of the Foxtrot, Waltz, Tango, Cha-Cha, Rumba and Swing. Students will learn more advanced patterns and skills in these dances, in addition to learning the Viennese Waltz and advanced partnering in the Swing. Prerequisite: Theatre 209. *One hour.*

THEA 217. TAP AND JAZZ. The purpose of this one-credit course is to investigate the movement disciplines of Tap and Jazz, their histories, styles, syncopated rhythms, and music specific to these dances while investigating the cultural value of these dance genres. No prior dance experience is necessary. Tap shoes required. *One hour.*

THEA 251. ACTING. Practice in preparing a dramatic role for performance. Exercises will focus on freeing the actor's voice and body for maximum expressiveness. Students will prepare and perform monologues, short scenes, and a single extended scene. *Three hours.*

THEA 255. ORAL INTERPRETATION OF LITERATURE. Study and practice of the techniques of reading literature aloud to enhance audience appreciation and enjoyment. Oral readings are given in the areas of fiction, poetry, and drama. Each student also prepares and performs a final ten-minute recital. *Three hours.*

THEA 259. THEATRE PRACTICUM. Students may receive one credit for a minimum of 40 hours of supervised technical theatre work directly related to a main-stage theatre production. Students must keep an ongoing record of the dates and times of their work, and the student's supervisor must sign each entry. These records are due by Study Day of the semester enrolled. This course is repeatable, but no more than three hours may count toward the Theatre minor. It will count as a general elective if taken more than three times.
One hour.

THEA 260. INDEPENDENT STUDY. An opportunity for students with extensive background in theatre to do intensive independent study or research on specialized topics. Sophomore standing with declared Theatre minor, permission of the department chair, and a faculty sponsor are required. Application deadline: end of the semester preceding the proposed study. *One, two or three hours.*

THEA 261. STAGECRAFT. This course covers the technical work of set-design, lighting, sound design, and stage rigging as well as administrative/budgetary management of technical theater. A practical course taught both in the classroom and in hands-on settings. Students will be required to assist in various productions and live performances throughout the semester. Note: for safety reasons, no minors may enroll in this course, and students should be aware that some lifting and handling of power tools is required. *Three hours*.

THEA 262. DESIGN FOR THE THEATRE. Focuses on the visual aspects of theatrical production, including set design, costume design, and lighting design. Through group and individual projects, students will work through the design process: analyzing the text, doing research, formulating a production concept, and applying the elements of design to create a visual world for the actors to inhabit. They will also practice the skills necessary to communicate their ideas to both a director and technical crews: drawing, drafting, model building, and organizational paperwork. *Three hours*.

THEA 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in theatre. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

THEA 290. STUDIES IN THEATRE. Subject matter varies each semester, to allow an in-depth study of aspects of theatre not covered in as much detail in other courses.
Three hours.

THEA 320. STAGE DIRECTION. Theories and techniques of directing plays for the stage. Principles of play analysis, blocking, characterization, and rhythm are studied. The student will direct laboratory scenes, prepare production scripts, do script analyzes, and produce an extended scene. Prerequisite: Theatre 251. *Three hours.*

THEA 351. ADVANCED ACTING. Study and practice of advanced techniques of acting. Students will also focus on vocal production, movement, and elements of style related to the performance of plays from various periods of theatre history. Prerequisite: Theatre 251.
Three hours.

THEA 360. INDEPENDENT STUDY. An opportunity for students with extensive background in theatre to do intensive independent study or research on specialized topics. Junior standing with declared Theatre minor, permission of the department chair, and a faculty sponsor are required. Application deadline: end of the semester preceding the proposed study. *One, two or three hours.*

THEA 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in theatre. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

THEA 384. PLAYWRITING. This course emphasizes the various aspects of writing an effective play. Topics include the processes of drafting and revision, analyses of literary style and technique, and methods of offering and accepting constructive criticism. Additionally, the collaborative nature of playwriting will be addressed; a play is not complete until the writer has involved others in the creative process. The student is expected to submit original manuscripts during the semester. Students may only receive credit for one of Theatre 384 or Writing 384. *Offered periodically, three hours.*

THEA 390. STUDIES IN THEATRE. Subject matter varies each semester, to allow an in-depth study of aspects of theatre not covered in as much detail in other courses. *Three hours.*

THEA 460. INDEPENDENT STUDY. An opportunity for students with extensive background in theatre to do intensive independent study or research on specialized topics. Senior standing with declared Theatre minor, permission of the department chair, and a faculty sponsor are required. Application deadline: end of the semester preceding the proposed study. *One, two or three hours.*

THEA 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in theatre. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

THEA 480. INTERNSHIP IN THEATRE. Students pursuing a minor in Theatre may, with prior consent of the Department, earn academic credit for work done (normally off campus) under the direct supervision of a professional in a theatre-related field. Students must keep a daily log of activities and submit an academic paper summarizing the experience. A maximum of six credits of internship may apply toward graduation. *One to six hours.*

Visual Arts (ART)

ART 101. ELEMENTS AND PRINCIPLES OF DRAWING. This course introduces students to essential 2D art concepts and techniques using a variety of drawing tools to produce black and white renderings on paper. *Three hours.*

ART 103. CERAMICS I HANDBUILDING. This is an introductory studio class designed to expose students to a variety of ceramic processes used to produce sculpture and vessel. The goal is to broaden students' understanding of clay as a viable medium for personal visual expression. *An additional fee is charged for this course*. *Three hours.*

ART 104. CERAMICS I WHEEL. This is an introductory studio class designed to expose students to the potter's wheel and throwing techniques used to produce hand-thrown vessels. The goal is to broaden students' understanding of clay as a viable medium for personal visual expression as they create unique, finished clay. *An additional fee is charged for this course*. *Three hours.*

ART 105 INTRODUCTION TO COLOR THEORY IN PAINTING. This course is an introduction to basic painting techniques and tools including acrylic, oil, and watercolor on a variety of substrates. *Three hours.*

ART 107. INTRODUCTION TO CERAMICS. This is an introductory course for ceramics. This class is fast-paced, technique oriented, and product focused. Students will experience different hand building techniques and learn basic wheel techniques. Students will be introduced to glazing and firing basics. Although an introductory course, final products will establish a need to be specific to representation of the product being made. Consideration of size, weight, structure, and design will be important for success in the class. *Three hours.*

ART 111. INTRODUCTION TO SCULPTURE. This is an introductory studio class designed to expose students to a variety of sculptural processes and materials used to produce 3D art. *Three hours.*

ART 121. BEGINNING PRINTMAKING. This course is an introduction to printmaking methods typically used by artists and designers. In addition to understanding techniques, students will be challenged to think practically as they balance the affordances and constraints of various printmaking processes. *An additional fee is charged for this course.* *Three hours.*

ART 201. HISTORY AND APPRECIATION OF ART I. A survey of the visual arts (including painting, architecture, and sculpture) from prehistory through the High Renaissance, studied through illustrated lectures, readings, and class discussions. *Three hours.*

ART 202. HISTORY AND APPRECIATION OF ART II. A survey of the visual arts (including painting, architecture, and sculpture) from Mannerism through the Twentieth Century, studied through illustrated lectures, readings, and class discussions. *Three hours.*

ART 207. CERAMICS II. This course is a continuation of the beginning ceramics class where students refine their understanding of the medium. Students are challenged to build a body of work and develop a personal style. *An additional fee is charged for this course.* Prerequisite: Art 103 or 104. *Three hours.*

ART 260. INDEPENDENT STUDY. Individual study of specialized topics in art. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ART 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in art. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ART 290. STUDIES IN VISUAL ARTS. A course that covers special topics in the field of arts. *Offered periodically, one, two or three hours.*

ART 320. GALLERY STUDIES. This course provides an experience for students who are interested in the arts in fields such as a gallery director, an event planner, as well as those who are interested in pursuing a career as an artist. Students in the course will gain valuable working experiences in planning and executing successful gallery-related events. *Three hours.*

ART 323. MIXED MEDIA-DRAWING AND PAINTING. This is an advanced course for painting and drawing. This course will build on technique and application of skills in drawing and/or painting. By applying these skills and techniques through a variety of exercises, assignments both in and out of the studio, students will enhance their skills, techniques, and thought process to develop a body of work that provides a strong dialogue

that engages the viewer. Students will be required to display their works to the public through the campus gallery or other public outlet. Prerequisites: Art 101 or Art 105.
Three hours.

ART 360. INDEPENDENT STUDY. Advanced study in an area of art not available through regular course offerings. An independent study form is required to register for this class. Sophomore or higher standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ART 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in art. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ART 390. STUDIES IN VISUAL ARTS. A course that covers special topics in the field of arts. *Offered periodically, one, two or three hours.*

ART 460. INDEPENDENT STUDY. Advanced study in an area of art not available through regular course offerings. An independent study form is required to register for this class. Junior or higher standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ART 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in art. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ART 488. SEMINAR IN ART. Available only by pre-approved permission of the department chair and the instructor involved. *An additional fee is charged for this course.*
One, two or three hours.

Charles Jr. and Betty Johnson School of Nursing

Dr. Annear, Chair and Director of Nursing; Dr. Skees.

Please reference the *Nursing Program Booklet: A Supplement to The College Bulletin* for more detailed program information and requirements.

Course Requirements for Bachelor of Science Degree in Nursing—97 hours

Nursing Core (43 hours):
Nursing 100, 101, 102, 103, 104, 105, 141, 142, 143, and 144.

Nursing BSN Requirements (24 hours):
Nursing 430, 431, 432, 433, 434, 445, 446, 447.

Major Related Requirements (30 hours):
Biology 207; Communication Arts 104; Exercise Science 253, 258; Physical Education 134; Psychology 101, 103, 201; and Science 203.

Courses that count in the Nursing major quality point average (MQPA):
All courses with "NURS" prefixes. A minimum MQPA of 2.00 is required to graduate.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Nursing (NURS)

NURS 100. INTRODUCTION TO PROFESSIONAL NURSING. Introduction of professional nursing is a course that helps students explore the various aspects of nursing. The purpose of the course is to introduce nursing concepts to nursing majors prior to the admission to the nursing school curriculum. The course focuses on topics such as the historical foundation of the nursing profession, roles and functions of the nurse, education requirements, test-taking strategies, nursing process, ethical issues, cultural sensitivity, and basic nursing competences. This course is designated Writing Intensive (WI). *Two hours.*

NURS 430. DEATH AND DYING. This studies course is designed to equip students with the knowledge, skills and attitudes needed when caring for clients and their families during the end-of-life experience. Students will learn about perspectives on death and dying that will guide their understanding on this phase of life. Grief and loss across the lifespan, ethical issues, and the need for effective, compassionate communication will be introduced and analyzed. Interdisciplinary strategies used to provide end-of-life care will be explored. *Fall semester, online, three hours.*

NURS 431. COMMUNITY AND PUBLIC HEALTH NURSING. This 8-week course focuses on the promotion of health and the prevention of illness in the community. Population health concepts are integrated throughout the course to foster a deep understanding of the complex care needs of vulnerable populations. Topics include epidemiology, health care economics, environmental health, and health promotion for specific vulnerable populations. Various roles and settings of the community/public health nurse will be emphasized. Students are required to complete a community clinical practicum. Prerequisites: Associate Nursing Degree in Applied Science from Butler County Community College (BC3) and a current unencumbered Registered Nurse (RN) license. *Fall semester, online, three hours.*

NURS 432. NURSING RESEARCH / EVIDENCE-BASED PRACTICE. This course focuses on the identification of nursing concerns within the clinical environment and the implementation of a strategic plan based upon the evidence that can improve the quality of clinical practice. The purpose of the course is to utilizes the steps of the evidence-based practice model to improve nursing practice. The course topics include the comparison of nursing practice models to EBP models, identification of patient problems, review of the literature, evidence appraisal, planning, implementing, and evaluating for positive outcomes. Prerequisites: Associate Nursing Degree in Applied Science from Butler County Community College (BC3) and a current unencumbered Registered Nurse (RN) license. The prerequisites may be waived with approval from the Director of Nursing. This course is designated Information Literacy (IL). *Fall semester, online, three hours.*

NURS 433. CRITICAL THINKING IN NURSING. This 8-week course focuses on the ongoing development of critical thinking skills within the clinical environment. The purpose of the course is to review how to assess and promote critical thinking in the clinical practice. The course topics include critical thinking, clinical reasoning, clinical judgment, reflection, mindfulness, prioritizing frameworks, professional development, and accountability. Prerequisites: Associate Nursing Degree in Applied Science from Butler County Community College (BC3) and a current unencumbered Registered Nurse (RN) license. The prerequisites may be waived with approval from the Director of Nursing. *Fall semester, online, three hours.*

NURS 434. ADVANCED NURSING ASSESSMENT. This 8-week course focuses on the ongoing development of assessment skills based upon the acuity, environment, and patient findings. The purpose of the course is to review how to perform a complete physical assessment based upon presentation of symptoms, physical system(s) involved, health care setting, and patient findings/acuity. The course topics include identifying the purpose of the assessment, types of nursing assessments, head-to-toe assessment framework, data collection, interpretation or findings, and clinical decision-making. The prerequisites may be waived with approval from the Director of Nursing.

Spring semester, online, three hours.

NURS 445. ADVANCED PHARMACOLOGY FOR NURSES. This 8-week course focuses on the enhancement of the knowledge related to pharmacology, safe nursing practice in medication administration, and patient education of pharmacologic therapies. The purpose of the course is to review how pharmacologic therapies are utilized in nursing practice and to promote critical thinking in the health care environment.

Spring semester, online, three hours.

NURS 446. NURSING LEADERSHIP SEMINAR. The purpose of this 8-week course is to introduce both nursing clinical leadership associated with management and leadership that can be developed and implemented at the bedside; both which emphasize the patient and the health care team. Additional topics will include leadership qualities and styles, accountability, self-care, professional development, and management structures. Corequisite: Nursing 447. *Spring semester, online, three hours.*

NURS 447. NURSING CAPSTONE. This 8-week course focuses on the completion of a senior project which is a culmination of liberal arts education at GCC, the Associate of Applied Science Education of BC3, and the initiation into the nursing profession. The purpose of this course is to build on the concepts and knowledge gained from previous nursing courses allowing for the application of theories and concepts associated with nursing leadership, nursing research, and management of care. This course is designated Writing Intensive (WI). Corequisite: Nursing 446. *Spring semester, online, three hours.*

Philosophy

Dr. Franklin, Chair; Dr. West.

Course Requirements for Bachelor of Arts Degree in Philosophy—33 hours

Core Requirements: (30 hours)
Philosophy 161 or 191, 201 or 211, 231, 232, 233, 311, 312, 313, 314, and 488.

Major Electives: (3 hours) Choose one course from:
Bible 313, Philosophy 201, 205, 211, 243, 256, 271, 290, 305, 340, 390, 470, Political Science 205, 355, or 356. Note: One of Philosophy 201 or 211 may be used to fulfill the Major Elective. The other may fulfill the Core Requirement.

Courses that count in the Philosophy major quality point average (MQPA):
All courses with "PHIL" prefix, POLS 205, POLS 355, POLS 356, and BIBL 313. A minimum MQPA of 2.00 is required to graduate.

Developing information literacy and writing skills in the study of Philosophy involves gaining proficiency in doing research on great philosophical thinkers and ideas sufficient

for the writing of clear, well-supported research and critical analysis papers in the major. Professional speaking skills are also essential in preparing Philosophy students for graduate school and/or a career. To this end, the required course Philosophy 488 *Philosophy Seminar* will be designated as the Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL) course.

Course Requirements for a minor in Philosophy (18 hours)

A minor in Philosophy will consist of Philosophy 161 or 191, Philosophy 201 or 211, and twelve additional hours of Philosophy courses. A maximum of three credits of independent study in Philosophy may count toward the minor. Political Science 205 may also count toward this minor.

Course Requirements for a minor in Political Philosophy and Theology (18 hours)

A minor in Political Philosophy and Theology will consist of Political Science 355, 356; and 12 hours from Bible 320, Philosophy 191, 314, 340, 488, Political Science 350 or 354.

Philosophy (PHIL)

PHIL 161. INTRODUCTION TO PHILOSOPHY. A course designed to acquaint the student with the various fields and problems of philosophy. Primary sources are used.
Three hours.

PHIL 191. INTRODUCTION TO ETHICS. An introductory study of philosophical issues related to the moral life, such as: What should we love? How should we treat each other, and why? What does it mean to be a good person, and how might we become better people? And What is human life about, ultimately? Attention will be given to the insights of principle figures in the history of ethics from the ancient period to the present.
Three hours.

PHIL 201. SYMBOLIC LOGIC. A study of formal deductive logic with emphasis on testing arguments for validity and translating English statements into symbolic notation.
Three hours.

PHIL 205 READINGS IN PHILOSOPHY. An introductory study of central philosophical texts for their enduring philosophical contributions. This course may be repeated as texts vary semester by semester. *Alternate years, three hours.*

PHIL 211. GENERAL LOGIC. A study of reasoning in a variety of contexts. Attention is given to both inductive and deductive arguments. Many kinds of fallacies are studied as well as traditional syllogisms and logical puzzles. Diagramming techniques are developed.
Three hours.

PHIL 231. ANCIENT PHILOSOPHY. A survey of Western philosophy from the early Greeks through the beginning of the Christian era. Special attention will be given to the philosophies of Plato and Aristotle. Primary sources are used. *Alternate years, three hours.*

PHIL 232. MEDIEVAL PHILSOPHY. A study of the thought of prominent philosophers from St. Augustine to Ockham, addressing issues such as the nature and existence of God, theories of the good life, and the project of synthesizing Christianity with pagan philosophy. Primary sources are used. *Alternate years, three hours.*

PHIL 233. MODERN PHILOSOPHY. A survey of major philosophical figures and ideas in the seventeenth through nineteenth centuries. Primary sources are used.
Alternate years, three hours.

