

# ALL CAS COURSE LIST

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**ADS 445 • Counseling Microskills 4 Credits**

An examination of effective counseling skills that combines theoretical understanding and hands-on practice of essential microskills. Engagement in development of “self as the therapist” through reflective practice and observation of self and others.

*Prerequisites: Sophomore standing. Offered: Fall.*

**ADS 450 • Introduction to Addictions Counseling 4 Credits**

Examination of addiction from a variety of perspectives and evaluation of the twelve core functions of an addictions counselor. Description of the process of change in the context of the continuum of care. Cultivation of a personal philosophy around spirituality and addiction.

*Prerequisites: Sophomore standing. Offered: Fall, Spring, Summer.*

**ADS 455 • Psychopharmacology of Addiction 4 Credits**

Examination of the action and biophysical effects of addictive substances. Evaluation of evidence-based medical treatment options for both addictions and co-occurring disorders. Integration of spirituality with medical approaches to treating addiction in an interculturally sensitive manner.

*Prerequisites: Sophomore standing. Offered: Fall, Spring.*

**ADS 460 • Assessment & Treatment of Co-occurring Disorders 4 Credits**

Examination of the assessment and treatment, including identification of the appropriate level of care, for co-occurring disorders of substance use and various psychological disorders. Attention is given to evidence-based practices in treatment planning and intervention.

*Prerequisites: Sophomore standing. Offered: Fall, Spring.*

**ADS 481 • Internship in Addictions Counseling I 4 Credits**

Applies theory, interpersonal skills, and professional development skills in a supervised professional addiction counseling setting. Demonstrates the twelve core functions of LADC (MN Statute 148F.01, subdivision 10). Evaluates progress toward appropriate development goals. Integrates knowledge, experience, ethics, and faith into a worldview relevant to addiction counseling. 400-hour experience hours required.

*Prerequisites: ADS 445; ADS 450; ADS 460; ADS 485. Offered: Fall, Spring, Summer.*

**ADS 485 • Professional Issues & Ethics 2 Credits**

An examination of legal and ethical situations arising in the practice of helping professions, including alignment with the 12 core functions for addictions counseling. Evaluation of legal and ethical issues in professional practice and decision making. Development of goals and strategies for continuing professional, personal, and spiritual growth.

*Prerequisites: Sophomore standing. Offered: Spring, Summer.*

**ADS 491 • Internship in Addictions Counseling II 4 Credits**

Applies theory, interpersonal skills, and professional development skills in a supervised professional addiction counseling setting. Demonstrates the twelve core functions of LADC (MN Statute 148F.01, subdivision 10). Evaluates progress toward appropriate development goals. Integrates knowledge, experience, ethics, and faith into a worldview relevant to addiction counseling. 480-hour experience hours required.

*Prerequisites: ADS 481. Offered: Fall, Spring, Summer.*

**AHS 001 • First Aid and CPR Certification 0 Credit**

Successful completion of the American Red Cross First Aid course and proof of CPR certification.

**AHS 100 • Foundations in Applied Health Science 1 Credit**

A starting point for “life after Bethel” discussions and assignments throughout the academic career in applied health sciences majors. Explores the knowledge, skills, and competencies for career pathways in medical and applied/allied health science fields. Students discover, practice, and reflect on the building blocks for success in health-related career pathways.

*Offered: Fall, Occasionally spring.*

## All CAS Course List 2

### AHS 170 • Applied Nutrition 2 Credits

Effects of individualized nutrition on health, human performance, and chronic disease prevention will be discussed throughout the lifespan. Topics covered also include macronutrient sources, digestion, absorption and basic utilization with introductory concepts of micronutrient classifications and physiological roles.

*Offered: Fall, Occasionally January, Spring.*

### AHS 248 • Applied Movement Systems 2 Credits

A hands-on, applied course that exposes and prepares students to understand the function and application of movement systems and exercise to enhance the function and capacity of the musculoskeletal and cardiovascular systems.

*Offered: Fall, Spring.*

### AHS 250M • Statistics and Research Methods in Applied Health Sciences 4 Credits

Descriptive statistics. Discrete probability spaces, random variables, and distributions. Normal distribution, statistical inference, estimation, hypothesis testing, linear regression, correlation analysis, and analysis of variance. Applications to healthcare and Institutional Review Board (IRB) human-based research projects.

*Offered: Fall, Spring. Special Notes: Students may not receive credit for AHS 250M and BUS 201M, PSY 230M, or MAT 207M. AHS 250M does not count toward the psychology minor elective credit requirement.*

### AHS 303KZ • Integrative Medicine in a Cross-Cultural Setting 4 Credits

Theories and practices of integrative medicine that promote quality health and wellness. Models from ancient Mayan practices to modern Western medical practices. Scientific theories include ethnobotany, psychoneuroimmunology, integrative nutrition, and biofeedback. Practices may include therapeutic touch, yoga, mindfulness, contemplative prayer, nature therapy, and healing effects of physical activity and movement.

*Prerequisites: GES 104; Laboratory Science (D) course; Mathematics (M) course. Offered: Occasionally January.*

### AHS 370 • Functional Human Nutrition 4 Credits

Prepares students in functional nutrition, emphasizing human biochemistry and cellular energetics. Explores the relationship of nutrients to health pathologies, including metabolic syndrome, obesity, diabetes, cardiovascular disease, and cancer. Practical experience with nutritional interventions for health optimization and disease management. Emphasis on biochemical individuality for positive, nutritional modulation in oxidative phosphorylation.

*Prerequisites: BIO 120/BIO 120D, BIO 122/BIO 122D, BIO 124/BIO 124D, or BIO 128/BIO 128D and CHE 113/ CHE 113D and AHS 170. Offered: Fall, Spring.*

### AHS 375 • Functional Anatomy 4 Credits

Applied, anatomical content focuses on musculoskeletal kinematics, types of muscular contraction, location/direction of force application, and descriptive movement analysis. Topics integrate motor learning and development concepts including skills acquisition and maintenance of motor skills.

*Prerequisites: BIO 214/BIO 215 or BIO 238/BIO 239 and Mathematics (M) course. Offered: Fall, Spring. Special Notes: PHY 102/PHY 102D is a recommended prerequisite.*

### AHS 379 • Integrative Human Physiology 4 Credits

Examination of how normal human physiological function (homeostasis) is altered, and subsequently restored, in response to various forms of acute and chronic stress.

*Prerequisites: BIO 214/BIO 215 and BIO 216/BIO 217. Offered: Fall, Spring.*

### AHS 393 • Literature Review in Applied Health Sciences 2 Credits

Students develop and work on their research project and IRB. Students use literature to formulate an independent project. Completion of IRB is expected. Discussions of careers, graduate and medical school application and entrance examinations.

*Prerequisites: AHS 001 and AHS 379 (may be taken concurrently) Corequisites: Concurrent registration in AHS 398 and AHS 399. Offered: Spring.*

**AHS 398 • Physiological Assessment Laboratory 1 Credit**

Laboratory experience accompanying AHS 399.

*Prerequisites:* AHS 001 and AHS 379, (may be taken concurrently). *Corequisites:* Concurrent registration in AHS 393 and AHS 399 is required. *Offered:* Spring.

**AHS 399 • Physiological Assessment 3 Credits**

Applied techniques in the measurement of exercise bioenergetics, neuromuscular performance, cardiorespiratory fitness, and other health components. Particular emphasis is given to the knowledge necessary for exercise testing certifications and development of fitness testing skills.

*Prerequisites:* AHS 001 and AHS 379 (may be taken concurrently). *Corequisites:* Concurrent registration in AHS 393 and AHS 398 is required. *Offered:* Spring.

**AHS 440 • Advanced Training for Human Performance 2 Credits**

Prepares students to systematically design training and conditioning programs to enhance the function and capacity of the musculoskeletal and cardiovascular systems. Utilizes periodization and mathematical models with expected physiological and neuromuscular adaptations to maximize human performance in sport, pre-habilitation, public health, and special populations.

*Prerequisites:* BIO 216/BIO 217 and AHS 248 and AHS 375 (may be taken concurrently). *Offered:* Fall.

**AHS 445 • Advanced Laboratory Techniques in Applied Health Sciences 4 Credits**

Collection, interpretation, and prescription of human subjects data conducted. Activities focus on how to work in a dynamic laboratory and refine and master previously learned assessment skills.

*Prerequisites:* AHS 393; AHS 398; AHS 399. *Offered:* Fall, Spring.

**AHS 481 • Internship in Applied Health Sciences 1-4 Credits**

A practical experience in an off-campus setting in applying academic knowledge and professional skills under the dual supervision of a faculty member and a practicing professional. Experience is designed by the student in consultation with a faculty member.

*Prerequisites:* AHS 393; AHS 398; AHS 399 or Consent of instructor. *Special Notes:* Application must be made at least one semester prior to the intended experience. *Offered:* Fall, Spring.

**AHS 494 • Research in Applied Health Sciences 1 Credit**

Students develop and work on their senior research project. Students complete data collection and continue the discussion of "life after Bethel." In addition, social networking, public speaking, and presentations are explored.

*Prerequisites:* AHS 393; AHS 398; AHS 399. *Offered:* Fall.

**AHS 495 • Applied Health Sciences Symposium 2 Credits**

Students prepare and deliver formal presentation and manuscripts of their research results. Weekly discussions cover current research topics. The discussion of "life after Bethel" is continued.

*Prerequisites:* AHS 494. *Offered:* Spring.

**ANT 200 • Introduction to Anthropology 2 Credits**

Study of humankind with an emphasis on human social and cultural systems. Focus on one non-Western culture in anthropological perspective. Study of the discipline, methods, and theories of anthropology.

*Offered:* Fall, odd # years.

**ARH 222 • Survey of Art History 4 Credits**

Survey of history from prehistoric painting to the contemporary period, examining major developments, artists, aesthetic concepts, stylistic practices, and use of materials. Compares the way material use and thematic ideas are addressed in different historical and geographic regions around the globe.

*Offered:* Spring.

**ARH 236UZ • Medieval Worlds: Cultures and Beliefs in North Africa and Europe 4 Credits**

On-site investigation of intercultural relations in medieval and modern Europe and North Africa, and how the many different kinds of historical identity, whether Christian, Muslim, or Jew, still reverberate today. Studies the complex history of the region and promotes principles of effective modern pluralism through cross-cultural interaction.

*Prerequisites:* GES 104 and GES 130 or GES 149. *Offered:* January, occasionally.

## All CAS Course List 4

### **ARH 305 • History of Design 4 Credits**

Examination of the history of design from the invention of writing to interactive digital spaces. Looking at the development of aesthetics, materials, style, and function in design as it shifts in response to cultural and historical changes.

*Offered: Fall.*

### **ARH 440 • Topics in Art History 4 Credits**

Art history investigation focused on a specific time period, culture, medium, or theme designed to provide students with a deep knowledge of the major features, artists, and contexts of the designated topic. Specific topics will be announced prior to registration.

*Offered: Spring, even # years. Special Notes: This course is repeatable for credit.*

### **ART 110 • Foundations: The Elements and Principles of Art & Design 4 Credits**

An exploration of material expression in two and three-dimensional form, including the elements and principles of design, diverse materials and media, color theory, experimentation, and critique. Developmental approaches to formal and expressive forms of artmaking are explored in both solo and collaborative projects.

*Offered: Fall, Spring.*

### **ART 202A • Drawing 4 Credits**

Development of visual perception through observation, drawing, and a study of structural form and space relationships. Experiences in line, value, texture, basic perspective, and composition using various materials and techniques.

*Offered: Fall, Spring.*

### **ART 204A • Clay Forms 4 Credits**

Explores hand building and wheel throwing techniques in the formation of archetypal ceramic forms and processes.

*Offered: Fall, Spring.*

### **ART 205A • Screen Printing 4 Credits**

Screen printing as a means of creating hand-printed multi-color fine art prints. Methods include handmade and photo emulsion stenciling and studio art practice.

*Offered: January.*

### **ART 206A • Sculpture 4 Credits**

Sculptural concepts, processes, and materials are used within a guided studio experience that includes an introduction to public art.

*Offered: Fall, Occasionally spring. Special Notes: Specific fabrication skills are not required.*

### **ART 210A • Painting 4 Credits**

An introduction to the fundamentals of painting and personal painting practices. Students will develop subject matter as well as the ability to organize pictorial space and compositional ideas.

*Offered: Fall, Occasionally January, Occasionally spring.*

### **ART 211A • Printmaking 4 Credits**

Hand-printing processes with an emphasis on drawing and composition. Experience in such media as etching, lithography, woodcut, linocut, collagraphy, monotype and color printing.