PHIL 243. SCIENCE AND THE HUMAN: INQUIRY, DESIGN AND THE PERSON. This course will examine historical and contemporary discussions of the nature of scientific inquiry and scientific knowledge, and related questions in the philosophy of science. It will also examine philosophical issues connected with design in nature, origins, and current technological development. Prerequisites: Humanities 261 or Humanities 271; and a lab science. The lab science course and Humanities 261 or 271 may be taken concurrently with this course. This course satisfies the College's SSFT General Education requirement. *Three hours.*

PHIL 256. GOD, SUFFERING, AND NARRATIVE. A philosophical investigation into the problem of suffering-the problem of reconciling an all-powerful, all-knowing, and perfectly good God with the existence of horrendous evils-with a focus on understanding the differences between argument and narrative as sources of knowledge, the varieties of knowledge, the nature of God and evil, union with God, the relationship between love and the will, the fragmentation of the human self, and the biblical narratives of Abraham and Job. Other works of literature may be used. *Alternate years, three hours.*

PHIL 260. INDEPENDENT STUDY. Individual study of specialized topics in philosophy. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PHIL 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in philosophy. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PHIL 271. BIO-MEDICAL ETHICS. An introduction to the ethical issues arising in the field of biomedicine. Topics covered include issues such as abortion, eugenics, euthanasia, organ transplantation, behavior control, the right of a patient to refuse treatment, etc. Sophomore, junior, or senior standing is required. *Three hours.*

PHIL 290. STUDIES IN PHILOSOPHY. The subject matter for this course will vary each semester to allow for the introduction of new courses in the field of philosophy.
Three hours.

PHIL 305 ADVANCED READINGS IN PHILOSOPHY. An advanced study of central philosophical texts for their enduring philosophical contributions. This course may be repeated as texts vary semester by semester. Prerequisite: Philosophy major; or permission of instructor. *Alternate years, three hours.*

PHIL 311. METAPHYSICS. Metaphysics examines such basic questions as "What is real?" "What is the nature of basic reality?" and "What is the nature of human beings?" This course will examine some influential discussions of metaphysics arising from these basic questions. Some topics we may discuss include the nature of identity, the relationship between mind and body, free will, and other topics that arise in answering basic metaphysical questions. *Three hours.*

PHIL 312. EPISTEMOLOGY. Epistemology is the study of the nature and limits of human knowledge, understanding and rationality. Questions covered in this course may include "What is knowledge" "What gives a person a good reason for his/her beliefs?"

"What are the limits of human understanding and rationality?" and "What does it mean to achieve excellence in intellectual pursuits?" *Three hours.*

PHIL 313. ETHICS. The central question of ethics is "How should we live?" This course examines several theories concerning the norms governing human life. Topics may include the nature of happiness, the role of virtue in a life well lived, the relationship between moral rules and right action, the functions of reason and the passions in practical rationality and more. *Alternate years, three hours.*

PHIL 314. PHILOSOPHY OF RELIGION. A sustained philosophical reflection on the nature and existence of God, addressing questions such as the rationality of belief in God, the role of evidence in religious belief, the problem of evil, the moral and cognitive significance of religious experience, and the relationship between God and morality. *Alternate years, three hours.*

PHIL 340. PHILOSOPHY OF LAW. This course commonly examines such topics as the nature of law, the relationship of law to morality, the problem of judicial interpretation, justice, and rights. *Alternate years, three hours.*

PHIL 360. INDEPENDENT STUDY. An opportunity for sophomore and junior students with previous background in philosophy to do intensive independent study of specialized topics. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two, or three hours.*

PHIL 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in philosophy. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PHIL 390. ADVANCED STUDIES IN PHILOSOPHY. The subject matter for this course will vary each semester to allow for the introduction of new courses in the field of philosophy. *Three hours.*

PHIL 460. INDEPENDENT STUDY. An opportunity for junior and senior students with previous background in philosophy to do intensive independent study of specialized topics. Prerequisite: Twelve hours of philosophy coursework, permission of the department chair, and a faculty sponsor. *Three hours.*

PHIL 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in philosophy. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PHIL 488. PHILOSOPHY SEMINAR. This course is taught in a seminar style with student-led discussions, a focus on close readings of philosophical works, and a major research project. The course may be repeated, as topics covered vary by semester. This course fulfills the Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL) requirement for the Philosophy major. Prerequisite: Philosophy 161 or 191, Philosophy 201 or 211, and six hours of Philosophy courses above the 211 level; or permission of the instructor. *Three hours.*

Physical Education and Athletics

Prof. Todd Gibson, Vice President for Athletics. Additional Instructional Faculty: Prof. Bennett, Prof. C. Clauss, Prof. Cramer, Prof. Frey, Prof. Sayles, and Prof. Welker.

The Department of Physical Education and Athletics and Grove City College believe that a Christian liberal arts college should teach the "whole individual," giving careful attention to the development of psychomotor (physical development), cognitive (basic reasoning), and the affective (social, emotional and spiritual) behavioral goals of the student regardless of his/her major.

In an attempt to realize this philosophy, the Department of Physical Education and Athletics and Grove City College present a balanced program that encompasses the many facets of physical education. The specific objectives of the program are to develop a heightened awareness of personal fitness and wellness, to develop neuromuscular skills, to cultivate an interest in recreation, and to encourage desirable social and moral standards.

Physical Education (PHYE)

The Physical Education program at GCC is designed to provide students with foundational knowledge and physical activity opportunities to begin shaping their own health and wellness habits. A student may choose up to six additional hours of physical education courses with the "PHYE" prefix, but not more than one course per semester. Duplication of courses for credit is prohibited and the Department of Physical Education and Athletics reserves the right to cancel any course based on insufficient enrollment.

PHYE 100. HEALTHFUL LIVING. This course introduces students to fundamental concepts associated with healthful living throughout the lifespan in modern society. The course will focus upon the promotion of health and wellness within individuals, families, and communities through an understanding of healthful living, development of healthy lifestyles, and avoiding or overcoming harmful habits. Current research and best practices will be presented to further students' knowledge and help them to shape their own strategies for a healthy and fit future. *Online, one hour.*

PHYE 134. FITNESS FOR THE HEALTH CARE PROVIDER. This course will focus on maintaining physical health while working in the demanding field of nursing. This will be offered virtually, via required readings, and videos. The students will have assignments weekly based on the assigned reading or viewing. These assignments could be response questions, exercise program designs or journaling exercise experiences, depending on the unit. The students will also be required to complete structured exercise programming based on the weekly class sessions to provide hands on experience formulating workouts and working to achieve fitness goals. Weekly workout reports will be submitted to the instructor. *Fall semester, two hours.*

PHYE 201. RACQUETBALL. The purpose of this course is to teach the fundamental skills and knowledge of the sport of racquetball. It will consist of lecture, practice of specific skills, and competition. Students will develop an appreciation of racquet ball as a means to a healthy use of leisure time. Two hours per week. *Spring semester, one hour.*

PHYE 207. BEGINNING BOWLING. This course will introduce students to the basic sport of bowling. Students will learn the nature and purpose of the game; lane, pin, and ball specifications; rules; basic skills; and tactical strategies of the game. Two hours per week. *One hour.*

PHYE 208. ARCHERY. This course will help students develop a lifelong interest, knowledge, and skill in the sport of archery. Every level of archery student is welcome, and class information will be tailored to each individual's skill level. Students will learn range safety and layout, archery terminology, eye dominance, The 11 Steps to Archery Success, whistle commands, scoring, how to find a reference point, proper aiming techniques, identification of bow and arrow components, equipment maintenance, competition preparation and strategies, and coaching techniques, and more. Two hours per week. *One hour.*

PHYE 209. TENNIS. This course introduces students to the concept of tennis and its nature and purpose. Tennis can be the most demanding sport, or it can be played purely as a social diversion. It can be played by almost anyone at almost any skill level and the rules are the same the world over. Students will develop an appreciation for tennis as a valuable method of exercise that can be continued throughout one's lifetime, increasing the development of cardio-respiratory and muscular endurance. Two hours per week. *One hour.*

PHYE 217. VOLLEYBALL. This course teaches students the specific skills and knowledge of the sport of volleyball. Class will consist of lecture, practice of fundamental skills necessary for success and competition. Students will develop an appreciation for volleyball as a means to use leisure time in a healthy manner as they demonstrate an understanding of the fundamental skills, rules, and strategies necessary to participate in the sport of volleyball. Two hours per week. *Spring semester, one hour.*

PHYE 260. INDEPENDENT STUDY. Individual study of specialized topics in Physical Education. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PHYE 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in physical education. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PHYE 290. STUDIES IN PHYSICAL EDUCATION. A course that covers special topics related to athletics and physical education. *One, two or three hours.*

Physics

Dr. Wolinski, Chair; Dr. Brower, Dr. Clem, Dr. Scheie, Dr. Wagner.

Course Requirements for Bachelor of Science Degree in Physics—81 hours

Physics Core (32 hours):
Physics 101, 102, 135, 210 or Electrical Engineering 201 and 251, Physics 234, 288, 303, 305, 321, 431, Astronomy 207.

Physics Electives—choose 12 hours from:
Physics 304, 310, 340, 401 or 402, 421, 442.

Technical Core requirements (26 hours):
Chemistry 105; Computer 141; Mathematics 161, 162, 261, 262, 263; Physics 242.

Technical Electives (11 hours):
Choose eleven hours from any 300-level Astronomy courses; any Biology courses; Chemistry 112 and 114; any 200- or 300-level Chemistry, Computer Science, Electrical Engineering, Engineering, or Mechanical Engineering courses; any 300-level Mathematics courses; Physics 260, 270, 360, 370, 470; any additional courses approved by the Department Chair.

Courses that count in the Physics major quality point average (MQPA):
All courses with "PHYS" and "ASTR" prefixes. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a Bachelor of Science Degree in Physics and Secondary Education Certification—116-118 hours

Physics Core (32 hours):
Physics 101, 102, 135, 210 or Electrical Engineering 201 and 251, Physics 234, 288, 303, 305, 321, 431, Astronomy 207.

Physics Electives—choose 12 hours from:
Physics 304, 310, 340, 401 or 402, 421, 442.

Technical Core requirements (26 hours):
Chemistry 105; Computer 141; Mathematics 161, 162, 261, 262, 263; Physics 242.

Technical Electives (6-8 hours):
Choose six to eight hours from Astronomy 310; any Biology courses; Chemistry 112 and 114; any Chemistry course 141 or higher; any Computer Science courses (excluding 141, 155, and 205); any DSCI course; any engineering courses (except Engineering 156, 402, 482, or Electrical Engineering 201, 251); any Mathematics course 300 or higher; or any Robotics course (excluding all 190, 260, 270, 290, 360, 370, 390, 460, 470, and 490 courses from BIOL, CHEM, COMP, DSCI, ENGR, MATH, and ROBO). Additionally, Physics 270, 370, 470, 486; any additional courses approved by the Department Chair. A maximum of three hours from Physics 270, 370, and 470 may count toward this requirement.

Education requirements (40 hours):
Education 102, 202*, 203, 204, 215, 271, 317, 375, 450, 488; Special Education 102 and 103. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Physics and Secondary Education Certification quality point average (MQPA):
All courses with "PHYS" and "ASTR" prefixes. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification. Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

Course Requirements for a Bachelor of Science Degree in Physics and General Science Secondary Education Certification—98-99 hours

Physics Core (26 hours):
Physics 101, 102, 135, 210 or Electrical Engineering 201 and 251, Physics 234, 288, 321, 486, Astronomy 207.

Technical Core requirements (26-27 hours):
Chemistry 105; Computer 141; Geology 201 or Science 204; Mathematics 161, 162, 261; and Biology 101 or Science 202.

Technical Electives (6 hours):
Choose six hours from any 300-level Astronomy course; Biology 102; Chemistry 112 and 114; any Computer Science course numbered 215 or higher (excluding Computer Science 260, 270, 290, 360, 370, 390, 460, 470, 480, and 499); Mathematics 262; Mechanical Engineering 211, 212, 214; Physics 242, 270, 303, 305, 310, 340, 370, 421, 431, 470; any additional courses approved by the Department Chair. A maximum of three hours from Physics 270, 370, and 470 may count toward this requirement.

Education requirements (40 hours):
Education 102, 202*, 203, 204, 215, 271, 317, 375, 450, 488; Special Education 102 and 103. *Note: Students who completed Education 205 while dual enrolled must take Education 206 to complete the Education 202 requirement.

Courses that count in the Physics and General Science Secondary Education Certification major quality point average (MQPA):
All courses with "PHYS", "ASTR", and "EDUC" prefixes; Special Education 102 and 103. A minimum MQPA of 2.00 is required to graduate. A minimum CQPA of 3.00 and MQPA of 2.75 are required for certification.

Students should reference the Department of Education section of the *Bulletin* for additional details on teacher certification requirements.

Course Requirements for Bachelor of Science Degree in Physics/Computer—86-90 hours

Physics/Computer Core requirements (40 hours):
Physics 101, 102, 135, 234, 242, 288, 303, 321, 442; Astronomy 207; Computer Science 141, 244, and 342.

Electrical Engineering 441 (required for Physics/Computer Hardware Option) /Computer Science 424 (required for Physics/Computer Software Option).

Technical Core requirements (20 hours):
Chemistry 105; Mathematics 161, 162, 261, 262, 263.

Hardware or Software Option
Choose one of the following options:

Computer Hardware option (26-27 hours):
Computer Hardware Requirements (20 hours): Electrical Engineering 201, 202, 204, 251, 252, 306, 310, Computer Science 220.

Technical Electives (6-7 hours): Choose two of the following: Physics 304, 305, 340, 401 or 402, 421, 431; Astronomy 310; Mathematics 213.

Computer Software option (28-30 hours):
Computer Software Requirements (25-27 hours): Computer Science 220, 222, 325, 340, 350; Physics 210 or Electrical Engineering 201 and 251; two of (6-8 hours): Electrical Engineering 204; Computer Science 480; Physics 270, 370,

470 (limit 3 hours); Computer Science 314; any 400-level computer course; Mathematics 213, 222*.

Technical Electives (3 hours): Choose one of the following: Physics 304, 305, 340, 421, 431, Astronomy 310.

** Students who elect Mathematics 213 and 222 will also receive a minor in Mathematics.*

Courses that count in the Physics/Computer major quality point average (MQPA):
All courses with "PHYS", "ASTR", "COMP", and "ELEE" prefixes, MATH 222. A minimum MQPA of 2.00 is required to graduate.

Course Requirements for a minor in Astronomy (21 hours)
A minor in Astronomy will consist of Physics 101 or 121; Physics 102 or 122; Astronomy 206, 207, 301, and 310.

Course Requirements for a minor in Medical Physics (19 hours)
A minor in Medical Physics will consist of Physics 101 or 121; Physics 102 or 122; Physics 234, 321, 401, and 402.

Course Requirements for a minor in Physics (18 hours)
A minor in Physics will consist of Physics 101, 102, 135, 234, and six hours from Physics 303, 305, 310, 431, 442 (Electrical Engineering majors may not take Physics 305).

Training in both oral and written communication skills is an oft-neglected part of the undergraduate science curriculum. At the same time, communicating one's ideas and results in a clear and coherent manner is an essential skill for a scientist, requiring clarity of thought and expression. In addition, a scientist must know how to find, analyze, and use information developed by others in their field. To address these concerns, all physics majors are required to take Physics 288 as a Writing Intensive (WI) course and Physics 321 as a Speaking Intensive (SI) and Information Literacy (IL) course. In tandem, these courses provide focused, discipline specific training in the areas of oral and written communications as well as the ability to gather, analyze and use information within the field of physics.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Physics (PHYS)

PHYS 101. GENERAL PHYSICS I-ENGINEERING. A calculus-based study of mechanics including kinematics, Newton's laws of motion, work, energy, linear momentum, rotational motion, angular momentum, gravity, equilibrium, fluids, oscillations, traveling and standing waves. Three lectures and one lab per week. Students may not receive credit for both Physics 101 and 121. Corequisite: Mathematics 161.
Fall semester, four hours.

PHYS 102. GENERAL PHYSICS II – ENGINEERING. A survey of the fundamental principles of electric fields and potentials, circuit theory, magnetism, Maxwell's equations, light, interference, and diffraction. Three lectures and one lab per week. Prerequisite: Physics 101. Corequisite: Mathematics 162. *Spring semester, four hours.*

PHYS 121. COLLEGE PHYSICS I. A study of mechanics at the pre-calculus level with applications to the life sciences. Topics include kinematics, Newton's laws, work, energy,

momentum, angular motion, fluids, oscillations, and gravity. Three lectures and one lab per week. Students may not receive credit for both Physics 101 and 121.
Fall semester, four hours.

PHYS 122. COLLEGE PHYSICS II. A study of electricity, magnetism, geometric and physical physics at the pre-calculus level with applications to the life sciences. Topics include electric field and potential, DC circuits, magnetism, induction, geometric and physical optics, relativity, and nuclear physics. Three lectures and one lab per week. Prerequisite: Physics 121. *Spring semester and online, four hours*.

PHYS 135. HORIZONS IN PHYSICS. Discussion of current topics in physics. Since scientific journals will provide much of the content for this course, students will learn how to acquire and interpret articles from scholarly publications. In addition, students will be required to attend presentations by physicists actively engaged in research, as well as field trips to academic and industrial laboratories in the area. This course is open to all students but, in the event that the class becomes full, preference is given to physics majors.
Fall semester, one hour.

PHYS 210. ELECTRONICS. An introduction to electronics emphasizing those topics most useful to the experimental physicist. As such, the physics of active and passive devices (resistors, capacitors, inductors, diodes, transistors, sensors, etc.) will be discussed along with practical circuit applications (filters, operational amplifiers, voltage regulators, oscillators, timers, etc.). The bulk of this course is devoted to analog electronics, but digital electronics is discussed briefly at the end of the semester. Three hours of lecture and three hours of lab per week. Prerequisite: Physics 102. *Fall semester, four hours.*

PHYS 234. MODERN PHYSICS. An introduction to modern physics. Two essential areas will be covered: the special theory of relativity and the origins of quantum mechanics. Prerequisite: Physics 102; or Physics 122 and Mathematics 162.
Fall semester, three hours.

PHYS 242. INTRODUCTION TO THEORETICAL PHYSICS. An introduction to problem-solving techniques used to describe physical phenomena. Includes topics from complex analysis, probability theory, vector calculus, Fourier series and transforms, matrix algebra, differential equations (ordinary and partial), and special functions. Prerequisites: Mathematics 261 and Physics 102, or by permission. *Spring semester, three hours.*

PHYS 260. INDEPENDENT STUDY. Individual study of specialized topics in physics. Sophomore standing, permission of the department chair, and a faculty sponsor are required.
One, two or three hours.

PHYS 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in physics. Freshman or sophomore standing, permission of the department, and a faculty sponsor are required. *One, two or three hours.*

PHYS 288. INTERMEDIATE LABORATORY. This course is designed to teach students the *process* of scientific investigation, transitioning them from introductory, cook-book labs to actual experimental design and execution. Experiments cover a variety of topics from classical and modern physics including propagation of error, waves, thermodynamics, optics, spectrophotometry, speed of light, and the photoelectric effect. This course is designated Writing Intensive (WI). Corequisite: Physics 234. *Spring semester, two hours.*

PHYS 290. STUDIES IN PHYSICS. Examination of new areas developing in the field of physics not offered by regular course work. Subject matter varies each semester.
Three hours.

PHYS 303. MECHANICS I. The application of mathematical methods to the study of the general motion of particles; Newtonian and Lagrangian mechanics; Hamilton's equations; and selected applications. Prerequisites: Physics 101 and either Math 262 or Physics 242, or consent of instructor. *Fall semester, three hours.*

PHYS 304. MECHANICS II. A continuation of Mechanics I. Topics covered include dynamics of a system of particles, motion in a non-inertial reference frame, dynamics of rigid bodies, and coupled oscillations and waves. Prerequisite: Physics 303.
Offered periodically, spring semester, three hours.

PHYS 305. ELECTRICITY AND MAGNETISM. A study of the fundamental principles of electricity and magnetism. Topics covered include vector calculus, electric field and potential, polarization, electric displacement, linear dielectrics, magnetostatics, and electrodynamics. Prerequisites: Physics 102 and Physics 242 or Mathematics 262.
Fall semester, three hours.

PHYS 310. OPTICS. A study of electromagnetic waves. Topics covered include the Maxwell equations, geometric optics, interference, diffraction, polarization, coherence, holography, and topics from nonlinear optics. Prerequisites: Physics 305 or Electrical Engineering 304. *Spring semester, alternate years, three hours.*

PHYS 321. RADIATION LABORATORY. An experimental study of the detection and characteristics of alpha, beta, gamma, and neutron radiation. One lecture and one lab per week. This course is designated Speaking Intensive (SI) and Information Literacy (IL). Prerequisite: 234 or consent of the department.
Spring semester, alternate years, two hours.

PHYS 340. THERMODYNAMICS AND STATISTICAL MECHANICS. A study of thermodynamics and statistical mechanics that includes topics such as heat and work; ideal gases; equipartition of energy, entropy, Boltzmann, Fermi-Dirac, and Bose-Einstein distributions; and applications to heat engines, refrigeration, chemical equilibrium, phase transitions, blackbody radiation, and properties of solids. Prerequisites: Physics 234 and 242, or permission of the instructor. *Fall semester, alternate years, three hours.*

PHYS 360. INDEPENDENT STUDY. An opportunity for independent study of specialized topics in physics. Junior standing, permission of the department, and a faculty sponsor are required. *One, two, or three hours.*

PHYS 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in physics. Junior standing, permission of the department, and a faculty sponsor are required. *One, two or three hours.*

PHYS 390. STUDIES IN PHYSICS. Examination of different areas in the field of physics not offered by regular course work. Subject matter varies each semester. *Three hours*.

PHYS 401. RADIATION AND HEALTH PHYSICS. A study of radiation therapy principles in medicine. Topics include how radiation is generated and how it interacts with human tissue, dose limits and how they are calculated, radiation safety, and electron and proton beam therapy. Prerequisite: Physics 234 or permission of instructor.
Alternate years, spring semester, three hours.

PHYS 402. MEDICAL IMAGING AND DIAGNOSTIC PHYSICS. This course serves as an introduction to x-ray radiography and advanced diagnostic medical imaging techniques like x-ray tomography (CAT), ultrasound, magnetic resonance imaging, and positron emission tomography. Prerequisite: Physics 234 or permission of instructor.
Alternate years, spring semester, three hours.

PHYS 421. ADVANCED TOPICS. An in-depth course in an advanced physics topic (or topics) chosen by the instructor. Content can vary from year to year but may be include areas such as general relativity, nuclear physics, elementary particle physics, solid-state physics, nanotechnology, etc. Prerequisites: Physics 234; and Mathematics 262 or Physics 242. *Alternate years, fall semester, three hours.*

PHYS 431. QUANTUM MECHANICS. A study of wave-particle duality, the Bohr atom, and the development of quantum mechanics and its application to the periodic table and the nucleus and solving the Schrödinger equation for several 1D systems and for the Bohr atom. Prerequisites: Physics 234, 303, and Mathematics 262 or Physics 242.
Spring semester, three hours.

PHYS 442. COMPUTATIONAL METHODS IN PHYSICS. An advanced course in the solution of physics problems using computer programming and numerical techniques for ordinary differential equations, partial differential equations, algebraic equations, spectral analysis, optimization, and numerical integration. Corequisites: Computer 141; Physics 303.
Alternate years, spring semester, three hours.

PHYS 460. INDEPENDENT STUDY. An opportunity for independent study of specialized topics in physics. Senior standing, permission of the department, and a faculty sponsor are required. *One, two, or three hours.*

PHYS 470. PHYSICS RESEARCH. An opportunity to conduct supervised research in physics. Senior standing, permission of the department, and a faculty sponsor are required.
One, two, or three hours.

PHYS 480. INTERNSHIP IN PHYSICS. Selected students participate in individual field experiences under the supervision of an on-site manager and a department faculty member. Requirements include evaluation by the on-site manager, a journal of the internship experience, a final written paper, and an oral presentation describing the completed work. Prerequisite: Permission of the faculty sponsor and coordination with the internship site.
One to six hours.

PHYS 486. PHYSICS EDUCATION SEMINAR. This seminar assists students in their understanding of the basic principles of physics and helps them to learn teaching methods unique to physics. Students will discuss modern research-based educational approaches in physics and assist in instructing the Science 201 class. Prerequisite: Physics education majors only, or permission of the instructor. *Offered periodically, three hours.*

PHYS 488. SEMINAR IN PHYSICS. An opportunity for a student to undertake a project in an area of physics of special interest. Project approval and amount of credit to be given requires consent of the department. *One, two or three hours.*

PHYS 499. HONORS IN PHYSICS RESEARCH. Seniors who have shown special aptitude in physics may, with the consent of the Department of Physics, undertake supervised physics research. A research paper and a formal presentation are required to receive Honors credit. Not to exceed two hours each semester. *One or two hours.*

Astronomy (ASTR)

ASTR 206. INTRODUCTION TO SKY MOTIONS AND PLANETS. An introduction to modern astronomy with an emphasis on the motions of the sun, moon, and stars in the sky; the solar system; and extrasolar planets. Includes observations with the campus observatory and an observational project. *Fall semester, three hours.*

ASTR 207. INTRODUCTION TO STARS, GALAXIES, AND COSMOLOGY. An introduction to modern astronomy with an emphasis on the nature of the universe and objects within it. Topics include the properties of stars, the stellar life cycle, galaxies, and cosmology. Includes an observational project. *Spring semester, three hours.*

ASTR 260. INDEPENDENT STUDY. Individual study of specialized topics in astronomy. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ASTR 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in astronomy. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ASTR 301. OBSERVATIONAL ASTRONOMY. Methods employed in modern optical observational astronomy. Topics covered include spherical trigonometry, time and coordinate systems, astronomical instruments, photometry, and spectroscopy. Students make extensive use of the campus observatory and the Grove City College observatory near Edinboro, Pennsylvania. Prerequisites: Astronomy 206 and 207.
Alternate years, fall semester, four hours.

ASTR 310. INTRODUCTION TO ASTROPHYSICS. A calculus-based introduction to modern astrophysics. Topics covered include orbital mechanics, light and matter interactions, stellar atmospheres, stellar interiors, stellar evolution, the interstellar medium, the Milky Way, other galaxies, and cosmology. Prerequisites: Astronomy 206 and 207; Mathematics 161; Physics 101 or 121; and Physics 102 or 122.
Alternate years, fall semester, three hours.

ASTR 360. INDEPENDENT STUDY. Individual study of specialized topics in astronomy. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ASTR 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in astronomy. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ASTR 460. INDEPENDENT STUDY. Individual study of specialized topics in astronomy. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

ASTR 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in astronomy. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

Political Science

Dr. Verbois, Chair; Dr. Coulter, Dr. Kengor, Dr. Stanton.

Course Requirements for Bachelor of Arts Degree in Political Science—43 hours

Core Requirements (19 hours):
Political Science 101, 104, 201, 204, 205, and 277.

Political Science Clusters (12 hours):
Choose two courses from two of the following clusters for a total of 12 hours:

American Politics:
Political Science 304, 305, 306, 308, 309, 317, 318, or 358.

Comparative/International Relations:
Political Science 302, 303, 310, 311, 333, 335, 341, 342, or 344.

Political Theory:
Political Science 350, 351, 354, 355, or 356.

Political Science Electives (12 hours):
Choose twelve additional hours of 300-400 level Political Science electives.

Courses that count in the Political Science major quality point average (MQPA):
All courses with "POLS" prefix. A minimum MQPA of 2.00 is required to graduate.

Effective communication and research skills are indispensable for career advancement in the variety of fields available to Political Science majors, including law, government at all levels, and business. Thus, the Political Science Department has incorporated Information Literacy (IL), Speaking Intensive (SI), and Writing Intensive (WI) instruction in Political Science 277.

Recommended electives:
Students planning to do graduate work in Political Science are encouraged to acquire backgrounds in mathematics and statistics. Courses in computer literacy are also recommended. Many Ph.D. programs require competency in at least two foreign languages as well. Students pursuing law school are advised to take Accounting courses, *Business Law*, *Constitutional Law*, and *Symbolic Logic*. A broad background in the social sciences, history, and the humanities is also recommended.

Course Requirements for a minor in National Security Studies (18 hours)
A minor in National Security Studies will consist of Political Science 302, 303, 335, History 336; and six hours from Political Science 310, 341, 342, 344, or History 380.

Course Requirements for a minor in Political Science (18 hours)
A minor in Political Science will consist of Political Science 104, 201, 204, 205, and six hours of Political Science electives.

Course Requirements for a minor in Pre-Law (18 hours)
A minor in Pre-Law will consist of Political Science 317, 318 (or History 317, 318); Political Science 320; Political Science 351 or Philosophy 340; Philosophy 211; and three hours from Accounting 201, Communication Arts 104, Management 303 or 304, Philosophy 201, Sociology 233 or 331.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Political Science (POLS)

POLS 101. FOUNDATIONS OF POLITICAL SCIENCE. A review of the principal methods of studying politics, the enduring issues of politics, and main institutions of selected governments in the world today. *Three hours.*

POLS 104. INTERNATIONAL POLITICS. An analysis of the growth of national states and the factors that determine their behavior in international affairs. Particular attention is given to problems of collective security, balance of power, foreign policy, and political economy. *Three hours.*

POLS 111. UNDERSTANDING THE U.S. CONSTITUTION. A study of the origins and formation of the US Constitution and essential Constitutional features, such as federalism and separation of powers. Attention will be given to the rights and responsibilities of citizens in the U.S. constitutional order. *One hour*.

POLS 201. COMPARATIVE POLITICS. A selective study of major governments of the industrialized and non-industrialized world. Emphasis placed on the tools of comparative analysis and their application to various nations in the developed and developing world. *Three hours.*

POLS 204. AMERICAN NATIONAL GOVERNMENT. A survey of national political institutions including Congress, the Supreme Court, the presidency, public bureaucracy, and a review of selected topics in public policy. *Three hours.*

POLS 205. POLITICAL PHILOSOPHY AND THE CHRISTIAN INTELLECTUAL TRADITION. This course introduces students to the study of political philosophy through an examination of selected works of political philosophers, theologians, and political actors as those works consider the intersection of theology and political life. *Three hours.*

POLS 260. INDEPENDENT STUDY. Individual study of specialized topics in political science. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

POLS 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in political science. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

POLS 277. RESEARCH METHODS IN POLITICAL SCIENCE. An introduction to approaches and methods of political science research, with an emphasis on research design, data collection, interpretation, and the use of computers in the discipline. This course is taught with a lab. This course is designated Writing Intensive (WI), Information Literacy (IL), and Speaking Intensive (SI). *Four hours.*

POLS 290. STUDIES IN POLITICS. A focused study of selected topics in politics and political science, the content of which varies each semester. *Three hours.*

POLS 302. NATIONAL SECURITY. A review of American national security policy including coverage of defense policy, military deployments, and threat assessments. *Three hours.*

POLS 303. GREAT POWER POLITICS. An examination of Great Power Politics with an emphasis on twentieth century developments. The course covers the sources of national strength, relations of great powers to one another and minor powers, the rise and decline of nations, and the end of the Cold War. *Three hours.*

POLS 304. THE AMERICAN PRESIDENCY. A study of the major functions of the Presidency, with an emphasis on the Office's historical development and its role in American national government. *Three hours.*

POLS 305. AMERICAN CONGRESS. An examination of the major functions and processes of Congress, with an emphasis on presidential-congressional relationships and the formation of public policy. *Three hours.*

POLS 306. POLITICAL PARTIES, INTEREST GROUPS, AND ELECTIONS. An overview of the functions of American political parties with special attention to the role of interest groups in the policy process. *Three hours.*

POLS 308. PUBLIC POLICY. A study of the main issues surrounding current topics in public policy, dealing with welfare and poverty, energy, environment, labor, business, agriculture, consumer policies, and selected issues in foreign policy. Variable credit in election years. *Three hours.*

POLS 309. STATE AND LOCAL POLITICS. An examination of state and local governments and public policies. Topics include federalism, state constitutions, governors, legislatures, judiciary, politics of local governments, and policy debates surrounding local concerns as well as unfunded mandates and meeting federal guidelines. *Three hours.*

POLS 310. U.S. FOREIGN POLICY. This course offers a general introduction to the traditions and theories of the U.S. foreign policy. The course will cover the traditions and theories of U.S. foreign policy; processes of policy formulation; and the roles of the President, Congress, the State Department, and other government agencies. *Three hours.*

POLS 311. HUMAN RIGHTS. This course is a study of the ideological and theological foundations of human rights and the roles of states, international organizations, and non-governmental organizations in creating and managing human rights regimes. *Three hours.*

POLS 317. CONSTITUTIONAL LAW OF THE UNITED STATES I. A study of the development of the United States Constitution through use of the case study method. This course especially focuses on the constitutional powers of the three branches of government, the relationship between state and federal governmental powers, and property rights and economic liberties. Students may not receive credit for both Political Science 317 and History 317. *Three hours.*

POLS 318. CONSTITUTIONAL LAW OF THE UNITED STATES II. A study of the development of the United States Constitution through the use of the case study method. This course especially focuses on the idea of equality and the equal protection clause, due process, privacy and liberty rights, freedom of speech, press and religion and other Bill of Rights issues. Students may not receive credit for both Political Science 318 and History 318. *Three hours.*

POLS 320. PRE-LAW SEMINAR. This seminar is designed to help Juniors (or sophomores/seniors by instructor permission) prepare for the LSAT, law school applications, and the first year of Law School. Students will learn how the LSAT works,

prepare for it extensively, write drafts of personal statements, and hear from alumni about law school challenges. Prerequisite: Junior standing. *Three hours.*

POLS 333. MAJOR EUROPEAN GOVERNMENTS. A comparative study of European politics with special emphasis on the major governments of Western Europe and the emerging republics of the former Soviet Union. Problems of European integration and the development of democracy in Eastern Europe are stressed. *Three hours.*

POLS 335. TERRORISM AND COUNTER-TERRORISM. A survey of terrorism from ancient times to the present with an emphasis on current international groups like al Qaeda, Hezbollah and Hamas, as well as domestic terrorist groups like the Aryan Nations and Ku Klux Klan. *Three hours.*

POLS 341. AFRICAN POLITICS. A comparative overview of the politics of major African states, with emphases upon the influences of the colonial past, problems of political development, relations with the major powers, the geo-strategic importance of selected countries. *Three hours.*

POLS 342. MIDDLE EASTERN POLITICS. A survey of major powers of the Middle East with emphases on problems of the colonial past, political development, tribal and religious influences, regional conflicts, and global strategic significance. *Three hours.*

POLS 344. ASIAN POLITICS. A study of the major powers of Asia, with special reference to China, Japan and Korea, stressing problems of political and economic development, along with regional conflicts. *Three hours.*

POLS 350. AMERICAN POLITICAL THOUGHT. A survey of the foundations of American civilization from the origins of the republic to the present time. Special attention is given to current debates surrounding culture wars and their impact on public policy. *Three hours.*

POLS 351. PHILOSOPHY OF LAW. This course commonly examines such topics as the nature of law, the relationship of law to morality, the problem of judicial interpretation, justice, and rights. *Three hours.*

POLS 354. MARXISM. A study of Marxism from its beginnings to its development into twentieth century totalitarianism by Lenin and his successors. *Three hours.*

POLS 355. CLASSICAL POLITICAL THOUGHT. A study of the principle theorists and schools of thought about politics from the Pre-Socratics through the Middle Ages. *Three hours.*

POLS 356. MODERN POLITICAL THOUGHT. A survey of the main political thinkers from Machiavelli to the present. The contributions of political theorists to the development of civilization are stressed. *Three hours.*

POLS 358. WORKSHOP IN POLITICAL COMMUNICATIONS. In this course students will study, practice, and produce various forms of political communication used in campaigns. The course will particularly focus on campaign communications designed to introduce candidates to voters, differentiate between campaigns, and Get Out the Vote efforts. *Three hours.*

POLS 360. INDEPENDENT STUDY. Directed research on an individual basis. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

POLS 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in political science. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

POLS 390. STUDIES IN POLITICS. A focused study of selected topics in politics and political science, the content of which varies each semester. *Three hours.*

POLS 460. INDEPENDENT STUDY. Directed research on an individual basis. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

POLS 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in political science. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

POLS 480. INTERNSHIP IN POLITICAL SCIENCE. This course offers practical experience in the field of politics and political science. *One to six hours.*

POLS 488. SEMINAR IN POLITICAL SCIENCE. Special topics in political science, the content of which varies each semester. Open to majors and non-majors with department approval. *Three hours.*

POLS 499. HONORS IN POLITICAL SCIENCE. Open only to qualified majors with department approval. *One, two or three hours.*

Psychology, Social Work, and Sociology

Dr. Horton, Chair; Dr. M. E. Bright, Dr. Conway, Dr. Henderson, Dr. Hosack, Dr. Kostis, Dr. Welton. Additional Instructional Faculty: Prof. Richter, Prof. Papay, Prof., Piccirillo, Dr. Vassar-Bush.

Course Requirements for Bachelor of Arts Degree in Psychology—51 hours

Core Requirements (29 hours):
Psychology 101, 107, 201, 204, 208, 301, 310, 316, and 404.