*Offered: Occasionally fall, Spring.*

### **ART 240 • Creative Practices 4 Credits**

Exploration of creative processes that moves past introductory ways of generating visual ideas to developing self-sustaining and self-directed investigation and enriching techniques for the artist.

*Corequisites: Another 200-level or above ART or DES course, recommended course be taken sophomore year. Offered: Spring.*

**ART 250A • Photography 4 Credits**

Photography as a means of aesthetic and conceptual ideas within the fine arts, rather than for family and vacation snapshots, through both digital and analog forms. Includes technical instruction in camera operation, black and white film developing, printing, and basic Adobe Photoshop. Introduction to photo history and contemporary theory.

*Offered: Fall, Spring.*

**ART 306 • Guided Practice: Sculpture and Ceramics 4 Credits**

Self-directed studio projects are pursued with particular focus on individual growth and development. Art for public spaces is more fully engaged, with students making works for specific audiences and locations.

*Prerequisites: ART 204A or ART 206A. Offered: Fall. Special Notes: This course is repeatable for credit.*

**ART 310 • Guided Practice: Painting 4 Credits**

A continued exploration of painting, including various material experiments and exposure to new processes. Emphasis on the development of visual vocabulary and understanding of contemporary issues in painting. Invention and investigation are stressed.

*Prerequisites: ART 210A. Offered: Spring. Special Notes: This course is repeatable for credit.*

**ART 312 • Guided Practice: Works on Paper 4 Credits**

Advanced work in selected media with emphasis on individual research and development.

*Prerequisites: ART 202A or ART 211A. Offered: Fall. Special Notes: This course is repeatable for credit.*

**ART 336 • Guided Practice: Photography 4 Credits**

Individual aesthetic and conceptual development within the photographic medium, advanced skills in digital or black and white wet photography processes, and investigation of photo history and critical theory (as it relates to photography).

*Prerequisites: ART 250A. Offered: Spring. Special Notes: This course is repeatable for credit.*

**ART 481 • Internship in Art 1-4 Credits**

Educational and practical experience in applying understanding and skill in an off-campus, professional setting. An internship can be arranged in advertising studios, agencies, printmaking studios, artists' studios, and art museums. Supervised by an art faculty member.

*Prerequisites: Five studio art courses; Major in art; Consent of department. Offered: Fall or Spring.*

**ART 495 • Senior Seminar 4 Credits**

Development of creative independence, culminating in an individual thesis defense.

*Prerequisites: ART 240; Major in the Art and Design department; Completion of Junior Review; Consent of department. Offered: Fall.*

**ART 498 • Professional Practices: Making Art Your Career 2-4 Credits**

Prepares students to continue their own studio practice after graduation and graduate school, exhibitions, grants, and residencies. Teaches students the skills for presenting their work in a professional and compelling manner within the forms and procedures expected from the art world.

*Prerequisites: Major in the Department of Art and Design, Consent of department. Offered: Spring.*

**ASL 101 • Introductory American Sign Language I 4 Credits**

Enables students with no knowledge of American Sign Language (ASL) to communicate comfortably in a variety of situations. Focuses on development of expressive, receptive, and visual readiness skills in basic ASL. Introduces conversational vocabulary, fingerspelling, grammatical principles, and syntax. Includes information about deaf culture.

*Offered: Fall, Spring.*

**ASL 102S • Introductory American Sign Language II 4 Credits**

Continuation of functional and practical understanding and communicative use of ASL. Further study of the history and culture of the deaf community through films, discussions, and readings.

*Prerequisites: ASL 101 or Placement exam. Offered: Fall, Spring.*

**ASN 281 • Individualized Internship 1: Foundations for Career Success 2 Credits**

Develop career-readiness skills through on-the-job work experience combined with instructional activities building skills which include safe engagement in the work environment, job-seeking, career exploration and transferable skills. Practice essential skills in communication, accepting feedback, adhering to employer expectations. Apply work appropriate expectations. Create introductory materials for a portfolio showcasing accomplishments.

*Offered: Occasionally.*

**ASN 282 • Individualized Internship 2: Workplace Rights and Responsibilities 2 Credits**

Development of career-readiness through work experience and instructional activities building skills including engagement in the work environment, job-seeking skills, career exploration and transferable employability skills. Practice essential skills such as job interviewing, safety practices, employee rights, employer responsibilities etc. Create materials to showcase accomplishments including a cover letter and resume.

*Prerequisites: ASN 281. Offered: Occasionally.*

**ASN 283 • Individualized Internship 3: Career and Character Development 2 Credits**

Develops career-readiness skills through work experience. Instructional activities to improve employability skills. Learning experiences that help students match their skills/interests to the appropriate career field. Explores personal characteristics for successful employment. Compares models of good citizenship to define practices for positive workplace interactions. Creating a portfolio showcasing work-based accomplishments.

*Offered: Occasionally.*

**ASN 284 • Individualized Internship 4: Making Meaning of the Internship Experience 2 Credits**

Synthesize learning from internships. Finalize employment portfolio. Define lifelong approaches to work skills. Explore standards of practice. Compose a personal mission statement. Reflect on a letter of recommendation. Cultivate career-readiness skills. Combine work experience with instructional activities that improve employability skills. Reflect on employer feedback to bolster lifelong career success.

*Prerequisites: ASN 283. Offered: Occasionally. Special Notes: Graded on an S/U basis.*

**ATH 200 • Introduction to Art Therapy 4 Credits**

Introduces the field of art therapy through theory, history, principles, and practices. Engages these topics through reading, writing, lecture, discussion, and experiential exercises. Explores the various techniques and qualities of various art media, and how they impact the healing process.

*Offered: Spring, even # years.*

**ATH 481 • Internship in Art Therapy 1-4 Credits**

Students participate in internships in approved settings to include: museums, galleries, libraries, hospitals, clinics, and therapy centers. Students gain first-hand knowledge, experience, and skills in the practice of art therapy. Internship sites are approved professional settings and supervised by Bethel faculty and site supervisors.

*Prerequisites: ATH 200. Offered: Fall, Spring.*

**BIB 101 • Introduction to the Bible 4 Credits**

Exploration of connections between key portions of the Bible and challenges faced by students in their own lives. Students trace the journey of God's people from Abraham and Sarah through the New Testament church, tracing God's self-disclosure through biblical cultures and their genres of writing.