Psychology Clusters (18 hours):
Choose two courses from each of the following clusters:

Experimental: Psychology 306, 318, or 401.

Clinical: Psychology 206, 207, or one of 212 or 312.

Developmental: Psychology 209, 211, or 322.

Major-Related Requirements (4 hours):
Biology 101 or Science 202.

Course Requirements for Bachelor of Science Degree in Psychology—57 hours

Core Requirements (45 hours):
Psychology 101, 107, 201, 204, 208, 301, 310, 316, 318, 319, 401, 404, and nine hours of Psychology electives (excluding Psychology 103).

Major-Related Requirements (12 hours):
Biology 101, 102, and 233.

Courses that count in the Psychology major quality point average (MQPA):
All courses with "PSYC" prefix. A minimum MQPA of 2.00 is required to graduate.

Courses recommended for psychology majors include Philosophy 161 and 201. Students are encouraged to take an internship. No credit in independent study or internship may be counted toward the major requirements. Those students planning to do graduate work in psychology are encouraged to take Psychology 318, 401; Philosophy 161, and 201.

Psychology majors, regardless of whether they pursue graduate studies or enter the work force immediately following graduation, need to be good writers and speakers and need to know how to find, analyze, and use information. To that end, Psychology 204 and 404 are Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL) courses, designed to provide the necessary skills for psychology majors to be good producers and consumers of psychological information as well as effective communicators of that knowledge.

Course Requirements for Bachelor of Science Degree in Social Work—55 hours

Core Requirements (52 hours):
Psychology 201, Psychology 204 or Sociology 377; Social Work 101, 205, 264, 280, 302, 305, 310, 342, 364, 382, 410, 420, 421, 425, and 426.

Social Work Electives (3 hours):
One course from Economics 102, Psychology 208, 312, Special Education 101, or Sociology 208.

Courses that count in the Social Work major quality point average (MQPA):
All courses with "SOCW" prefix. A minimum MQPA of 2.50 is required by fall of the sophomore year or upon acceptance into the Social Work Program and must be maintained until graduation. Transfer students and students changing their major after the first semester of the sophomore year will be evaluated as part of the application process into the Social Work Program. Students on academic probation will be evaluated after one semester and will be dismissed from the Social Work program if their MQPA remains below a 2.50.

SOCW 410 has been designated as the Writing Intensive (WI), Speaking Intensive (SI), and Information Literacy (IL) course for Social Work majors.

The Social Work Program aims to prepare students for competent and compassionate, entry-level, generalist social work practice within the broader context of a Christian, liberal arts perspective. The Social Work Program has been accredited by the Council of Social Work Education.

Course Requirements for a concentration in Global Studies (21 hours)

Students majoring in Social Work can earn a concentration in Global Studies by completing a modern language sequence (through 202); 3 hours of a 300-level language course; 3 hours of a 300-level conversational language course (Spanish 303 or 305; or French 305, 308, or 340); 9 hours from Bible 250, Communication Arts 225, Global Studies

300, 301, 310, Political Science 104, 311, 341, 342, 344, Psychology 200, Sociology 356 or 375; a minimum score of intermediate low on the Oral Proficiency Interview (OPI or OPIc) exam through Language Testing International, Inc. (students pay the cost of the exam); and completing their field placements for Social Work 420 and 421 in an international setting or a bi-lingual context.*

* If field placement is not in a bi-lingual context, student may complete an English-speaking placement and 6 hours from the course options listed above with an approved Office of Global Programs study abroad semester.

Course Requirements for a concentration in Health (21 hours)

Students majoring in Social Work can earn a concentration in Health by completing Biology 101, 233, and 234; 9 hours from Biology 310, 341, Chemistry 330, Nursing 100, 430, Philosophy 271, Physics 121, Psychology 103, 316, Sociology 208, or 304; and completing their field placements for Social Work 420 and 421 in a medical setting.

Course Requirements for a concentration in Ministry (21 hours)

Students majoring in Social Work can earn a concentration in Ministry by completing Bible 120, 130, and 250; 12 hours from any courses with a 'BIBL' prefix; and completing their field placements for Social Work 420 and 421 in a ministry context.

Course Requirements for a concentration in Psychology and Mental Health (21 hours)

Students majoring in Social Work can earn a concentration in Psychology and Mental Health by completing Psychology 101, 231, 232, and 233; 15 hours from Psychology 200, 206, 207, 208, 212, 221, 310, 312, 315, 316, 318, 319, 322, 326, 401, or Sociology 304; and completing their field placements for Social Work 420 and 421 in a setting that intersects with the mental health profession.

Course requirements for a minor in Criminal Justice Studies (19 hours)

A minor in Criminal Justice Studies will consist of Sociology 101; one course from Sociology 377, Psychology 204 or Political Science 277; and four courses from Sociology 203, 221, 233, 314, 315, 331, Psychology 315, or Economics 402.

Course requirements for a minor in Family Studies (19 hours)

A minor in Family Studies will consist of Psychology 201; Sociology 312; one course from Psychology 204, Political Science 277, or Sociology 377; and three courses from Psychology 209, 211, 322, Social Work 305, or Sociology 251.

Course Requirements for a minor in Psychology (18 hours)

A minor in Psychology will consist of 18 hours of Psychology courses, including Psychology 101. Exercise Science 203 Exercise and Sport Psychology may also be counted toward the Psychology minor. Psychology minors that complete Psychology 103 may not take Psychology 209 or 211.

Note: Psychology 103 does not count toward the Psychology major.

Course requirements for a minor in Social Work (18 hours)

A minor in Social Work will consist of Social Work 101, 264, 342, 382, and six hours from Sociology 203, 208, Social Work 205, 280, 305, or Psychology 312.

Course requirements for a minor in Sociology (19 hours)

A minor in Sociology will consist of Sociology 101, 377, 473, and nine additional hours of Sociology coursework.

Students are expected to contact their advisors for a detailed schedule of courses recommended to meet requirements for a major.

Psychology (PSYC)

PSYC 101. FOUNDATIONS OF PSYCHOLOGICAL SCIENCE. This course is designed to introduce the student to the field of psychology, which is defined as the scientific study of behavior and mental processes. Like other sciences, psychology seeks to explain, predict, and control the events it studies. Students will be exposed to the important theories, methods, and landmark findings that have helped to shape psychology as a field of inquiry. An integral focus of the course will be a consideration of how psychology can contribute to the synthesis of a consistent Christian worldview. *Three hours.*

PSYC 103. LIFESPAN HUMAN GROWTH & DEVELOPMENT. This course will cover human development across the lifespan-from conception to end of life. Key theories and research in the domains of physical, socio-emotional and cognitive development will be considered. This course is designed to meet the needs of students in nursing and other pre-health majors. **Psychology majors may not take Psychology 103.** Students who have earned credit for Psychology 209 or 211 are not permitted to take Psychology 103. *Three hours.*

PSYC 105. PERSPECTIVES ON PSYCHOLOGY. This course is designed to fulfill the foundations requirement for students who have taken introductory psychology at another institution. The course will focus on the ways in which a Christian worldview impacts the study of psychology. Topics to be covered will complement those topics typically covered in the Foundations of Psychological Science course emphasizing the integration of Christianity and psychology. This course may not be taken by a student who has completed Psychology 101 at Grove City College. Prerequisite: any comparable Psychology 101 class taken at another institution. *One hour.*

PSYC 107. WORLDVIEW AND PSYCHOLOGICAL SCIENCE. Psychology, the logos of the psyche or "study of the soul," has always been part of the Christian tradition. This course will explore some of the classic Christian understandings of the nature and purpose of the mind as well as the emergence of modern psychological science and its main worldview commitments all in light of Grove City's historic commitment to rigorous training in psychological science. Finally, the various callings and careers available to psychology majors will be explored. Prerequisite: Psychology 101. *Three hours.*

PSYC 200. CROSS-CULTURAL PSYCHOLOGY. A study of the critical and comparative effects of cultural and international differences on human psychology. Topics will include cultural presuppositions and differences, cognition, emotion, intelligence, testing, motivation, conflict, and mental health, with a particular emphasis on human development, social psychology, and conflict. *Three hours.*

PSYC 201. STATISTICAL METHODS. This course will examine the mathematical reasoning and methodology underlying decision-making in the sciences. Students will develop skills in the analysis and interpretation of data from scientific experiments, enabling them to be informed consumers of the professional literature. Topics will include descriptive statistics, probability theory, and inferential statistics. Students may only receive credit for one of Psychology 201 or Statistics 131. *Three hours.*

PSYC 202. PSYCHOLOGY OF RELIGION. A psychological approach to the understanding of religious life with special emphasis on the Judeo-Christian tradition. In addition to traditional areas in the psychology of religion (e.g., religious development,

measurement of religion and spirituality, forgiveness, religious conversion, religious orientation and attitudes, etc.) the course will consider issues surrounding the integration of psychology and theology, the innateness of spirituality, the nature of the soul or self, the neuroscience of religious experience, and the role of religion and spirituality in health. Prerequisite: Psychology 101. *Offered periodically, three hours.*

PSYC 204. RESEARCH METHODS. Introduction to laboratory techniques in psychological science. Methods of controlled investigation, use of databases for psychology, evaluation of results using SPSS, and writing reports of experiments using APA format will be emphasized. Three lectures and two hours of lab per week This course is designated Information Literacy (IL). Prerequisites: Psychology 101 or Social Work 101, and Psychology 201. *Four hours.*

PSYC 206. INTRODUCTION TO PROFESSIONAL COUNSELING. An introduction to the theories, practices and ethical issues employed in professional counseling. Prerequisites: Psychology 101. *Three hours.*

PSYC 207. PSYCHOLOGY OF PERSONALITY. A study of the major psychological theories of personality development and their application to applied psychology. Prerequisite: Psychology 101. *Three hours.*

PSYC 208. SOCIAL PSYCHOLOGY. The scientific study of the way individuals think, feel, and behave under the actual, imagined, or implied presence of others. Our study of social psychology will investigate the relationship between attitudes and behavior, attribution theory, cultural influences, conformity, prejudice, aggression, attraction, altruism, conflict, etc. We will concentrate on applying social psychology to real world experiences and will include in-depth analysis of original literature. *Three hours.*

PSYC 209. CHILD DEVELOPMENT: LIFESPAN PART 1. This course is a survey of the child development field. Students will be encouraged to develop an appreciation for the value of science for understanding children and their development. Key theories and research regarding cognition, language, attachment, moral reasoning, and the effects of family and peers will be considered. This course is required for all Early Childhood and Elementary Education majors. Students who have earned credit for Psychology 103 may not take Psychology 209. *Three hours.*

PSYC 211. ADULT DEVELOPMENT AND AGING: LIFESPAN PART 2. Investigation of the psychological, biological, and social aspects of early, middle, and late adult development emphasizing both the opportunities and limitations of aging. Students who have earned credit for Psychology 103 may not take Psychology 211. *Three hours.*

PSYC 212. CHILD PSYCHOPATHOLOGY. This course provides an overview of the major psychological disorders affecting children and adolescents. Emphasis is placed on classification, etiology, and assessment. Contemporary trends and legislative actions that affect prevalence rates and/or treatment will also be considered. Prerequisites: Education 102, or Psychology 101 or 209. *Three hours.*

PSYC 214. INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY. The psychology of work and organizations. Introduction to the use and application of psychology in the workplace. Prerequisites: Psychology 101 and 208. *Offered periodically, three hours.*

PSYC 221. POSITIVE PSYCHOLOGY. Positive psychology is the scientific study of human happiness and flourishing. Exploring topics such as virtue, happiness and gratitude,

goal setting and flow, willpower and self-control, emotion and optimism, mindfulness and generosity, students will be given the opportunity to grow in their understanding—and experience—of flourishing. Connections to Scripture and the long tradition of Christian reflection on happiness will be explored. *Three hours.*

PSYC 231. MENTAL HEALTH PEER SUPPORT I. This course will equip students as peer supporters with practical skills to effectively assist students dealing with emotional distress. Effective communication and coaching skills, self-care and resilience building, mental health literacy, coping strategies, healthy boundaries, and crisis responding will be covered. *One hour.*

PSYC 232. MENTAL HEALTH PEER SUPPORT II. This course will provide peer supporters with advanced practical skills to effectively assist students in optimizing comprehensive wellness. Effective communication and coaching skills, self-care and resilience building, mental health literacy, coping strategies, healthy boundaries, crisis responding and referral will be covered. *One hour.*

PSYC 233. MENTAL HEALTH ADVOCACY. This course will focus on the mental health industry, both historically and presently. The concepts of mental health and advocacy will be explored. Students will understand and develop skills to become mental health (MH) advocates. *One hour.*

PSYC 260. INDEPENDENT STUDY. Individual study of specialized topics in psychology. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PSYC 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in psychology. Sophomore standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PSYC 290. STUDIES IN PSYCHOLOGY. This course, which varies each semester, involves the examination of different areas of psychology with a focus on new areas not covered in regular coursework. *Offered periodically*, *one, two or three hours.*

PSYC 301. HISTORY AND SYSTEMS OF PSYCHOLOGY. A study of the philosophical and scientific antecedents and trends that have culminated in contemporary psychological science. Beginning in the Classical world and moving through the Middle Ages, Renaissance, and the scientific revolution of the 16th – 18th centuries, this course will trace how psychology emerged as an independent discipline at the end of the 19th century. Significant questions raised by psychology, changing views of the soul or self, and how American culture in the 21st century has become a psychological society will be considered. Primary works of influential philosophers and scientists will be read. Prerequisite: Twelve hours of psychology. *Three hours.*

PSYC 305. HEALTH PSYCHOLOGY. Health psychology is devoted to understanding psychological influences on how people stay healthy, why they become ill, and how they respond when they do get ill. This course explores the psychological and social factors that lead to the enhancement of health, the prevention and treatment of illness, and the evaluation and modification of health policies that influence health care. Prerequisite: Three hours of psychology coursework, excluding Psychology 201. *Offered periodically, three hours.*

PSYC 306. SENSATION AND PERCEPTION. This course covers the physiological basis of sensation and the psychological aspects of perception. Vision, audition, the

chemical and the cutaneous senses are investigated as are the perception of time, music, speech and pain. Prerequisite: Psychology 101. *Three hours.*

PSYC 310. PSYCHOLOGICAL ASSESSMENT. This course will include a) an analysis of psychometric principles, including reliability, validity, and standardization; b) an analysis of intelligence, personality, and interest testing, including in-depth investigation of various tests; and c) an analysis of current issues including discrimination in testing. Prerequisites: Psychology 101 and 201. *Three hours.*

PSYC 312. ADULT PSYCHOPATHOLOGY. This course provides an overview of the various psychological disorders, as well as theoretical, clinical, and experimental perspectives of the study of psychopathology. Emphasis is placed on classification, etiology, assessment and treatment of the major disorders. Prerequisites: Psychology 101 and three hours of psychology. *Three hours.*

PSYC 315. FORENSIC PSYCHOLOGY. This course introduces the student to psychological research, principles and practice as applied to the legal system. Emphasis will be placed on the interface between clinical work and the courts, as well as the psychology of the offender. Prerequisite: Psychology 101. *Three hours.*

PSYC 316. BEHAVIORAL NEUROSCIENCE. A study of the biological bases of behavior. Neuroanatomy and fundamental principles of neurophysiology and neural communication will be covered as will be the physiological mechanisms operating in sensation, emotion, consciousness, ingestive behavior, learning and memory, reinforcement, addiction, and psychiatric disorders such as schizophrenia. Prerequisite: Psychology 101 or permission of the instructor. *Three hours.*

PSYC 318. COGNITIVE PSYCHOLOGY. A study of human mental processes such as memory, reasoning, decision-making, judgment, and social cognition. Included will be a cognitive neuroscience perspective on mental processing and the practical implications of these processes in social evaluation, culture, and public policy. Prerequisites: Psychology 101, 201 and 204. *Three hours.*

PSYC 319. COGNITIVE PSYCHOLOGY LABORATORY. Using computer simulations of cognitive psychology methods, students will investigate human mental processes such as memory, attention, recognition, decision-making, problem-solving, and social evaluation. Prerequisites: Psychology 101, 201 and 204. *One hour.*

PSYC 322. MARRIAGE & FAMILY: ASSESSMENT AND INTERVENTION. The course examines assessment and intervention in marriage and family with an emphasis on marriage. Primary sources examining empirically developed and tested approaches will be considered. The focus will be on scientific understanding rather than the development of counseling skills. Prerequisite: Psychology 101; and Psychology 201 or Statistics 131. *Three hours.*

PSYC 326. PREPARATION FOR THE MENTAL HEALTH PROFESSIONS. This course will provide an in-depth review of current applications of counseling and psychotherapy tailored for students planning to attend graduate school in mental health delivery or employment post-graduation. Students will review current theories and trends of mental health service delivery in the United States. Principles of professional development will be covered leading to a personal plan of professional development for each student. Students will review current ethical and theoretical issues in counseling and psychotherapy. Prerequisites: Psychology 101, 206, 207. *Three hours.*

PSYC 360. INDEPENDENT STUDY. Individual study of specialized topics in psychology. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PSYC 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in psychology. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PSYC 390. STUDIES IN PSYCHOLOGY. This course, which varies each semester, involves the examination of different areas of psychology with a focus on new areas not covered in regular coursework. *Offered periodically*, *one, two or three hours.*

PSYC 401. ADVANCED STATISTICS. An introduction to multivariate statistics by using computer statistical packages as applied to social science research including such topics as multiple regression, discriminant analysis, factor analysis, multivariate analysis of variance (MANOVA), path analysis, and other frequently used multivariate statistical techniques. Prerequisites: Psychology 101, 201 and 204. *Alternate years, three hours.*

PSYC 404. ADVANCED RESEARCH METHODS. A study of advanced research methods, including an independent research project. An IRB proposal, data collection, and formal written and oral presentation of the study are required. This course is designated Writing Intensive (WI) and Speaking Intensive (SI). Prerequisites: Psychology 101, 201 and 204. *Four hours.*

PSYC 460. INDEPENDENT STUDY. Individual study of specialized topics in psychology. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PSYC 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in psychology. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

PSYC 480. INTERNSHIP IN PSYCHOLOGY. An opportunity for upper class psychology majors, with a minimum of fifteen hours in psychology, to participate in individual field experiences in clinical or counseling settings under the professional supervision of the staff of cooperating institutions. Prerequisite: Permission of the department chair. *One to six hours.*

PSYC 499. HONORS IN PSYCHOLOGY. Open only to senior psychology majors who have honors grades. Application must be made to the department and a proposal for the study approved before registering. The student studies under the guidance of department staff and must submit evidence of superior achievement. *One, two or three hours.*

Social Work (SOCW)

SOCW 101. FOUNDATIONS OF SOCIAL WORK. This foundational course introduces students to the rich and diverse discipline of social work and its widespread societal contributions. Students will learn the fundamentals of generalist social work; the ethics, tenets, and history of the profession; as well as an overview of the social welfare system in America. Examination of prominent social work values, philosophical assumptions, and theories occurs throughout the course. Discussions of the diverse populations and settings served by social workers are also discussed. Thoughtfully integrating the core values of social work and Biblical view of human nature is a particular aim of the course.