*Offered: Fall, January, Spring, Summer. Special Notes: Students may not receive credit for BIB 101 and BIB 102 or SPA 361.*

**BIB 102 • Introducción a la Biblia 4 Credits**

Traces the journey of God's people from Abraham and Sarah through the New Testament church, highlighting the unifying self-disclosure of God in the various cultures and types of writing of the Old and New Testaments. Introduces students to historical and thematic content as well as broad but basic exegetical principles.

*Prerequisites: SPA 340U or Consent of instructor. Offered: Fall. Special Notes: Instruction is in Spanish. Students may not receive credit for BIB 102 and BIB 101 or SPA 361. This course carries cross credit in languages and cultures.*

**BIB 212 • Reading the Hebrew Bible 4 Credits**

Study of select foundational themes and difficult areas for Christians reading the Hebrew Bible today, with an introduction to a range of methods in interpretation. Topics discussed may include: creation, capital punishment, social justice, violence and holy war, and the status of women.

*Prerequisites: BIB 101. Offered: Fall or Spring.*

**BIB 230Z • Israel Study Tour 4 Credits**

Historical geography and onsite investigation of the Holy Land with emphasis on sites from the Early Bronze through Byzantine eras. Particular emphasis on sites that underlie the Hebrew Bible, the intertestamental period, and the New Testament.

*Prerequisites: BIB 101 and GES 104. Offered: Occasionally January.*

**BIB 240 • Topics in Biblical Studies 4 Credits**

Study of a biblical area or topic. The specific subject is announced when the course is offered.

*Prerequisites: BIB 101. Offered: Fall, January, Spring.*

**BIB 260 • The Life and Teachings of Jesus 4 Credits**

Main events of the life of Jesus and the form and message of His teaching in the light of first century Jewish culture. Use of the Old Testament in the gospels, the structure of the gospels, and their literary genre.

*Prerequisites: BIB 101. Offered: Fall or Spring.*

**BIB 265 • The Life and Teachings of Paul 4 Credits**

Life of Paul, his strategic role in the expansion of Christianity, and the contribution of his theology and thought as reflected in his writings.

*Prerequisites: BIB 101. Offered: Fall or Spring.*

**BIB 304 • Messianic Concepts 4 Credits**

Development of such terms as "Son of Man," "Son of God," and "Messiah" are traced from origins in Old Testament texts of poetry and prophecy to New Testament fulfillment in the Gospels and Epistles.

*Prerequisites: BIB 101. Offered: Occasionally.*

**BIB 306 • Covenant, Promise, and Fulfillment 4 Credits**

Major covenants between God and humans in both the Old and New Testaments. Relationships between these covenants, especially regarding the theme of promise and fulfillment.

*Prerequisites: BIB 101. Offered: Occasionally.*

**BIB 309 • A Biblical Theology of Poverty 4 Credits**

Responses to poverty in the Old Testament, intertestamental literature, and the New Testament in light of the socioeconomic setting of these records. Construction of a biblical perspective and implications for Christian communities in North America.

*Prerequisites: BIB 101 and GES 149 or GES 160 and Sophomore standing. Offered: Fall or Spring. Special Notes: This course carries cross credit with theological studies.*

**BIB 310 • Holiness in Biblical Perspective 4 Credits**

Exegetical and theological foundations underlying the biblical notion of holiness in both the Old and New Testaments. Biblical texts in their historical-cultural contexts, with a view to uncovering biblical understandings of holiness and integrating them into a Christian worldview.

*Prerequisites: BIB 101. Offered: Occasionally.*

**BIB 312 • Female and Male in Biblical Perspective 4 Credits**

Significant Old and New Testament passages related to past and current discussions of gender, roles, and ministry in the church.

*Prerequisites: BIB 101. Offered: Occasionally.*

**BIB 316 • Vocation and Calling: A Biblical Perspective 4 Credits**

An investigation of the biblical understandings of vocation and calling in both Old and New Testaments. Examination of foundational issues such as definitions of ministry, personal and spiritual gifting, the role of the church in contemporary context, and calling and vocation as they relate to being Christ-followers.

*Prerequisites: BIB 101. Offered: Occasionally.*

**BIB 326 • The Prophets of Israel 4 Credits**

The meaning of prophecy and the function of prophets in Israel. Analysis of context and message of selected Hebrew prophets and the nature of Hebrew poetry used by the prophets. Textual studies focused on historical understandings, relating them to the New Testament and contemporary Christian life.

*Prerequisites: BIB 101. Offered: Spring, even # years.*

**BIB 331G • Cultural and Literary World of the New Testament 4 Credits**

Study of the way in which the cultural and literary worlds of the New Testament inform the understanding of key New Testament texts.

*Prerequisites: [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Fall or Spring.*

**BIB 334G • Cultural and Literary World of the Old Testament 4 Credits**

Study of the way in which the cultural and literary worlds of the Old Testament inform the understanding of key Old Testament texts.

*Prerequisites: [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Fall or Spring.*

**BIB 336 • Poetic Books of the Old Testament 4 Credits**

A study of Job, Psalms, Proverbs, Ecclesiastes, and Song of Songs. Understanding the structure, message, and nature of Hebrew poetry. Textual studies focused on historical understandings, relating them to contemporary Christian life.

*Prerequisites: BIB 101. Offered: Spring, odd # years.*

**BIB 375 • First Corinthians 4 Credits**

Paul's letter to the Corinthian church in its first century setting. Topics include sexuality, divorce, spiritual gifts, the Christian ministry, resurrection, and the contemporary application of these.

*Prerequisites: BIB 101. Offered: Spring, even # years.*

**BIB 499 • Departmental Capstone 4 Credits**

Selected topics related broadly to the areas of ministry, Bible, and theology. A major research project in consultation with department faculty is followed by an oral and written presentation of its results.

*Prerequisites: Major in biblical and theological studies or missional ministries and Senior standing. Offered: Spring. Special Notes: Carries cross-credit with missional ministries and theological studies.*

**BIO 100 • Principles of Biology 3 Credits**

Comprehensive overview of core principles of biology. How the human body works and interacts with the environment. Explores energy use and transformation, structure and function of key organ systems, genetics, evolution, and human impact on the environment. Emphasizes scientific literacy by applying the scientific method to contemporary issues in biology.

*Corequisites: Concurrent registration in BIO 100D is required. Offered: Fall.*

**BIO 100D • Principles of Biology Lab 1 Credit**

Laboratory experience accompanying BIO 100.