Three hours.

SOCW 205. SOCIAL SERVICE PROGRAMS AND GRANTS. This course introduces students to conceptualizing social problems through careful problem analysis and the development of effective programmatic responses. Because social service agencies are widely funded through public and private grants, students will also be introduced to the process of grant writing. Emphasis is placed throughout the course on responding to human need through service that demonstrates compassion, competence, and a commitment to promoting human dignity and flourishing. *Three hours.*

SOCW 264. HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT I. This course provides a solid understanding of human behavior and development as it is manifested and developed within families, groups, organizations, and communities. The relationships among biological, social, psychological, cultural, and spiritual realities are examined for the ways they impact and inform human behavior. Discussions of human behavior and development will be specifically targeted to forming a solid understanding and foundation for the practice of social work. Prerequisite: Social Work 101. *Three hours.*

SOCW 272. SOCIAL WORK PRACTICUM. This practicum will be structured around a professional field experience of 140 on-site hours completed at a local organization providing quality social services. This experience is a critical component of preparing for a Social Work career. In addition to the field experience, students will attend a weekly, one-hour meeting led by a professor from the department with the purpose of collectively discussing case scenarios as well as interpersonal dynamics with relevance to the development of competent social work practice. Practicum objectives include directly observing how professional social work practice is implemented within a specific setting, integrating an introductory generalist theory with practice, obtaining knowledge about macro social service delivery systems, applying critical thinking skills to specific case situations, and demonstrating increased self-awareness related to interest areas within the field of social work. Prerequisites: Social Work 101, 264, and 382. *Three hours.*

SOCW 280. INTERNATIONAL SOCIAL PROBLEMS. This course, designed both for students of social work and students of any major interested in issues of international social justice, examines the history and development of these problems from micro and macro perspectives, exploring the social, political, and economic dynamics that catalyze and perpetuate unjust practices as well as the everyday experiences of those directly impacted. A social development model will be introduced, as well as case studies and readings from the Global South that encourage students to consider cross-cultural perspectives on the efficacy of social development practices. Not solely a theoretical examination, the course will encourage students to formulate and integrate ideas grounded in knowledge about cross-cultural social work practice, human development, and theology. Prerequisite: Social Work 101 and 264. *Alternate years, three hours.*

SOCW 290. STUDIES IN SOCIAL WORK. This course, which varies each semester, involves the examination of different areas of social work with a focus on new areas not covered in regular coursework. *One to three hours*.

SOCW 302. GENERALIST PRACTICE I. This course introduces the generalist practice model of social work including theoretical frameworks, epistemological foundations, values and ethics, and practice approaches with individuals and families situated in a diverse range of environments. The study of social work functions, knowledge formation, and foundational skills are integral to the course. Additionally, the development of micro-level observation, assessment, interviewing, and clinical analysis utilizing a problem-solving approach is a primary emphasis. Prerequisites: Social Work 101 and 264. *Three hours.*

SOCW 305. CHILD WELFARE. Children represent a group that is critically important to the future, yet also a group without the ability to advocate for themselves. This course will examine child welfare, society's response to providing services for children who lack adequate adult care and nurturing. The history, philosophies, programs, policies, and practices which comprise past and current child welfare services will be examined for both their efficacy and intended and unintended consequences upon some of the most vulnerable persons within our society. Case studies that illustrate the complexities of providing ethical and competent child welfare practice will also be integrated into the course. Prerequisite: Psychology 101, Social Work 101, or Sociology 101. *Alternate years, three hours.*

SOCW 310. GENERALIST PRACTICE II. This course builds upon the preceding course, Generalist Practice I, by extending the study of social work theory and practice to task and treatment groups and to social service institutions. The course focuses on developing and evaluating the practice skills and interventions that are necessary for facilitating effective change within each of these levels. A section on case management theory and skills, as well as an introduction to motivational interviewing are also included. Special attention will be given to interventions that are particularly geared toward individuals on the margins of society including the poor, disabled, elderly, and other at-risk populations. Prerequisite: Social Work 302. *Three hours.*

SOCW 342. SOCIAL WELFARE POLICY ANALYSIS. This course carefully analyzes and evaluates social welfare policies and programs as responses to defined social problems within their historical, political, and economic contexts. Past and present social welfare policies will be evaluated from a generalist perspective and students will be encouraged to critically analyze policies for both their efficacy and intended and unintended consequences. Policies related to poverty, advocacy, mental health, homelessness, racism, and child welfare will be specifically examined for their relevance to the practice of social work. Prerequisite: Social Work 101. *Three hours.*

SOCW 364. HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT II. This course explores the frameworks, values, and skills inherent to meeting micro-level—individual and family—needs through an examination of the "mediating layers of society" of our organizations and communities. The underlying assumption of the course is there is a reciprocal relationship between individuals and families and the larger contexts in which they are situated. Therefore, working for change on any level requires an understanding of the full range of social contexts that both positively and negatively affect groups of people. This course explores the middle context which lies between that of the individual and macro-level social welfare policies. Particular emphasis will be given to exploring ways of intervening in society's middle layers that utilize best practices and promote human flourishing. Prerequisites: Social Work 264. *Three hours.*

SOCW 382. HUMAN DIVERSITY IN SOCIAL WORK PRACTICE. This course highlights the ways in which an understanding of human diversity informs all aspects of social work including practice and policy. Attention to some of the ways humans are diverse including race and socioeconomic status will be carefully examined as they relate to the practice of social work. Case studies will also be utilized to explore ways in which individuals and groups are negatively affected psychologically, economically, and spiritually by biased or unjust systems and structures. Prerequisite: Social Work 101. *Three hours.*

SOCW 410. SOCIAL WORK CAPSTONE. This course requires students to demonstrate integration of the courses in the social work major in a final research project. The project

entails research into a specific social work practice or social welfare policy and involves study design, implementation, analysis, and presentation. This course is designated Writing Intensive (WI), Speaking Intensive (SI), Information Literacy (IL). Prerequisites: Psychology 204 and Social Work 101. *Three hours.*

SOCW 420. FIELD PLACEMENT I. In this course, students are placed in social service organizations under the supervision of social work practitioners who are "teachers" in the field (field instructors) and under the careful guidance of the on-campus faculty. Students do not simply "work" in the setting, but are guided by specific learning outcomes. The goals of the field placement experience are to link the traditional curriculum with experiential learning through the development of a professional self and the development of foundational generalist practice skills with clients and client systems. Prerequisites: Senior status and faculty approval. *Four hours.*

SOCW 421. FIELD PLACEMENT II. In this course, students are placed in social service organizations under the supervision of social work practitioners who are "teachers" in the field (field instructors) and under the careful guidance of the on-campus faculty. Students do not simply "work" in the setting, but are guided by specific learning outcomes. The goals of the field placement experience are to link the traditional curriculum with experiential learning through the development of a professional self and the development of foundational generalist practice skills with clients and client systems. Prerequisites: Social Work 420. *Four hours.*

SOCW 425. FIELD PLACEMENT SEMINAR I. The purpose of the seminar is to collectively discuss case scenarios, as well as interpersonal dynamics with relevance to the development of competent social work practice. Some of the course seminars will also be topical in nature, covering experiential components of social work practice such as confidentiality, boundaries, ethics, integration of faith and practice, and professional self-care. Prerequisites: Senior standing and faculty approval. *Two hours.*

SOCW 426. FIELD PLACEMENT SEMINAR II. The purpose of the seminar is to collectively discuss case scenarios, as well as interpersonal dynamics with relevance to the development of competent social work practice. Some of the course seminars will also be topical in nature, covering experiential components of social work practice such as confidentiality, boundaries, ethics, integration of faith and practice, and professional self-care. Prerequisites: Senior standing and faculty approval. *Two hours.*

SOCW 460. INDEPENDENT STUDY. Opportunity for students to do independent study work in a specialized area of social work. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

SOCW 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in social work. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

Sociology (SOCI)

SOCI 101. FOUNDATIONS OF SOCIOLOGY. An introductory study of the major and enduring theoretical ideas, concepts, methods, and debates that have shaped and informed the discipline of sociology from its inception to the current day. Topics include the origins of the discipline, the social conditions under which humans may thrive, social order, religion, and inequality. Attention is also paid to the ways in which the Christian tradition perceives and, in some cases, may challenge contemporary social conditions. Recommended to precede all other sociology courses. *Three hours*.

SOCI 103. FOUNDATIONS OF CULTURAL ANTHROPOLOGY. An introduction to the study of culture, its meaning and significance for human beings, and the ways in which man organizes his activities to meet universal human needs, especially in simpler societies. *Three hours*.

SOCI 105. PERSPECTIVES ON SOCIOLOGY. A one-credit course for students wishing to meet the College's "Foundations of Social Sciences" general education requirement by transferring in a standard introduction to sociology course taken elsewhere, that provides the unique content within Grove City College's Sociology 101 Foundations of Sociology course. The following themes are covered: epistemological foundations of sociology, sociological views of human beings and their actions, foundations of social order, engines of social progress, and sociological understandings of the divine. Prerequisite: A Sociology 101 comparable class transferred from another institution. *One hour*.

SOCI 201. SOCIAL PROBLEMS. An analysis of American social problems such as family, sexuality, drugs, crime, health, poverty, race, and global problems such as population, the environment, religion, war and terrorism. *Three hours*.

SOCI 203. SOCIOLOGY OF DEVIANT BEHAVIOR. A study of the social aspects of personal deviation including consideration of the alcoholic, the drug addict, the suicidal and the sexually maladjusted from the perspective of social background, causative factors, and possible therapy. Prerequisite: Sociology 101 or 201. *Three hours*.

SOCI 208. GERONTOLOGY. A general introduction to gerontology, with emphasis on the normative aspects of aging and adaptation to old age. Topics include the role of senior citizens in the family and a youth-oriented culture, theories of disengagement, role activity in retirement and aging from a cross-cultural perspective. *Three hours*.

SOCI 221. WHITE COLLAR CRIME. An in-depth examination of important concepts, theories, and facts related to white collar crime, using case studies, academic lectures, guest lecturers and films. The degree to which such crimes occur, as well as their economic and social costs, will be considered. Victims and offenders will be described. Legal issues and problems in dealing with white collar crime will also be considered, with a special consideration of the typical legal, political, and cultural barriers encountered in trying to create and enforce relevant laws, including detection and punishments. *Three hours*.

SOCI 233. INTRODUCTION TO CRIMINAL JUSTICE. An overview of every element of the criminal justice system, looking at the process of handling offenders from crime detection through arrest, adjudication, prosecution/defense, sentencing, incarceration, probation, and parole. Issues of criminal law (ethics, philosophy, and basic structure and rules) and policy, defendants, victims, and the roles of different criminal justice agents will also be considered. Biblical perspectives will be examined throughout, as will, where appropriate, private alternatives to response to crime. *Three hours*.

SOCI 241. MEDICAL ANTHROPOLOGY. A study of the social and cultural aspects of medicine and health, strongly emphasizing the results of cross-cultural and comparative research. Topics include health professionals and services around the world, alternative healers, the demography of health and illness, and privatized versus government-sponsored health care systems. *Three hours*.

SOCI 251. COURTSHIP AND MARRIAGE. A general introduction to marriage and the family that emphasizes practical living. Topics include dating, courtship, engagement,

marriage, romantic love, and marital adjustment across the lifespan. Also included are discussions of singleness, parenting, and divorce. *Three hours*.

SOCI 260. INDEPENDENT STUDY. Individual study of specialized topics in sociology. Sophomore standing, permission of the department chair, and a faculty sponsor are required. O*ne, two or three hours.*

SOCI 270. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in sociology. Sophomore standing, permission of the department chair, and a faculty sponsor are required. O*ne, two or three hours.*

SOCI 290. STUDIES IN SOCIOLOGY. This course, which varies each semester, involves the examination of different areas of sociology with a focus on new areas not covered in regular coursework. *Three hours*.

SOCI 303. SOCIOLOGY OF MUSIC AND CULTURE. Music is a central aspect of culture and a distinctive human activity. As such, it makes for ripe sociological analysis, as relevant as work, worship, or love. This course will consider the social contexts that contribute to the production and performance of music and the ways it contributes to the very production of society. More specifically, we will examine the manifest production and content of music, as well as some of its more latent impacts as a cultural product, reinforcing and destabilizing social order. Finally, we will apply the lessons of this course in an analysis of music's role in social life by examining its uses by local congregations. Prerequisite: Sociology 101 or permission of instructor. *Three hours*.

SOCI 304. SOCIOLOGY OF HEALTH AND MEDICINE. This course is designed to introduce students to the social determinants of health and well-being. We will consider how health care professions and social scientists define and conceptualize population level health outcomes and disparities. We also examine how health outcomes are patterned according to sex, race and class. Prerequisites: Sociology 101 and Biology 101, or permission of instructor. *Three hours*.

SOCI 308. SOCIOLOGY OF RELIGION. This course will examine religion from a sociological perspective, including such topics as sociological theories about religion, how religion affects individuals and societies, secularization and worldwide religious resurgence, effects of globalization upon religion, America's contemporary religious climate, contemporary American Evangelicalism, and the future of religion. *Three hours*.

SOCI 312. THE FAMILY AS A SOCIAL INSTITUTION. A course that focuses upon the status, development, and future of the modern American family from historical, cross-cultural, and sociological perspectives. Examines contemporary debates over legal definitions of "family", patterns of family structure, families and the elderly, family policy, and reviews non-governmental approaches to strengthening the family. Recommended for those students contemplating careers in teaching, the helping professions, ministry, public policy, and research. *Three hours*.

SOCI 314. CRIMINOLOGY. An introduction to the scientific study of crime. This includes classical and modern criminological theories and methods, various types of criminal behavior and what triggers them, social and environmental factors that affect levels of crime, comparisons of crime rates across place and time. Prerequisite: Sociology 101 or 201. *Alternate years, three hours.*

SOCI 315. JUVENILE DELINQUENCY. An examination of the meaning of juvenile delinquency and the social institutions and psychological phenomena that shape juveniles. Significant trends in delinquency will be highlighted. *Three hours*.

SOCI 321. SOCIAL CHANGE. An analysis of patterns, mechanisms and strategies of past and future social change in a rapidly changing world. Social and political movement theory, revolutions, the force of religion in social movement activism, and recent changes in American society are considered. Prerequisite: Sociology 101. *Three hours*.

SOCI 331. LAW AND SOCIETY. An exploration of the relationship among law, legal systems, and social structure. Topics include the origin and development of law, sociological theories of law, the relationship of Christianity and the law in the West, analysis and cross-cultural comparisons of dispute resolutions and other judicial processes (includes legal anthropology), comparisons of modern legal systems, the social psychology of legal decision-making including jury studies, and the legal profession. *Three hours*.

SOCI 356. POVERTY AND STRATIFICATION. An overview of the nature and extent of poverty and stratification in the United States and the world, including consideration of empirical data, sociological theory, and Christian perspectives. Special attention will be given to private, faith-based solutions to chronic poverty. Prerequisite: Sociology 101 or 201. *Three hours*.

SOCI 360. INDEPENDENT STUDY. Available to students with a minimum of twelve hours in sociology. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

SOCI 370. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in sociology. Junior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

SOCI 375. GLOBAL SOCIETY. An investigation of how the dynamics of social order are impacted by the development of a global social order, including Christian perspectives on global order. *Three hours*.

SOCI 377. SOCIAL RESEARCH METHODS. This course will study the basic methods for social research. This includes selecting topics, developing and operationalizing concepts, sampling, establishing causal relations, data collection using secondary (especially aggregate and comparative) sources, content analysis and other unobtrusive approaches, surveys, field research, interviews, experiments. The weekly lab will focus on creating databases for a computer statistical package; coding, entering and analyzing data, and writing professional research reports. This course is designated Information Literacy (IL). Prerequisites: Sociology 101 or Social Work 101, and Psychology 201.
Alternate years (odd), four hours.

SOCI 390. STUDIES IN SOCIOLOGY. This course, which varies each semester, involves the examination of different areas of sociology with a focus on new areas not covered in regular coursework. *Three hours*.

SOCI 452. SOCIOLOGY COLLOQUIUM. Guided intensive study of a specific sociological problem or topic under the guidance of one Sociology faculty member, and training in the art of professional speaking in the field. Students will orally present and defend their study proposals and completed final projects before the Sociology faculty and

other students in the class. This course is designated Writing Intensive (WI) and Speaking Intensive (SI). Prerequisite: junior status. *One hour.*

SOCI 460. INDEPENDENT STUDY. Available to students with a minimum of twelve hours in sociology. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

SOCI 470. INDEPENDENT RESEARCH. An opportunity to conduct supervised research in sociology. Senior standing, permission of the department chair, and a faculty sponsor are required. *One, two or three hours.*

SOCI 473. SOCIOLOGICAL THEORY. Overview of major schools of Sociological Theory with a focus on major thinkers and the central questions that have historically animated the discipline. These include: Functionalism, Conflict and Critical Theories including Marxism and World Systems Theory, Exchange and Rational Choice, Post-Modern, Symbolic Interactionism, Phenomenology and Ethnomethodology. Prerequisites: Sociology 101 and junior standing in the Sociology major, or Instructor's permission. *Three hours.*

SOCI 480. INTERNSHIP IN SOCIOLOGY. This course offers practical experience appropriate for the sociology field. Prerequisite: Permission of the department chair. *One to six hours.*

SOCI 499. HONORS IN SOCIOLOGY. Open only to seniors who have honors grades and who have completed a minimum of fifteen hours in the department. Application must be made to the department and a proposal for the study must be approved before registering. The student studies under the guidance of department staff. Prerequisite: Fifteen hours in sociology including Sociology 377. *One, two or three hours.*

DIRECTORIES (2026-2027)

Board of Trustees

Grove City College, as an independent institution, is governed in all its affairs by a Board of Trustees composed of private citizens.

Term Expires June 2027

2024*	Addams, Evan ’10	*Pennsylvania*
2006	Batchelder, Alice, Hon.	*Ohio*
2006	Cashdollar, David ’71	*Pennsylvania*
2020	Hopeman, Elizabeth	*Massachusetts*
2006	Mathie, Jody, M.D. ’77	*Colorado*
2012	Muetzel, Douglas ’80	*Pennsylvania*
2006	Porter, David, Hon. ’88 (Secretary)	*Pennsylvania*
2024	Smith, William W. ’69	*California*
2024	Snyder, Elizabeth ’98	*Pennsylvania*

Term Expires June 2028

2001	Breen, Edward D. ’78 (Chair)	*Pennsylvania*
2024	Brenner, Janice ’05	*Pennsylvania*
2018	Bulette, Elizabeth, Ed.D.	*Virginia*
2010	Chafuen, Alejandro A., Ph.D. ’84	*Virginia*
2025	Dudt, James ’07	*Pennsylvania*
2024	Hanlon, Shawn ’91	*Pennsylvania*
2000	Mehaffey, William J. ’64	*Pennsylvania*
2018	Schwab, John A., Esq. ’98	*Pennsylvania*
2013	Sveda, Allyson Baird ’88	*Pennsylvania*
2016	Wicker, Douglas K. ’88	*Pennsylvania*

Term Expires June 2029

2026*	Collier, Hannah ’18	*New Hampshire*
2012	Holt, Deborah ’84 (Treasurer)	*Pennsylvania*
2018	Jones, Craig W. ’74 (Vice Chair)	*Oklahoma*
2014	McClelland, Anne M. ’81	*North Carolina*
2024	McIndoe, Andrew ’10	*Virginia*
2026	Moon, Brent ’06	*Pennsylvania*
2008	Owens, Dawn ’90	*Minnesota*
2024	Passaro, Paul	*North Carolina*
2020	Sems, Richard ’93	*Missouri*
1995	Shlapak, Milton W. ’59	*Georgia*
2018	Templin, Donald C. ’84	*Ohio*
2020	Weaver, Rev. D. Dean, D.Min. ’86	*Florida*

*Alumni Trustee

TRUSTEE EMERITUS

Baird, Louise Slavcoff ’56
Gasiewicz, Philip W.
Hayes, Don A. ’59
Hopeman, Henry W.
Johnson, Stanley M. ’60
Landin, Thomas M. ’59 Esq.
Nutt, Robert L. ’67 Esq.
Reis, C. Dale ’67
Schwab, Arthur J., Hon. ’68 (Secretary Emeritus)
Zuschlag, Charlotte A. ’73

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NOTE: Date indicates year of initial employment

Lingo ’00, Bradley J. (2025).....*President*
B.S., Grove City College; J.D., Harvard Law School.

Buckman ’82, Michael F. (2017).....*Investment Officer*
B.S., Grove City College; M.B.A., University of Pittsburgh.

DiStasi ’88, Vincent F. (1998).....*Vice President-Chief Information Officer*
B.S., Grove City College; Ph.D., Indiana University.

Frank ’95, Peter M. (2020) .....……*Provost and Vice President for Academic Affairs*
B.A., Grove City College; M.S., University of North Carolina at Charlotte; Ph.D., George Mason University.

Gibson ’02, Todd D. (2004)..... *Vice President for Athletics*
B.A., Grove City College; B.A., Youngstown State University; M.S., California University of Pennsylvania.

Grimm, Susan (2013)..... *Vice President for Operations*
B.S., M.B.A., University of Pittsburgh.

Hardesty, Larry E. (2008).....*Vice President for Student Life and Learning*
B.A., M.S., Geneva College.

Inman, John G. (1994)..... *Vice President for Institutional Support and Registrar*
B.A., Geneva College; M.B.A., D.Sc., Robert Morris University.

James, Brian. (2026)..... *Vice President for Marketing and Communications*
B.S., Frostburg State University.

Prokovich ’89, Jeffrey D. (2001).....*Vice President for Institutional Advancement*
B.A., Grove City College; M.S., Geneva College.

Williams ’01, Michelle M. (2002)..... *Vice President for Business and Finance*
B.S., Grove City College.

Wishing ’83, Lee S. (1994).....*Vice President for Student Recruitment*
B.A., Grove City College; M.S., Geneva College.

Administration

Boleratz, Jonathan (2021).....*Senior Director of Financial Aid*
B.S., Edinboro University

MacLeod ’96, Melissa A. (2004)..... *Senior Director of Alumni and College Relations*
B.S., Grove City College.

McDanel, Heather E. (2021)..... *Senior Director of Financial Services*
B.S., Slippery Rock University.

Munnell '92, Barbra M. (1994).....*Senior Director of Library Services*
B.A., Grove City College; M.S.L.S., Clarion University.

Opitz, Donald D. (2020)..... *Chaplain and Senior Director of Christian Formation*
B.A., Westminster College: M. Div., Gordon-Conwell Theological Seminary; Ph.D., Boston University.

Powell '03, Brian M. (2014).....*Senior Director of Development*
B.A., Grove City College; M.A., Geneva College.

Tallerico, Betty L. (1991) .....*Assistant to the President*
B.A., Washington and Jefferson College; M.Div., Princeton Theological Seminary; University of Tuebingen, Germany.

Wagner, Marci K. (2008).....*Senior Director of Human Resources*
B.S., M.S., Geneva College.

Faculty Administration

Bardy, Erik R. (2006) .....*Assistant Dean for the Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics, Chair of the Department of Mechanical Engineering, and Professor of Mechanical Engineering*
B.S., M.S., Ph.D., University of Buffalo.

Byun, Seulgi L. (2016) .....*Dean for the Alva J. Calderwood School of Arts and Letters, and Professor of Biblical and Theological Studies*
B.A., Gordon College; M.A., M. Div., Gordon-Conwell Theological Seminary; Ph.D., University of Cambridge.

Cotherman '06, Charles E. (2022) ..... *Executive Director of the Center for Rural Ministry and Assistant Professor of Biblical and Theological Studies*
B.A., Grove City College; M. Div., Pittsburgh Theological Seminary; M.A., Ph. D., University of Virginia.

Crute, Christy L. (2018).....*Associate Dean of Graduate and Online Programs and Professor of Business Analytics*
B.S., University of Akron; Ph.D., Kent State University.

Hosack, Lisa L. (2013) .....*Assistant Dean for the Alva J. Calderwood School of Arts and Letters, and Professor of Social Work*
B.A., Moody Bible Institute; M.S.W., University of Illinois-Chicago; Ph.D., Michigan State University.

Kengor, Paul G. (1997).....*Senior Director and Chief Academic Fellow of The Institute for Faith & Freedom at Grove City College and Professor of Political Science*
B.A., University of Pittsburgh; M.A., The American University; Ph.D., University of Pittsburgh.

McFeaters ’88, ’02, Michelle R. (1995).....*Dean of The Winklevoss School of Business and Professor of Accounting*
B.A., M.S., Grove City College; D.B.A., Anderson University.

Myer, Robert “Robb” R. (2025) .. *Executive Director of the Center for Entrepreneurship + Innovation, Entrepreneur in Residence, and Professor of Practice*
B.S.E.E., University of South Florida; M.B.A., Carnegie Mellon University.

Pazehoski ’01, Kristina O. (2011) ..... *Director of the Center for Teaching and Learning, and Professor of Biology*
B.S., Grove City College; Ph.D. Duquesne University.

Snyder ’04, Joshua C. (2026)..... *Dean for the Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics, and Professor of Biology*
B.S., Grove City College; Ph.D., University of Pittsburgh.

Welton, Gary L. (1991)…….....*Assistant Dean for Institutional Assessment and Professor of Psychology*
B.A., Cedarville College; M.A., Slippery Rock University; M.A., Ph.D., State University of New York at Buffalo.

Full-Time Faculty

Anderson, Erik J. (2006)..... *Professor of Mechanical Engineering*
B.S., Gordon College; M.S., St. Francis Xavier University; Ph.D. Massachusetts Institute of Technology.

Annear, Patricia A. (2024).....*Director of the Johnson School of Nursing, Chair of the Department of Nursing, and Professor of Nursing*
A.S., Alvernia College; B.S.N., Kutztown University of Pennsylvania; M.S., Villanova University; Ed.D., Capella University.

Ansberry, Christopher B. (2021) ..... *Chair of the Department of Biblical and Theological Studies and Professor of Biblical and Theological Studies*
B.A., The Master’s College; M.A., Ph.D., Wheaton College.

Ault, Dana L. (2015).....*Professor of Exercise Science*
B.S., Slippery Rock University; M.S., The University of Akron; Ph.D., Kent State University.

Baker ’07, Andrew C. (2025) .....*Associate Professor of History*
B.A., Grove City College; M.A., James Madison University; Ph.D., Rice University.

Bancroft, Eric D. (2011) ..... *Professor of Mathematics*
A.A., Seminole State College of Florida; B.S., University of Central Florida; M.S., Ph.D., North Carolina State University.

Bandy, Gregory A. (2018) .....*Professor of Communication Arts*
B.A., Asbury College; M.A., M.F.A., University of Georgia.

Bardy, Erik R. (2006) .....*Assistant Dean for the Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics, Chair of the Department of Mechanical Engineering, and Professor of Mechanical Engineering*
B.S., M.S., Ph.D., University of Buffalo.

Beevers ’08, David B. (2025) .....*Associate Professor of Mechanical Engineering*
B.S., Grove City College; M.S., Ph.D., Pennsylvania State University.

Bibza, James (1977).....*Professor of Biblical and Theological Studies*
B.A., C.W. Post College; M.Div., Gordon-Conwell Theological Seminary; Ph.D., Princeton Theological Seminary.

Biddle ’87, Wayne A. (1987).....*Professor of Management*
B.A., Grove City College; M.B.A., Clarion University of Pennsylvania, D.B.A., Anderson University.

Bilbro, Jeffrey L. (2021) ..... *Professor of English*
B.A., Ph.D., Baylor University.

Bright, Martin E. (2008) .....*Professor of Psychology and Social Work*
A.A., B.A., Thiel College; M.A., Edinboro University of Pennsylvania;
Ed.D., Argosy University of Sarasota.

Bright, Myron “Mike” W. (1998) .....*Professor of Electrical and Computer Engineering*
B.S., Purdue University; M.S., George Washington University; Ph.D., Pennsylvania State University.

Brooks ’04, James D. (2019) .....*Chair of the Department of Electrical and Computer Engineering and Professor of Electrical Engineering*
B.S., Grove City College; M.S., Georgia Institute of Technology; Ph.D., Rensselaer Polytechnic Institute.

Brower, Shane C. (1999) ..... *Professor of Physics*
B.S., Bucknell University; M.S., Ph.D., UMBC.

Buxton, Jeffrey D. (2012).....*Assistant Chair of the Department of Exercise Science and Associate Professor of Exercise Science*
B.S., Pennsylvania State University; M.S., California University of Pennsylvania; D.Sc., Rocky Mountain University of Health Professions.

Byun, Seulgi L. (2016) .....*Dean for the Alva J. Calderwood School of Arts and Letters, and Professor of Biblical and Theological Studies*
B.A., Gordon College; M.A., M. Div., Gordon-Conwell Theological Seminary; Ph.D., University of Cambridge.

Campbell, G. Van (2000)..... *Professor of Biblical and Theological Studies and Sociology*
B.S., Bryan College; Th.M., Dallas Theological Seminary; Ph.D., University of Pittsburgh.

Carruth, Melissa D. (2020) ..... *Associate Professor of Spanish*
B.A., Texas Tech University; M.A., Baylor University; Ph.D., University of Georgia.

Chapman ’04, Jarrett M. (2012) …… *Chair of the Department of Education and Professor of Education*
B.S., Grove City College; M.S., Slippery Rock University; D.Ed., Indiana University of Pennsylvania.

Christman, Alan M. (1988)..... *Professor of Electrical Engineering*
B.S.M.P.E., M.S. Mng. E., Pennsylvania State University; B.S.E.E., M.S.E.E., West Virginia University; Ph.D., Ohio University.

Clark ’20, Rachel N. (2026)..... *Assistant Professor of Chemistry*
B.S., Grove City College; Ph.D., Duquesne University.

Clauss ’83, Michelle A. (1991)..... *Assistant Chair of the Department of Mechanical Engineering and Professor of Mechanical Engineering*
B.S., Grove City College; Ph.D., Carnegie Mellon University.

Clem, James L. (2013)..... *Professor of Physics*
B.Sc., University of Arkansas; M.Sc., Ph.D., University of Victoria.

Conway III, Lucian G. (2022)..... *Professor of Psychology*
B.A., Baylor University; M.A., Ph.D., University of British Columbia.

Cotherman ’06, Charles E. (2022) ..... *Executive Director of the Center for Rural Ministry and Assistant Professor of Biblical and Theological Studies*
B.A., Grove City College; M. Div., Pittsburgh Theological Seminary; M.A., Ph. D., University of Virginia.

Coulter ’91, Michael L. (1995) ..... *Professor of Political Science and Humanities*
B.A., Grove City College; M.A., Ph.D., University of Dallas.

Craig ’77, Betsy J. (1981)..... *Professor of English and Theatre*
B.A., Grove City College; Leeds University, Bretton Hall Drama, England; M.A., New York University.

Cramer, Susan J. (2002)..... *Professor of Chemistry*
B.A., Malone University; M.S., University of Toledo; Ph.D., University of Akron.

Crute, Christy L. (2018)..... *Associate Dean of Graduate and Online Programs and Professor of Business Analytics*
B.S., University of Akron; Ph.D., Kent State University.

Culbertson ’84, Linda D. (2000)..... *Professor of Education*
B.A., Grove City College; M.Ed. Certification, Edinboro University of Pennsylvania; Ed.D., Indiana University of Pennsylvania.

Dabbs ’18, Jonathan D. (2025) ..... *Assistant Professor of Chemistry*
B.S., Grove City College; Ph.D., University of Virginia.

Dellinger ’07, Brian J. (2013).... ……*Chair of the Department of Computer Science and Professor of Computer Science*
B.S., Grove City College; M.S., Ph.D., North Carolina State University.

Dickinson, Brian C. (2020).....*Associate Professor of Computer Science*
B.S., Houghton College; M.S., Ph.D., University of Rochester.

DiStasi ’88, Vincent F. (1998)..... ……. *Vice President-Chief Information Officer, Associate Professor of Chemistry and Guest Lecturer in Business*
B.S., Grove City College; Ph.D., Indiana University.

Dixon ’05, John M. (2017) .....…… *Professor of Mechanical Engineering*
B.S.M.E., Grove City College; M.S., Ph.D., University of Minnesota.

Drai, Rémi (2020).....*Professor of Mathematics*
B.S., M.S., Ph.D., University of Nice, France.

Dreves ’97, Susan M. (2004).....*Associate Professor of Education*
B.A., Grove City College; M.A., Westminster College; Ed.D., Point Park University.

Dudt, Jan F. (2004) .....*Professor of Biology*
B.A., Covenant College; M.Ed., University of Pittsburgh; M.S., Ph.D., Emory University.

Edwards, Jason R. (2003) .....*Professor of Education and Humanities*
B.A., Asbury College; M.A., Ph.D., University of Kentucky.

Erb, Andrew S. (2018).....*Associate Chair of the Department of Music, Theatre, and Art, Director of Bands and Professor of Music*
B.A., Westminster College; M.M., Youngstown State University; DMA, Boston University.

Fair ’85, Mark C. (2004)..... *Professor of Mechanical Engineering and Physics*
B.S., Grove City College; Ph.D., Carnegie Mellon University.

Falcetta, Michael F. (2003)..... *Assistant Chair of the Department of Chemistry and Professor of Chemistry*
B.S., State University of New York College at Oswego; Ph.D., University of Pittsburgh.

Farone, Tracy S. (2010) ..... *Professor of Biology*
B.S., St. Vincent College; D.V.M., Ohio State University Veterinary College.

Flanders ’04, Steven T. (2016) .....*Associate Professor of Mathematics*
B.S., Grove City College; M.Ed., Gannon University; Ed.D., University of Pittsburgh.

Foster ’13, Peter W. (2023) .....*Assistant Professor of Chemistry*
B.S., Grove City College; Ph.D., University of Colorado.

Frank ’95, Peter M. (2020)……*Provost and Vice President for Academic Affairs, and Professor of Economics*
B.A., Grove City College; M.S., University of North Carolina at Charlotte; Ph.D., George Mason University.

Franklin, Christopher E. (2014) .....*Professor of Philosophy*
B.A., Biola University; M.A., University of California, Riverside; Ph.D., University of California, Riverside.

Fuller ’13, Caleb S. (2017) .....*Associate Professor of Economics*
B.A., Grove City College; M.A., Ph.D., George Mason University.

Gerhart, Hayden D. (2021) .....*Professor of Exercise Science*
B.S., M.S., Indiana University of Pennsylvania; Ph.D., Kent State University.

Gilbert, Sarah J. (2026).....*Assistant Professor of Music*
B.M., Mercyhurst University; M.M., Youngstown State University.

Gomulkiewicz, Abigail J. (2026)..... *Assistant Professor of History*
B.A., University of St Andrews and College of William & Mary; M.Phil., Ph.D., University of Cambridge.

Graham, Mark W. (2003) .....*Chair of the Department of History and Professor of History*
B.A., Bob Jones University; M.A., University of South Carolina; Ph.D., Michigan State University.

Graybill ’96, Keith B. (2022)..... *Assistant Professor of Accounting*
B.S., Grove City College; MBA., Johns Hopkins University.

Grimm, Richard C. (1997).....*Professor of Finance*
B.S.B.A., M.B.A., Youngstown State University; Ph.D., Kent State University.

Hall, Josiah D. (2022) .....*Assistant Professor of Biblical and Theological Studies*
B.S., M.S., Stanford University; M. Div., Covenant Theological Seminary; Ph.D., Baylor University.

Harvey, Andrew J. (2007)..... *Professor of English*
B.A., James Madison University; M.A., Ph.D., University of North Carolina at Chapel Hill.

Hasper, Joseph J. (2017).....*Professor of Music*
B.F.A., Carnegie Mellon University; M.Ed., American Intercontinental University; M.M., D.M.A., University of Oklahoma.