*Corequisites: Concurrent registration in BIO 100 is required. Offered: Fall.*

**BIO 104 • Human Biology 3 Credits**

Study of the biological aspects of the human species. Includes basic molecules of life, human cell biology, tissue types, anatomy and physiology of the 10 systems, human embryology and development, human genetics, nutrition, disease, and health.

*Corequisites:* Concurrent registration in BIO 104D is required. *Offered:* Fall, Spring.

**BIO 104D • Human Biology Lab 1 Credit**

Laboratory experience accompanying BIO 104.

*Corequisites:* Concurrent registration in BIO 104 is required. *Offered:* Fall, Spring.

**BIO 105 • Medical Terminology 2 Credits**

Study of medical terms. Students study material independently and take proctored examination to demonstrate knowledge of medical language.

*Prerequisites:* Consent of instructor. *Offered:* Fall, Spring.

**BIO 114D • Introduction to Biodiversity, Ecology, and Adaptation 4 Credits**

An introduction to the diversity, interrelationships, and origins of living organisms. Focuses on three themes: an overview of the kinds and diversity of organisms found in six kingdoms, the interaction of organisms with each other and their environment, and the change of organisms through time.

*Offered:* Occasionally.

**BIO 120 • Introduction to Molecular and Cellular Biology 3 Credits**

An introduction to cellular and subcellular aspects of living organisms. Includes a study of basic chemistry, biological molecules, cells, enzymes, metabolism, classical genetics, and molecular genetics.

*Corequisites:* Concurrent registration in BIO 120D is required. *Offered:* Fall, Spring. *Special Notes:* This course is intended for nursing and other science related majors.

**BIO 120D • Introduction to Molecular and Cellular Biology Lab 1 Credit**

Laboratory experience accompanying BIO 120.

*Corequisites:* Concurrent registration in BIO 120 is required. *Offered:* Fall, Spring.

**BIO 122 • Introduction to Organismic Biology 3 Credits**

An introduction to how living things work. Focuses on two main themes: the correlation between structure and function, and the capacity of organisms to adjust their internal environment in response to short- and long-term fluctuations in the external environment.

*Corequisites:* Concurrent registration in BIO 122D is required. *Offered:* Fall, Spring.

**BIO 122D • Introduction to Organismic Biology Lab 1 Credit**

Laboratory experience accompanying BIO 122.

*Corequisites:* Concurrent registration in BIO 122 is required. *Offered:* Fall, Spring.

**BIO 124 • Integrative Biology: Genes, Cells, Change 3 Credits**

In a complex world, understanding challenges like infectious disease or environmental change requires a fundamental knowledge of biology. Using relevant examples, students explore molecules, DNA, biotechnology, evolution, populations, ecosystems, disease, and human systems (e.g., digestive, immune) to gain a perspective on global health and personal responsibility to life.

*Prerequisites:* Major in biology, environmental science, biochemistry/molecular biology, neuroscience, human bioenergetics, rehabilitation and movement science, or minor in biology. *Corequisites:* Concurrent registration in BIO 124D is required. *Offered:* Fall, Spring.

**BIO 124D • Integrative Biology: Genes, Cells, Change Lab 1 Credit**

Laboratory experience accompanying BIO 124.

*Corequisites:* Concurrent registration in BIO 124. *Offered:* Fall, Spring.

**BIO 128 • Integrative Biology: Metabolism, Energy, Biodiversity 3 Credits**

Living organisms face challenges requiring them to either adapt, move, acclimate, or perish.

Through real-world examples, students will gain a fundamental understanding of homeostasis, enzymes, metabolism, energy flow, movement, human systems (e.g., circulatory, nervous, excretory), photosynthesis, cellular respiration, extinction, biodiversity, transformation of matter, and acclimation.

*Prerequisites:* Major in biology, environmental science, biochemistry/molecular biology, neuroscience, human bioenergetics, rehabilitation and movement science, minor in biology, or a minor in environmental studies. *Corequisites:* Concurrent registration in BIO 128D is required. *Offered:* Fall, Spring.

**BIO 128D • Integrative Biology: Metabolism, Energy, Biodiversity Lab 1 Credit**

Laboratory experience accompanying BIO 128.

*Corequisites:* Concurrent registration in BIO 128. *Offered:* Fall, Spring.

**BIO 132 • The Science of Birds 3 Credits**

An overview of the Minnesota avifauna and bird biology. Bird identification is discussed and practiced in the field. Selected topics from bird biology (e.g., migration, flight, reproduction, behavior, food, and conservation) are presented through lectures, numerous slide shows, and videos. Topics introduce the prevailing themes in modern biology.

*Corequisites:* Concurrent registration in BIO 132D is required. *Offered:* Occasionally.

**BIO 132D • The Science of Birds Lab 1 Credit**

Laboratory experience accompanying BIO 132.

*Corequisites:* Concurrent registration in BIO 132 is required. *Offered:* Occasionally.

**BIO 214 • Human Anatomy 3 Credits**

Detailed study of the anatomy and histology of the human body in relation to its functional systems. Laboratory includes human cadaver dissections.

*Prerequisites:* One of the following: BIO 104/BIO 104D, BIO 120/BIO 120D, BIO 122/BIO 122D, BIO 124/BIO 124D, BIO 128/BIO 128D. *Corequisites:* Concurrent registration in BIO 215 is required. *Offered:* Fall, Spring. *Special Notes:* Not open to students who have taken BIO 238/BIO 239 except by department consent.

**BIO 215 • Human Anatomy Lab 1 Credit**

Laboratory experience accompanying BIO 214.

*Corequisites:* Concurrent registration in BIO 214 is required. *Offered:* Fall, Spring.

**BIO 216 • Human Physiology 3 Credits**

Integration of basic principles of cell biology and mechanisms of physiology to the functions of the major organ systems of the human body; centered around the theme of homeostasis.

*Prerequisites:* BIO 214/BIO 215 and one of the following: BIO 104/BIO 104D, BIO 120/BIO 120D, BIO 124/BIO 124D, BIO 218, NSC 130/NSC 130D. *Corequisites:* Concurrent registration in BIO 217 is required. *Offered:* Fall, Spring. *Special Notes:* Not open to students who have taken BIO 238/BIO 239 except by department consent. A course in chemistry is a recommended prerequisite.

**BIO 217 • Human Physiology Lab 1 Credit**

Laboratory experience accompanying BIO 216.

*Corequisites:* Concurrent registration in BIO 216 is required. *Offered:* Fall, Spring.

**BIO 218 • Biology in a Changing World 3 Credits**

Through the exploration of interactions between genes and their environments, students articulate integrative topics (e.g., evolution, transformation of matter and energy, information flow, systems and structure/function), identify career options and desired skill sets, make a growth plan and articulate an intellectual autobiography, including faith integration.

*Prerequisites:* BIO 120/BIO 120D and BIO 122/BIO 122D or BIO 124/BIO 124D and BIO 128/BIO 128D. *Offered:* Fall, Spring.

**BIO 234 • Microbiology 3 Credits**

Microorganisms and viruses with respect to their structure, physiology, genetics, identification, control, host-microbe relationships, and exploitation by humans. Topics include pathogenic organisms, the infectious diseases they cause, and the events and products of vertebrate immune responses.

*Prerequisites:* BIO 218 (may be taken concurrently) or BIO 120/BIO 120D and one course in chemistry (A second course in chemistry is recommended.) *Corequisites:* Concurrent registration in BIO 235 is required. *Offered:* Fall, Spring.

**BIO 235 • Microbiology Lab 1 Credit**

Laboratory experience accompanying BIO 234.

*Corequisites:* Concurrent registration in BIO 234 is required. *Offered:* Fall, Spring.

**BIO 238 • Human Anatomy and Physiology 3 Credits**

Anatomy and physiology of the human body, with a major emphasis on the principle of homeostasis.

*Prerequisites:* One of the following: BIO 104/BIO 104D, BIO 120/BIO 120D, BIO 122/BIO 122D, BIO 218 (may be taken concurrently). *Corequisites:* Concurrent registration in BIO 239 is required. *Offered:* Spring. *Special Notes:* A course in chemistry is a recommended prerequisite. Not open to students who have taken BIO 214/ BIO 215 or BIO 216/BIO 217.

**BIO 239 • Human Anatomy and Physiology Lab 1 Credit**

Laboratory experience accompanying BIO 238.

*Corequisites:* Concurrent registration in BIO 238 is required. *Offered:* Spring.

**BIO 316 • Wildlife Ecology 3 Credits**

Analysis of terrestrial vertebrate populations, communities, and habitats. Exploration of how these analyses are applied to the manipulation, exploitation, protection, and restoration of animal populations and communities.

*Prerequisites:* BIO 218 (may be taken concurrently) and junior or senior standing. *Corequisites:* Concurrent registration in BIO 317 is required. *Offered:* Spring, even # years. *Special Notes:* Carries cross-credit in environmental science. This course is not open to students who have taken AUS 316.

**BIO 317 • Wildlife Ecology Lab 1 Credit**

Laboratory experience accompanying BIO 316. Includes some outdoor and off-campus investigations.

*Corequisites:* Concurrent registration in BIO 316 is required. *Offered:* Spring, even # years. *Special Notes:* Carries cross-credit in environmental science.

**BIO 318KZ • Ecology in the Tropics: Natural History and Future Prospects 4 Credits**

Travel in Ecuador or Kenya surveying the land, climate, plants, animals, homes, transportation, and industries, noting especially the impact of human presence. Ecuador includes the Amazon rainforest, Andean cloud forests, volcanic mountains, highlands, towns, cities, and the Galapagos Islands. Kenya includes Nairobi, African savanna, the Rift Valley, and Masai Mara.

*Prerequisites:* GES 104; Laboratory Science (D) course; Mathematics (M) course. *Offered:* January. *Special Notes:* Carries cross-credit in environmental science and general studies.

**BIO 326 • Vertebrate Histology 3 Credits**

Microscopic structure of cells, tissues, and organs in vertebrate animals with special emphasis on the way structural units are integrated. At all times efforts are made to correlate structure with specific physiological functions.

*Prerequisites:* BIO 214/BIO 215 or BIO 218. *Corequisites:* Concurrent registration in BIO 327 is required. *Offered:* Occasionally.

**BIO 327 • Vertebrate Histology Lab 1 Credit**

Laboratory experience accompanying BIO 326.

*Corequisites:* Concurrent registration in BIO 326 is required. *Offered:* Occasionally.

**BIO 328 • Invertebrate Biology 3 Credits**

A survey of invertebrate groups from protozoa to prochordates with emphasis on organizational, functional, and ecological significance. Special attention is given to the morphology, life histories, and physiology of invertebrates within the context of survival in specialized environments.

*Prerequisites:* BIO 218 (may be taken concurrently). *Corequisites:* Concurrent registration in BIO 329 is required. *Offered:* Spring, odd # years.

**BIO 329 • Invertebrate Biology Lab 1 Credit**

Laboratory experience accompanying BIO 328.

*Corequisites:* Concurrent registration in BIO 328 is required. *Offered:* Spring, odd # years.

**BIO 330 • Ecology 3 Credits**

Structure and function of wild nature. Topics include interrelationships of organisms with their environments, factors that regulate such interrelationships, and various roles that humans play in modifying patterns and processes of nature at organism, community, and ecosystem levels.

*Prerequisites:* BIO 218 (may be taken concurrently). *Corequisites:* Concurrent registration in BIO 331 is required. *Offered:* Fall, odd # years. *Special Notes:* This is a designated research course. This course carries cross credit in environmental science.

**BIO 331 • Ecology Lab 1 Credit**

Laboratory experience accompanying BIO 330.

*Corequisites:* Concurrent registration in BIO 330 is required. *Offered:* Fall, odd # years. *Special Notes:* Carries cross-credit in environmental science.

**BIO 332 • Genetics 3 Credits**

Principles that control inheritance, with examples chosen from plant and animal research, population genetics, cytogenetics, molecular genetics, and current work on human genetics.

*Prerequisites:* BIO 218 (may be taken concurrently) or BIO 124/BIO 124D and Two courses in chemistry. *Corequisites:* Concurrent registration in BIO 333 is required. *Offered:* Fall.

**BIO 333 • Genetics Lab 1 Credit**

Laboratory experience accompanying BIO 332.

*Corequisites:* Concurrent registration in BIO 332 is required. *Offered:* Fall.

**BIO 338 • Endocrinology 3 Credits**

Processes by which hormones exert control over many aspects of reproduction, development, growth, metabolism, and behavior. Topics include the chemical nature of hormones, receptors and signaling pathways, morphology and histology of endocrine organs, regulation of hormone synthesis and secretion, and mechanism of action in target tissues.