Havrilla ’87, Laura R. (2012) .....*Professor of Marketing*
B.A., Grove City College; M.B.A., Duke University.

Heisey, Natalie D. (2020) .....*Associate Professor of Education*
B.S., Edinboro University; M.Ed., Gannon University; Ed.D. University of Pittsburgh.

Henderson, W. Matthew. (2024).....*Associate Professor of Sociology*
B.A., M.A., University of Houston; M.A., Ph.D., Baylor University.

Herbener, Jeffrey M. (1997) .....*Chair of the Department of Economics and Professor of Economics*
B.S., Nebraska Wesleyan University; M.S., Ph.D., Oklahoma State University.

Hill, Peter D. (2023) .....*Assistant Professor of Electrical Engineering*
B.S., M.S., Ph.D., West Virginia University.

Horton, Joseph J. (2002)..... …. *Chair of the Department of Psychology, Social Work, Sociology, and Professor of Psychology*
B.S., Kutztown University; M.S., Ph.D., Pennsylvania State University.

Hosack, Lisa L. (2013) .....*Assistant Dean for the Alva J. Calderwood School of Arts and Letters and Professor of Social Work*
B.A., Moody Bible Institute; M.S.W., University of Illinois-Chicago; Ph.D., Michigan State University.

Hubbard, Jeffrey M. (2025) .....*Assistant Professor of Biblical and Theological Studies*
B.A., Biola University; M.A.R., Yale Divinity School; Ph.D., Baylor University.

Huebert, Melva H. (1998).....*Professor of Music*
B.M., M.M., Youngstown State University; M.A., Ph.D., Kent State University.

Hutchins, Jonathan O. (2018) .....*Associate Professor of Computer Science*
B.S., Virginia Tech; Ph.D., University of California, Irvine.

Inman, John G. (1994) ..... *Vice President Institutional Support and Registrar*
B.A., Geneva College; M.B.A., D.Sc., Robert Morris University.

Jackson, Michael A. (2007) .....*Chair of the Department of Mathematics and Professor of Mathematics*
B.S., Pennsylvania State University; M.S., Ph.D., Purdue University.

Johnson ’15, Ethan J. (2023)..... *Assistant Professor of Computer Science*
B.S., Grove City College; M.S., ABD, University of Rochester.

Kelley, Ryan S. (2023) .....*Assistant Professor of Management*
B.S., M.B.A., Seton Hill University; D.B.A., Liberty University.

Kemeny, Paul C. (2000) .....*Professor of Biblical and Theological Studies*
B.A., Wake Forest University; M.A.R., M.Div., Westminster Theological Seminary; Th.M., Duke University; Ph.D., Princeton Theological Seminary.

Kengor, Paul G. (1997).....*Senior Director and Chief Academic Fellow of The Institute for Faith & Freedom at Grove City College and Professor of Political Science*
B.A., University of Pittsburgh; M.A., The American University; Ph.D., University of Pittsburgh.

Kettinger ’21, Jared W. R. (2026).....*Assistant Professor of Mathematics*
B.S., Grove City College; M.S., Ph.D., Clemson University.

Killam, Jason S. (2021).....*Associate Professor of Spanish*
B.A., North Park University; M.A., University of Texas at Arlington; M.A., Ph.D., Indiana University.

Kim, Rudy S. (2026).....*Assistant Professor of Communication*
B.A., Sookmyung Women’s University; M.A., Seoul National University; Ph.D., University of Maryland.

Kocur ’87, Richard D. (2009).....*Chair of the Department of Management and Marketing and Professor of Marketing*
B.S., Grove City College; M.B.A., University of Pittsburgh; D.B.A, Anderson University.

Kohler, Rachel K. (2024).....*Assistant Professor of Mechanical Engineering*
B.S., Liberty University; M.S., Ph.D., Purdue University.

Kosits, Russell D. (2023)..... *Professor of Psychology*
B.S., Old Dominion University; M.A., Geneva College; M.A, M.S.T, Ph.D., University of New Hampshire.

Kriley ’88, Charles E. (1996).....*Chair of the Department of Chemistry and Professor of Chemistry*
B.S., Grove City College; Ph.D., Purdue University.

Li, Qiuyan (2021) ..... *Associate Professor of Mechanical Engineering*
B.S., North China University of Water Resources and Electric Power; M.S., Ph.D., University of Pittsburgh.

Loretto ’05, Adam J. (2015) .....*Writing Center Director and Professor of English*
B.A., Grove City College; M.A.T., Ph.D., University of Pittsburgh.

Luong, Karen P. (2024) .....*Assistant Professor of Biology*
A.A.S., Finger Lakes Community College; B.S., Cornell University; Ph.D., Pennsylvania State University.

MacFawn, Ian P. (2024) .....*Assistant Professor of Biology*
B.S., The College of William & Mary; Ph.D., West Virginia University.

Madsen, Kelsey B. (2018) ……..... *Chair of the Department of Modern Languages and Associate Professor of French*
B.A., M.A., Ph.D., University of Oklahoma.

Martin, Tammi S. (2011) ..... *Associate Chair of the Department of Education, and Assistant Professor of Education*
B.S., M.A., Slippery Rock University; M.Ed., California University of Pennsylvania; Ed.D., PennWest University.

Mayo ’10, Joshua A. (2015) ..... *Chair of the Department of English and Professor of English*
B.A., Grove City College; M.A., University of Mississippi; Ph.D., University of Dallas.

McCray, Alden C. (2023) ..... *Associate Professor of Biblical and Theological Studies*
B.A., William and Mary; M. Theol., M. Litt, Ph.D., University of St. Andrews.

McCray, J. Louise. (2023) ..... *Senior Lecturer in English and Writing and Assistant Director of the Writing Center*
B.A., University of Exeter; M.Phil., University of Cambridge; Ph D., University of Edinburgh.

McFeaters ’88, ’02, Michelle R. (1995)..... *Dean of the Winklevoss School of Business and Professor of Accounting*
B.A., M.S., Grove City College; D.B.A., Anderson University.

McIntyre, Dale L. (1985)..... *Professor of Mathematics*
B.A., Houghton College; M.S., Virginia Polytechnic Institute and State University; Ph.D., Clemson University; University of Pittsburgh.

Miller, Kimberly M. (2004)..... *Chair of the Department of Communication and Design and Professor of Communication Arts*
B.S., M.A., Slippery Rock University; Ph.D., Indiana University of Pennsylvania.

Miller ’99, Ryan E. (2020)..... *Assistant Professor of Business Analytics*
B.S., Grove City College; M.B.A., Robert Morris University; Ph.D., Indiana University of Pennsylvania.

Mitchell, Andrew J. (2008)..... *Professor of History*
B.A., Hillsdale College; M.A., Ph.D., Ohio State University.

Moeller ’93, Julie C. (2005)..... *Professor of Biblical and Theological Studies*
B.A., Grove City College; M.A., Reformed Theological Seminary; Ph.D., University of Gloucestershire.

Mucha ’08, Nathanael E. (2012)..... *Director of Design and Professor of Design*
B.A., Grove City College; M.F.A., Kent State University.

Mueller, Katherine E. (2014)..... *Director of Choral Activities and Professor of Music*
B.M., Susquehanna University; M.M., New England Conservatory of Music; M.M., Carnegie Mellon University; D.M.A., Shenandoah University.

Munson, Jolene K. (2017)..... *Director of the Grove City College Early Education Center and Associate Professor of Education*
B.S., M.A., Edinboro University; Ed.D., Liberty University.

Munson, Paul A. (2004)..... *Professor of Music*
B.Mus., Wheaton College; M.A., Ph.D., University of Michigan.

Myer, Robert "Robb" R. (2025) .. *Executive Director of the Center for Entrepreneurship + Innovation, Entrepreneur in Residence, and Professor of Practice*
B.S.E.E., University of South Florida; M.B.A., Carnegie Mellon University.

Nichols '93, Constance N. (2001)..... *Professor of Education*
B.A., Grove City College; M.S., Duquesne University; Ed.D., University of Pittsburgh.

Pacione, Christopher D. (2025) ..... *Associate Professor of Design*
B.F.A., Carnegie Mellon University; M.F.A., Cranbrook Academy of Art.

Pazehoski '01, Kristina O. (2011)..... *Director of the Center for Teaching and Learning, and Professor of Biology*
B.S., Grove City College; Ph.D. Duquesne University.

Pelloni '04, Michael J. (2026)..... *Assistant Professor of Education*
B.S., Grove City College; M.Ed., Ed.D., Regent University.

Potter, Eric A. (2000)..... *Professor of English*
B.A., Wheaton College; M.A., Ph.D., University of Virginia.

Prins, Philip J. (2014) ..... *Chair of the Department of Exercise Science and Professor of Exercise Science*
B.S., M.S., Georgia Southern University; Ph.D., University of Pittsburgh.

Rawl, Michael S. (2021)..... *Assistant Professor of English*
B.A., Midwestern State University; M.A., Ph.D., Baylor University.

Rawl, Virginia C. (2021) ..... *Assistant Professor of English*
B.A., University of Oklahoma; Ph.D., Baylor University.

Richards, George "Geo" A. (2019)..... *Associate Professor of Mechanical Engineering*
B.S., Clarkson College; M.S., Clarkson University; Ph.D., Purdue University.

Ritenour, Shawn R. (2001) ..... *Professor of Economics*
B.A., Northwestern College; Ph.D., Auburn University.

Robbins, David "Duffy" W. (2018)..... *Professor of Biblical and Theological Studies*
B.A., University of North Carolina; M. Div., Gordon-Conwell Theological Seminary; D. Min., Fuller Theological Seminary.

Roy, Jennifer J. (2026)..... *Associate Professor of Management*
B.A., Boston University; MBA., Queens University of Charlotte; Ph. D., Indiana University of Pennsylvania.

Ruane, Aileen R. (2022) ..... *Assistant Professor of French*
B.A., Kent State University; M.A., University of Illinois at Urbana-Champaign; Ph. D., Universitè Laval.

Rumbaugh '07, Luke K. (2019)..... *Associate Professor of Electrical and Computer Engineering*
B.S., Grove City College; M.S., Ph.D., Clarkson University.

Scheie ’14, Allen O. (2026) ..... *Assistant Professor of Physics*
B.S., B.A., Grove City College; Ph.D., Johns Hopkins University.

Scholten, Nathan G. (2024) ..... *Assistant Professor of Education*
B.A., Spring Arbor University; M.S.Ed., Ph.D., Baylor University.

Shaw ’95, Kevin L. (2000) ..... *Professor of Chemistry*
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Shepherd, Anne “Annie” M. (2022) ..... *Assistant Professor of English*
B.A., Texas Tech University; M.FA., Texas State University; Ph.D., University of Houston

Shepson III, Donald R. (2018) ..... *Professor of Biblical and Theological Studies*
B.A., Wheaton College; M.Div., Gordon-Conwell Theological Seminary; Ph.D., Talbot School of Theology, Biola University.

Shultz ’01, Tricia M. (2021) ..... *Assistant Professor of Accounting*
B.S., Grove City College; J.D., South Texas College of Law, Certified Public Accountant.

Skees, Janet E. (2021) ..... *Associate Professor of Nursing*
B.S.N., M.S.N., La Roche University; DNP, Waynesburg.

Smith ’88, John D. (2019) ..... *Associate Professor of Management*
B.S., Grove City College; M.S., Carnegie Mellon University; D.B.A., Cleveland State University.

Smith ’84, Kenneth E. (2010) ..... *Associate Professor of Entrepreneurship*
B.A., Grove City College; M.A., University of Pittsburgh; MOL, Regent University.

Smith, Margaret “Meg” P. (2025) ..... *Assistant Professor of Music*
B.S., M.A., M.M., Pennsylvania State University; Ph.D, Ohio University.

Snyder ’04, Joshua C. (2026) ..... *Dean for the Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics, and Professor of Biology*
B.S., Grove City College; Ph.D., University of Pittsburgh.

Stanton, Samuel S. (2006) ..... *Professor of Political Science*
B.A., M.A., Arkansas State University; Ph.D., Texas Tech University.

Stauff ’05, Devin L. (2011) ..... *Chair of the Department of Biology and Professor of Biology*
B.S., Grove City College; Ph.D., Vanderbilt University.

Stone, J. Nicole ’98, ’99 (2014) ..... *Chair of the Department of Accounting and Finance, and Associate Professor of Accounting*
B.S., M.S., Grove City College; Certified Public Accountant (inactive).

Studeny, April M. (2021).....*Associate Professor of Spanish*
B.A., Shippensburg University; M.A., St. Louis University Madrid; Ph.D., Arizona State University.

Sweet '85, Timothy J. (2005) .....*Chair of the Department of Entrepreneurship and Associate Professor of Entrepreneurship*
B.A., Grove City College; Gordon-Conwell Theological Seminary; M.Div., Pittsburgh Theological Seminary; University of Pittsburgh.

Tedford '00, Jeffrey M. (2011).....*Chair of the Department of Music, Theatre, and Art, Director of Orchestral Activities, and Professor of Music*
B.M., Grove City College; M.M., Carnegie Mellon University; D.M.A., Shenandoah University.

Thompson, Gary L. (1996) .....*Professor of Mathematics*
B.S., Wake Forest University; M.S., M. Ed., University of Illinois; Ph.D., University of Virginia.

Thrasher '80, James T. (1984).....*Senior Advisor to the Vice President for Student Recruitment, Associate Professor of Biblical and Theological Studies and Humanities, and Guest Lecturer in Exercise Science*
B.A., Grove City College; M.A., Slippery Rock University of Pennsylvania; Reformed Presbyterian Theological Seminary; Ed.D., Nova Southeastern University.

Trueman, Carl R. (2018).....*Professor of Biblical and Theological Studies*
B.A., M.A., St. Catharine's College, University of Cambridge; Ph.D., King's College, University of Aberdeen.

Truitt '21, Tegan L. (2025).....*Assistant Professor of Finance and Economics*
B.A., Grove City College; M.A., Ph.D., George Mason University.

Velázquez Lazcano, Gustavo. (2024) .....*Assistant Professor of Spanish*
B.A., Universidad Autónoma de Querétaro; M.A., Ohio University; Ph.D., University of Florida.

Verbois, Caleb, A, (2014)..... *Chair of the Department of Political Science and Professor of Political Science*
B.A. Oglethorpe University, M.A., Ph.D. University of Virginia.

Wagner, Doris J. "DJ" (2001)..... *Professor of Physics*
B.S., College of William and Mary; M.S., Ph.D., Vanderbilt University.

Waha, Kristen B. (2015)..... *Professor of English*
B.A., Westmont College; Ph.D., University of California, Davis.

Welton, Gary L. (1991)..... *Assistant Dean for Institutional Assessment and Professor of Psychology*
B.A., Cedarville College; M.A., Slippery Rock University; M.A., Ph.D., State University of New York at Buffalo.

West, Ryan D. (2016) ..... *Associate Professor of Philosophy*
B.A., Biola University; M.A., Talbot School of Theology; M.A., Ph.D., Baylor University.

Wolfe, Britton D. (2015)..... *Professor of Computer Science*
B.S., Carnegie Mellon University; Ph.D., University of Michigan.

Wolinski, Jeffrey P. (2001)..... *Chair of the Department of Physics and Professor of Physics*
B.A., Rutgers University; M.A., Ph.D., Harvard University.

Wong, Venney (2015)..... *Professor of Chemistry*
B.S., Southern Illinois University; Ph.D., Southern Illinois University.

Wood, Darren M. (2020) ..... *Associate Professor of Biology*
B.S., Mansfield University of Pennsylvania; M.S., Ph.D., West Virginia University.

Yowler, Brian C. (2019) ..... *Professor of Biology*
B.S., Indiana University of Pennsylvania; Ph.D., Penn State University College of Medicine.

Zhang, He "David." (2021)..... *Associate Professor of Computer Science*
B.S., Chinese University of Mining and Technology at Beijing; Ph.D., University of Arkansas at Little Rock.

Additional Instructional Faculty

Agnew, Rochelle L. (2017)..... *Music Lesson Instructor in Violin/Viola*
B.M., M.M., Duquesne University.

Anastasi '00, Vincent H. (2025) ..... *Guest Lecturer in English*
B.A., Grove City College; M. Ed., Gannon University.

Armour, Daniel J. (2026)..... *Guest Lecturer in Electrical Engineering*
B.S.E., Geneva College.

Baker '08, Douglas D. (2025)..... *Guest Lecturer in Writing*
B.A., Grove City College; J.D., University of Pittsburgh School of Law.

Bauer Jr., Christian (2022)..... *Guest Lecturer in Art*
B.S., Westminster College.

Bennett '22, Addison F. (2023) ..... *Guest Lecturer in Physical Education*
B.A., Grove City College.

Bennett '21, Kaitlyn G. (2023) ..... *Music Lesson Instructor in Piano*
B.M., Grove City College; M.Phil., University of Oxford.

Billock, Rebecca L. (2013) ..... *Music Lesson Instructor in Piano*
B.M., Walla Walla College; M.M., University of Redlands; D.M.A., University of Washington.

Blaine, Jonathan A. (2009) ..... *Manager, Computer Services & Support and Guest Lecturer in Management and Marketing*
B.S., Clarion University; M.S., Pennsylvania Western University.

Brown ’95, Brian K. (2023)..... *Guest Lecturer in Education*
B.A., Grove City College; M.A., Youngstown State University.

Butler, David M. (2019) ..... *Guest Lecturer in Management & Marketing*
B.S., M.S., University of Pittsburgh.

Chu, Jing-I J. (2024) ..... *Music Lesson Instructor in Piano/Harp*
B.F.A., National Taiwan Normal University; M.M.,M.M., D.M.A., University of Illinois at Urbana-Champaign.

Chu, Kuan L. (2025)..... *Guest Lecturer in Electrical Engineering*
B.S., National Taiwan University; M.B.A., National Taipei University; M. Eng. Cornell University; M.A., Gordon-Conwell Theological Seminary; Ph.D., University of Illinois at Urbana-Champaign.

Clauss ’85, Charles D. (2022)..... *Guest Lecturer in Physical Education*
B.S.M.E., Grove City College.

Cramer ’08, Kristen M. (2014) ..... *Guest Lecturer in Physical Education*
B.A., Grove City College; M.S., Slippery Rock University; M.S., California University of Pennsylvania.

DeArmitt ’17, Claire P. (2023) ..... *Music Lesson Instructor in Voice*
B.M., Grove City College; M.M., Pennsylvania State University.