*Prerequisites:* BIO 218 (may be taken concurrently) or NSC 130/NSC 130D or BIO 120/BIO 120D and BIO 122/BIO 122D. *Corequisites:* Concurrent registration in BIO 339 is required. *Offered:* Fall, even # years. *Special Notes:* A course in physiology is a recommended prerequisite.

**BIO 339 • Endocrinology Lab 1 Credit**

Laboratory experience accompanying BIO 338. Work is largely experimental, using bioassay procedures.

*Corequisites:* Concurrent registration in BIO 338 is required. *Offered:* Fall, even # years.

**BIO 342 • Aquatic Biology 3 Credits**

Biological and physical aspects of natural, freshwater ecosystems, including fish and other aquatic animals, aquatic plants, algae, and their interrelationships with each other and the unique aqueous environment in which they live.

*Prerequisites:* BIO 218 (may be taken concurrently). *Corequisites:* Concurrent registration in BIO 343 is required. *Offered:* Fall, even # years.

**BIO 343 • Aquatic Biology Lab 1 Credit**

Laboratory experience accompanying BIO 342. Includes some outdoor and off-campus investigations.

*Corequisites:* Concurrent registration in BIO 342 is required. *Offered:* Fall, even # years.

**BIO 346 • Animal Behavior 3 Credits**

Behavior from primitive invertebrates to advanced mammals, highlighting trends in behavior systems. Natural setting studies in the ethology tradition, comparative psychology studies, and biosociological principles with their implications for human social systems.

*Prerequisites: PSY 101 or BIO 218 (may be taken concurrently); Junior or senior standing. Corequisites: Concurrent registration in BIO 347 is required. Offered: Fall, even # years. Special Notes: This course carries cross-credit in psychological sciences.*

**BIO 347 • Animal Behavior Lab 1 Credit**

Laboratory experience accompanying BIO 346.

*Corequisites: Concurrent registration in BIO 346 is required. Offered: Fall, even # years. Special Notes: This course carries cross credit in psychological sciences.*

**BIO 350 • Clinical Pathophysiology 4 Credits**

An exploration of disease processes exploring the functional and structural changes that accompany a particular injury, disease, or syndrome, as well as the differences in physiologic response to health and illness in diverse populations across the lifespan from a healthcare perspective.

*Prerequisites: Acceptance into the nursing program or Consent of instructor. Corequisites: Concurrent registration in NUR 202 and NUR 302. Offered: Spring.*

**BIO 354 • Cell Biology 3 Credits**

The molecular organization and function of cells and their organelles. Exploration of how cell biology information is obtained experimentally.

*Prerequisites: CHE 224/CHE 225; BIO 218 (may be taken concurrently) or BIO 332/BIO 333 or both PSY 101 and NSC 130/NSC 130D. Corequisites: Concurrent registration in BIO 355 is required. Offered: Spring. Special Notes: This is a designated research course.*

**BIO 355 • Cell Biology Lab 1 Credit**

Laboratory experience accompanying BIO 354.

*Corequisites: Concurrent registration in BIO 354 is required. Offered: Spring. Special Notes: This is a designated research course.*

**BIO 358 • Neurobiology 3 Credits**

Nervous system of animals and humans from the sub cellular to organismic and behavioral levels. Includes significant attention to the senses as well as mechanisms of neuronal communication, plasticity, and memory.

*Prerequisites: BIO 218 (may be taken concurrently) or PSY 101 and NSC 130/NSC 130D; Junior or senior standing. Corequisites: Concurrent registration in BIO 359 is required. Offered: Fall. Special Notes: This course carries cross-credit in neuroscience.*

**BIO 359 • Neurobiology Lab 1 Credit**

Laboratory experience accompanying BIO 358.

*Corequisites: Concurrent registration in BIO 358 is required. Offered: Fall. Special Notes: This course carries cross-credit in neuroscience.*

**BIO 362 • Developmental Biology 3 Credits**

Developmental biology asks "How does a single fertilized egg give rise to all the different cell, tissue, and organ types of the adult organism?" Developmental processes resulting in different cell, organ, and tissue types and the mechanisms underlying those processes studied at the cellular, genetic, molecular, and biochemical levels.

*Prerequisites: BIO 120/BIO 120D or BIO 124/BIO 124D; BIO 218 (may be taken concurrently) or 8 credits of BIO courses not including BIO 124/BIO 124D and BIO 128/BIO 128D; Two courses in chemistry. Corequisites: Concurrent registration in BIO 363 is required. Offered: Spring, even # years. Special Notes: This is a designated research course.*

**BIO 363 • Developmental Biology Lab 1 Credit**

Laboratory experience accompanying BIO 362. Includes surgical manipulation of living organisms to elucidate developmental principles.

*Corequisites: Concurrent registration in BIO 362 is required. Offered: Spring, even # years. Special Notes: This is a designated research course.*

**BIO 368 • Structure and Development of Vertebrates 3 Credits**

An integrated and systematic approach to descriptive embryology and comparative anatomy of vertebrate species.

*Prerequisites:* BIO 218 (may be taken concurrently). *Corequisites:* Concurrent registration in BIO 369 is required. *Offered:* Fall, odd # years.

**BIO 369 • Structure and Development of Vertebrates Lab 1 Credit**

Laboratory experience accompanying BIO 368.

*Corequisites:* Concurrent registration in BIO 368 is required. *Offered:* Fall, odd # years.

**BIO 372 • Plant Taxonomy and Ecology 3 Credits**

Identification and distribution of flowering plants, including field work, keying, and laboratory preservation. Biogeography and factors important in plant distribution.

*Prerequisites:* BIO 218 (may be taken concurrently). *Corequisites:* Concurrent registration in BIO 373 is required. *Offered:* Fall, odd # years.

**BIO 373 • Plant Taxonomy and Ecology Lab 1 Credit**

Laboratory experience accompanying BIO 372. Course includes outdoor and off-campus activities.

*Corequisites:* Concurrent registration in BIO 372 is required. *Offered:* Fall, odd # years.

**BIO 376 • Animal Physiology 3 Credits**

Comparative physiology of animal nerves, muscles, hormones, circulation, respiration, excretion, digestion, and the way those systems function intact with processes of feeding, energetics, osmoregulation, metabolism, locomotion, biomechanics, and temperature regulation necessary for an organism's survival.

*Prerequisites:* Two courses in chemistry and BIO 218 (may be taken concurrently) or both PSY 101 and NSC 130/NSC 130D. *Corequisites:* Concurrent registration in BIO 377 is required. *Offered:* Spring, even # years.