Dick ’21, Kevin M. (2026) ..... *Guest Lecturer in Accounting*
B.S., Grove City College.

DiDonato ’04, Andrea D. (2020) ..... *Guest Lecturer in Accounting*
B.S., Grove City College; M.B.A, Eastern University.

Dugan Jr., Charles H. (2022) ..... *Music Lesson Instructor in Voice*
B.A., Ohio Northern University; M.A., Florida State University; D.M.A., University of Miami.

Fegley, Tate J. (2025) ..... *Guest Lecturer in Economics*
B.A., B.S., M.A., Boise State University; M.A., Ph.D., George Mason University.

Fennell, Drew R. (2007) ..... *Music Lesson Instructor in Trumpet*
B.F.A., Carnegie Mellon University.

Fitch, Bradley A. (2017)..... *College Organist and Music Lesson Instructor in Organ*
B.M., Oberlin College; M.M., Indiana University; D.M.A., University of Oklahoma.

Frey II, John M. (2025)..... *Guest Lecturer in Physical Education*
B.F.A., Wright State University.

Fritz ’94, David C. (2002) ..... *Guest Lecturer in Physical Education*
B.S., Grove City College; M.S., Duquesne University; M.S., Slippery Rock University.

Garvey, Kevin A. (2014) .....*Guest Lecturer in Theatre*
B.A., Point Park University.

Gibson ’02, Todd D. (2004)..... *Vice President for Athletics*
B.A., Grove City College; B.A., Youngstown State University; M.S., California University of Pennsylvania.

Gwynn ’18, Logan N. (2025).....*Guest Lecturer in Biology*
B.S., Grove City College; M.S., M.Ed., Slippery Rock University.

Hammond ’13, Ryan M. (2019).....*Guest Lecturer in Design*
B.A., Grove City College; M.F.A., Kent State University.

Hansford, Jason L. (2022).....*Guest Lecturer in Communication*
B.S., United States Military Academy; M.A., University of Texas; M., Rel Ed.; M. Div., Liberty University.

Hatfield, Sarah J. (2023).... ……*Communication Specialist for the Office of Graduate and Online Programs and Guest Lecturer in Management and Marketing*
B.A., Maryville College; M.A., University of Kentucky.

Heasley, Daniel G. (2011) .....*Music Lesson Instructor in Clarinet/Saxophone*
B.M., Youngstown State University.

Heid, Ronald J. (2003)..... *Guest Lecturer in Music Marching Band Staff Assistant, and Music Lesson Instructor in Percussion*
B.S., M.S., Duquesne University.

Henson ’19, Samuel R. (2025).....*Guest Lecturer in Chemistry*
B.S., Grove City College; Ph.D., Duquesne University.

Hillebrand ’21, Gideon H. (2024).....*Guest Lecturer in Biology*
B.S., Grove City College.

Hoffman, William H. (2023) .....*Guest Lecturer in Education*
B.S., Geneva College; M.Ed., McDaniel College.

Jeffries ’05, Jacob “Jake” P. (2021).....*Guest Lecturer in Education*
B.S., Grove City College; M.S., Johns Hopkins University; Ph.D. University of Nebraska..

Klein, Peter G. (2025).....*Guest Lecturer in Economics*
B.A., University of North Carolina, Chapel Hill; Ph.D., University of California, Berkeley.

Kohanski, Elisa C. (2005).....*Music Lesson Instructor in Cello*
B.M., Eastman School of Music; M.M., Carnegie Mellon University.

Krajacic, Dennis L. (2025) ..... *Guest Lecturer in Communication*
B.S., Nyack College; M.P.S., Alliance Theological Seminary; D.S.L., Regent University.

Kunst ’19, Robert W. (2026) ..... *Guest Lecturer in Entrepreneurship*
B.S., Grove City College.

Lawrence ’96, Chad E. (2026)..... *Guest Lecturer in Education*
B.A., Grove City College; M.Div., Trinity School for Ministry.

Lucas, William “Bill” S. (2026) ..... *Guest Lecturer in Entrepreneurship*
B.S., University of Cincinnati.

Lytle ’82, Laurie S. (2005) ..... *Guest Lecturer in Biology*
B.S., Grove City College.

May, Douglas L. (1996)..... *Assistant Marching Band Director and Music Lesson Instructor in Trombone*
B.S., Clarion University of Pennsylvania; M.Mus., Eastern New Mexico University.

McDowell, Megan R. (2026)..... *Guest Lecturer in Biology*
B.S., Slippery Rock University.

Miller, Jennifer S. (2020)..... *Guest Lecturer in Management and Marketing*
B.A., Cedarville College; M.B.A., Bowling Green State University.

Miller ’21, Molly C. (2025) ..... *Guest Lecturer in Communication Arts*
B.A., Grove City College; M.A., Liberty University.

Murphy, Robert P. (2025)..... *Guest Lecturer in Economics*
B.A., Hillsdale College; Ph.D., New York University.

Nemeth, Daniel J. (2020)..... *Guest Lecturer in Education*
B.A., M.A, University of Pittsburgh

Newman, Jonathan R. (2023)..... *Guest Lecturer in Economics*
B.A., Samford University; M.S., Ph.D., Auburn University.

O’Toole ’23, Emma R. (2026)..... *Guest Lecturer in Entrepreneurship*
B.A., Grove City College.

Papay, Cara M. (2013)..... *Guest Lecturer in Psychology*
B.S., Thiel College; M.Ed., Youngstown State University.

Paschal, Evelyn C. (2025)..... *Guest Lecturer in Management*
B.S., Clarkson University; MBA, Baldwin-Wallace University; Ph.D., Walden University.

Patterson, Richard D. (2020) ..... *Guest Lecturer in Exercise Science*
B.S., Alfred University; M.S., Hofstra University; D.A.T., University of Idaho.

Phelps ’05, Katie M. (2022).....*Music Lesson Instructor in Piano*
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Philson ’81, Cynthia L. (2014) .....*Guest Lecturer in English*
B.A., Grove City College; M.Ed., Slippery Rock University.

Piastro-Tedford, Sasha E. (2011).....*Guest Lecturer in Music and Music Lesson Instructor in Voice*
B.F.A., Carnegie Mellon University; M.M., Penn State University; D.M.A., Shenandoah Conservatory.

Piccirillo, Adam J. (2025).....*Guest Lecturer in Psychology*
B.S., University of Wisconsin-Stout; M.A., Slippery Rock University.

Potter, Sarah C. (2012) .....*Guest Lecturer in Education*
B.A., Wheaton College; M.A., University of Virginia.

Purifoy, Gary G. (2024).....*Music Lesson Instructor in Oboe and English Horn*
B.M.E., Morehead State University; M.M., University of Wisconsin-Madison.

Pysola, Alyssa M. (2023).....*Music Lesson Instructor in Flute*
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Richter, Jeff A. (2012) .....*Guest Lecturer in Psychology*
B.S., Youngstown State University; M.S.Ed., Youngstown State University.

Rosenberger, Timothy J., Jr. (2026)..... *Guest Lecturer in Management*
B.A., Georgetown University; LL.M., Universität Wien; J.D., MBA, Stanford University.

Ruby, Ashton T. (2022) .....*Guest Lecturer in Communication and Design*
B.S., Slippery Rock University; M.F.A., Full Sail University.

Rupnik, Elizabeth J. (2019) .....*Guest Lecturer in Education*
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Salerno, Joseph T. (2025) .....*Guest Lecturer in Economics*
B.A., Boston College; M.A., M.Phil., Ph.D., Rutgers University.

Sanders, Glen E. (2014).....*Guest Lecturer in Art*
B.F.A., M.A., Pennsylvania Western University.

Sayles, Leo R. (2019) ..... *Guest Lecturer in Physical Education*
B.M., University of LaVerne.

Scanga, James V. Jr. (1996).....*Music Lesson Instructor in French Horn*
B.S., Indiana University of Pennsylvania; M.Mus., Youngstown State University.

Senita, Karyn E. (2019) .....*Guest Lecturer in Education*
B.S., Thiel College; M.S., University of Northern Iowa; Angers, France.

Severson, Sean K. (2004) ..... *Guest Lecturer in Exercise Science*
B.A., University of Minnesota-Morris; M.A., Adams State College.

Sheffer ’13, Robert B. (2022) ..... *Guest Lecturer in Music and Music Lesson Instructor in Guitar*
B.M. Grove City College; M.M. Houghton College.

Snodgrass, Kimberly D. (2025) ..... *Guest Lecturer in Management*
B.S. University of Pittsburgh at Johnstown; MBA, Slippery Rock University; D.B.A., Liberty University.

Snoke, Daniel J. (2025)..... *Guest Lecturer in Biblical & Theological Studies*
B.A., Duquesne University; M.A., Robert E. Webber Institute For Worship Studies.

Stewart, Kathryn E. (2026)..... *Guest Lecturer in Education*
B.S., Muskingum University; B.S. Slippery Rock University; M.Ed. Millersville University; Ph.D., Capella University.

Terrell, Timothy D. (2024) ..... *Guest Lecturer in Economics*
B.S., M.A., Clemson University; Ph.D., Auburn University.

Vassar-Bush, Vannessa G. (2022*)* ..... *Field Placement Assistant in Social Work and Guest Lecturer in Social Work*
B.SW., Shepherd College; M.SW., West Virginia University; DHCE, Duquesne University.

Velázquez, Shayla M. (2025)..... *Guest Lecturer in Spanish*
B.A., Muskingum University; M.A., Ohio University.

Venesky, Jason P. (2022)..... *Music Lesson Instructor in Baritone/Tuba*
B.F.A, Carnegie Mellon University

Walczak ’09, Hilary R. (2012)..... *Director of College Archives and Galleries, and Guest Lecturer in Art*
B.A., Grove City College; M.A., Indiana University of Pennsylvania.

Warren ’94, Darren T. (2022)..... *Guest Lecturer in Management*
B.S., Grove City College; M.A., Regent University; J.D., Duquesne University.

Wasilko ’17, Mark B. (2019)..... *Guest Lecturer in Music*
B.M., Grove City College; M.M., University of Valley Forge.

Welker, Lydia M. (2025)..... *Guest Lecturer in Physical Education*
B.S., Geneva College.

Wise, Scott A. (2019) ..... *Guest Lecturer in Exercise Science*
B.S., M.P.T., D.P.T., Slippery Rock University.

Wolfe, Abigail E. (2016) ..... *Guest Lecturer in Chemistry*
B.S., Carnegie Mellon University; Ph.D., University of Michigan.

Wolfe, Daniel L. (2012).....*Guest Lecturer in Theatre*
B.F.A., Edinboro University; M.F.A., California Institute of the Arts.

Young, M. Susan (2000)..... *Guest Lecturer in Music and Music Lesson Instructor in Voice/Opera*
B.M., University of Houston; M.Mus., Duquesne University.

Retired Administration

Champion, Harold S. (1993-1999) *Director of Physical Plant*
Grundy ’65, Diane H. (1969-2013) *Director of Library Services and Assistant Professor of English*
Homan, Timothy C. (1991-2026) *Dean for the Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics, and Professor of Chemistry*
Jewell ’67, Richard G. (2003-2015) *President Emeritus and Professor of Business Law and Public Policy*
Keehlwetter, F. Stanley (1999-2018) *Dean of the Chapel and Guest Lecturer in Humanities*
McNulty ’80, Paul J. (2014-2025) *President*
Muller, Jacquelyn P. (2014-2024) *Senior Director of Marketing & Communications*
Savage, Richard N. (2019-2024) *Dean for the Albert A. Hopeman, Jr. School of Science, Engineering, and Mathematics, and Professor of Engineering*
Smith ’59, Robert W. (1970-2001) *Registrar*
Sparks ’66, John A. (1976-2013) *Dean for the Alva J. Calderwood School of Arts and Letters and Professor of Business*
Towle ’68, Roger K. (1995-2016) *Vice President for Financial Affairs*

Retired Faculty

Allgaier, Darrell E. (2003-2011) *Professor of Mathematics*
Allison, Blair T. (1999-2021) *Professor of Mechanical Engineering*
Anderson, William P., Jr. (1987-2020) *Professor of Sociology*
Archibald, C. Mark (1996-2021) *Professor of Mechanical Engineering*
Augspurger, Joseph D. (1996-2026) *Professor of Chemistry*
Ayers, David J. (1996-2024) *Professor of Sociology*
Barbour, Kristin A. (2007-2026) *Adjunct Faculty of Theatre*
Barr, John F. (1972-1998) *Assistant Professor of Physical Education*
Bowne, Dale R. (1963-1999) *Samuel P. Harbison Professor of Religion*
Brenner, Frederic J. (1969-2020) *Professor of Biology*
Brown, Janice B. (1994- 2015) *Professor of English*
Browne, Douglas A. (1981-2014) *Professor of Music*
Bussel, William D. (1992-2000) *Professor of Education*
Carlson ’62, Ralph E. (2000-2014) *Professor of Mathematics*
Carson, Kenneth P. (2015- 2022) *Professor of Management*
Carter, Beverly H. (1992-2025) *Professor of Music*
Cole, J. Harvey (1962- 2015) *Adjunct Full Professor of German and English*
Dixon, Diane M. (1997-2015) *Professor of English and Communication Studies*
Dixon, James G. III (1976-2015) *Professor of English*
Dupree, James V. (1990-2014) *Professor of Business and Entrepreneurship*
Ellison, John H. (1970-2008) *Professor of Mathematics*
Fleming, Larry D. (1974-2007) *Professor of Accounting*
Folkertsma, Marvin J., Jr. (1974-2014) *Chair of the Department of Political Science and Professor of Political Science*

Genareo, Phyllis P. (1995-2021) *Director of Special Education and Professor of Education*
Hamilton, Lois J. (1968-1994) *Assistant Professor of Art*
Harp, Gillis J. (1999-2024) *Professor of History*
Hendrickson, Mark W. (2004-2019) *Adjunct Professor of Economics and Entrepreneurship*
Henry, Marvin C. (1962-2003) *Professor of Mathematics*
Henry, Patricia Zbell (1964-1993) *Assistant Professor of Physical Education*
Hinton, William M. (1991-2015) *Professor of Business*
Homan, Kristin N. (1992-2026) *Professor of Psychology*
Howley, George B. (2008-2019) *Assistant Professor of Entrepreneurship*
Jenkins, Stephen P. (1992-2024) *Professor of Biology*
Jenny, Frederick J. (1984-2014) *Professor of Computer Science and Educational Technology and Director of Instructional Technology*
Johnson, Lois L. (1995-2020) *Director of the Office of International Education and Professor of Education*
Jones, David H. (1990-2008) *Professor of Biochemistry*
Ketler ’71, Bruce W. (1977-2018) *Professor of Business*
Konzen, Richard A. (1992-2017) *Facilities Director, Pew Fine Arts Center; Professor of Music; and College Organist*
Leo, Richard A. (1967-2004) *Professor of Physics*
Léon, Celine T. (1970-2017) *Adjunct Professor of French*
Lillie, W. Thomas (1983-1996) *Associate Professor of Political Science*
Lyle, Donald L. (1972-2015) *Chair of the Department of Physical Education and Athletics, Athletic Director, and Professor of Physical Education*
Markley ’82, Andrew W. (1991-2026) *Professor of International Business*
Marsch, Glenn A. (2004-2026) *Professor of Physics*
Mech, Timothy S. (1998-2017) *Professor of Business/Finance and Entrepreneurship*
Mitchell-Emigh, L. Kay (1986-2017) *Head Athletic Trainer and Assistant Professor of Exercise Science*
Mohr, Timothy A. (1993- 2022) *Professor of Electrical Engineering*
Naegele, Sara K. (1966-1990) *Assistant Professor of Chemistry*
Otto, John F. (1973-2010) *Associate Professor of Business*
Paparone ’93, Stacy A. (2008-2026) *Associate Chair of the Department of Music and Professor of Music*
Patterson ’73, Carolyn M. (1998-2017) *Assistant Director of the Grove City College Early Education Center and Instructor in Education*
Powell, Scott K. (1991-2025) *Professor of Marketing*
Ray, Durwood B. (1994-2011) *Professor of Biology*
Reuber, Mark O. (1989-2020) *Field Director for the Office of International Education and Professor of Mechanical Engineering*
Rhoades, Kathy J. (2002-2021) *Associate Professor of Visual Arts*
Rice, Alan W. (1979-1999) *Professor of Mechanical Engineering*
Roach, Janey A. (2020-2024) *Director of Nursing for the Charles Jr. & Betty Johnson School of Nursing and Professor of Nursing*
Roberts, Susan K. (1985-2014) *Associate Director of Athletics for Women and Professor of Physical Education*
Scheffler, Patricia S. (2006-2020) *Professor of Education*
Seybold, Kevin S. (1985-2021) *Chair of the Department of Psychology and Social Work and Professor of Psychology*
Smith ’72, Christopher W. (1979-2016) *Athletic Director and Associate Professor of Exercise Science*

Smith ’72, Gary S. (1978-2017) *Chair of the Department of History, Professor of History, and Coordinator of the Humanities Core*
Snyder, Richard W. (2016-2021) *Assistant Professor of Accounting*
Stansberry, Gloria J. (1966-2006) *Professor of English*
Stephens, Barbara C. (1977-2006) *Associate Professor of Education*
Stephens, John H. (1994-2021) *Adjunct Professor of Education*
Stringer, Randy C. (1993-2017) *Professor of Biblical and Religious Studies*
Su, Shuhui (2009-2020) *Professor of Modern Languages*
Throckmorton, E. Warren (1994- 2022) *Professor of Psychology*
Tilford, Earl H. (2001-2008) *Professor of History*
Tinkey ‘75, Patricia A. (2004-2020) *Professor of Spanish*
Trammell, Catherine M. (1981-2011) *Professor of Modern Languages*
Trammell, Richard L. (1971-2014) *Professor of Philosophy*
Ulrich, Vernon W. (2005-2025) *Professor of Mechanical Engineering*
Valentine, David W. (2018-2021) *Professor of Computer Science*
Van Til, L. John (1972-2004) *Professor of Humanities and Business*
Voltz, Ramon J. (1971-2007) *Professor of Mathematics*
Walters, Joseph D. (1972-2012) *Associate Director of Athletics for Men and Professor of Physical Education*
Wentworth, Theodore O., Jr. (1996-2018) *Professor of Spanish*
Yeager, Dorian P. (1995-2015) *Professor of Computer Science and Mathematics*
Yeager, M. Carol (1995-2015) *Adjunct Professor of Biology*