**BIO 377 • Animal Physiology Lab 1 Credit**

Laboratory experience accompanying BIO 376.

*Corequisites:* Concurrent registration in BIO 376 is required. *Offered:* Spring, even # years.

**BIO 380 • Environmental Plant Biology 3 Credits**

Explores the significant roles plants play in the environment: driving and responding to carbon, water availability, nutrient levels, and light. The influence of abiotic factors on photosynthetic pathways, productivity, and the movement of matter and energy reveal how plants respond to rapid environmental changes. Includes work with data and statistics.

*Prerequisites:* BIO 218 (may be taken concurrently) and One semester of chemistry. *Corequisites:* Concurrent registration in BIO 383 is required. *Offered:* Spring, odd # years. *Special Notes:* This is a designated research course.

**BIO 383 • Environmental Plant Biology Lab 1 Credit**

Laboratory experience accompanying BIO 380. Includes some outdoor and off-campus investigations.

*Corequisites:* Concurrent registration in BIO 380 is required. *Offered:* Spring, odd # years. *Special Notes:* This is a designated research course.

**BIO 384 • Immunology 3 Credits**

Study of the molecular and cellular mechanisms that allow organisms to recognize, control, and eliminate "nonself" entities such as bacterial pathogens, foreign tissue grafts, and even transformed (cancerous) cells.

*Prerequisites:* Two semesters of chemistry and either BIO 218 (may be taken concurrently) or BIO 120/ BIO 120D and BIO 122/BIO 122D. *Corequisites:* Concurrent registration in BIO 387 is required. *Offered:* Fall, odd # years. *Special Notes:* This is a designated research course. One of the following courses is a strongly recommended prerequisite: BIO 234/BIO 235, BIO 332/BIO 333, BIO 354/BIO 355.

**BIO 387 • Immunology Lab 1 Credit**

Laboratory experience accompanying BIO 384.

*Corequisites:* Concurrent registration in BIO 384 is required. *Offered:* Fall, odd # years. *Special Notes:* This is a designated research course.

**BIO 396 • Molecular Biology 3 Credits**

Modern advanced molecular genetic research. Topics include regulation of gene expression during development, molecular biology of cancer, animal virology, eukaryotic gene organization, and methods in gene manipulation.

*Prerequisites:* BIO 124/BIO 124D; BIO 128/BIO 128D; CHE 224/CHE 225; one additional BIO course (BIO 332/BIO 333 is recommended). *Corequisites:* Concurrent registration in BIO 397 is required. *Offered:* Spring. *Special Notes:* This is a designated research course.

**BIO 397 • Molecular Biology Lab 1 Credit**

Laboratory experience accompanying BIO 396. Consists of research projects utilizing recombinant DNA/genetic engineering techniques.

*Corequisites:* Concurrent registration in BIO 396 is required. *Offered:* Spring. *Special Notes:* This is a designated research course.

**BIO 399 • Introduction to Research 2 Credits**

An introduction to research methodology in the biological sciences, with experience in the use of biological literature and an examination of how to distinguish and evaluate different types of scientific writing and presentations. Experience in the development of a research proposal.

*Prerequisites:* Major in biology or environmental science and BIO 218 or Major in biochemistry/molecular biology and BIO 124/BIO 124D and BIO 128/BIO 128D; Junior standing. *Offered:* Fall, Spring. *Special Notes:* Carries cross-credit in environmental studies.

**BIO 409 • Advanced Human Gross Anatomy 3 Credits**

For the undergraduate pre-health professions student. A regional approach to the study of anatomy through the supervised and directed student dissection of human cadavers. Identification of detailed structures and understanding of their significance to the body.

*Prerequisites:* BIO 214/BIO 215 or Consent of instructor. *Corequisites:* Concurrent registration in BIO 410 is required. *Offered:* January.

**BIO 410 • Advanced Human Gross Anatomy Lab 1 Credit**

Laboratory experience accompanying BIO 409.

*Corequisites:* Concurrent registration in BIO 409 is required. *Offered:* January.

**BIO 481 • Internship in Biology 3-4 Credits**

A learning/practicing experience in which the student applies biological understanding and skills in an off-campus professional setting.

*Prerequisites:* Major or minor in biology and junior or senior standing. *Offered:* Fall, Spring, Summer.

**BIO 495 • Biology Seminar 2 Credits**

Readings and discussions of topics that relate biology to one's Christian faith.

*Prerequisites:* BIO 399; Senior standing. *Offered:* Fall, Spring.

**BIO 496 • Biology Research 1 Credit**

Students collect original data through independent laboratory research or field research under the supervision of a faculty member.

*Prerequisites:* BIO 399; Completion or co-completion of a designated research course; Consent of instructor. *Offered:* Fall, Spring, Summer. *Special Notes:* May be repeated once for credit. This course carries cross credit with environmental science.

**BIO 497 • Advanced Biology Research 1 Credit**

Working under the supervision of a faculty mentor, students analyze the results of their original research completed in BIO 496 and write up their findings in a formal scientific paper. Results are presented in class and sometimes outside venues.

*Prerequisites:* BIO 496 and Consent of instructor. *Offered:* Fall, Spring, Summer.

**BIO 499 • Symposium 0 Credit**

The presentation of scientific research or internship experience. Culminates in a departmental symposium in which students present their original research or internship experience.

*Prerequisites:* BIO 481 or BIO 497. *Offered:* Fall, Spring. *Special Notes:* This course carries cross-credit in environmental studies. This course is graded on an S/U basis.

**BUS 100 • Business Calculus 2 Credits**

A non-trigonometric-based introduction to the concepts of the derivative and integral with a focus on application in business and economics.

*Prerequisites: At least two years of high school algebra. Offered: Spring.*

**BUS 101 • Introduction to Business 4 Credits**

Introduction to business and business strategy within the global economic environment. Identification of business structures, market strategies, and the concepts of leadership and management.

Exploration of key business functions, typical roles, entry points, and career paths. Application of business evaluation and problem-solving within a Christian worldview.

*Offered: Fall, Spring.*

**BUS 102 • Foundations for Careers in Business 1 Credit**

Explores the field of business through a career lens. Develops practical professional skills such as self-awareness, goal identification, teamwork, presenting, listening, and time management. Equips students with personal agency for their future success.

*Offered: Fall, Occasionally January, Spring.*

**BUS 106 • Introduction to Business Applications 1 Credit**

A basic understanding of business applications software. Students gain a working knowledge of word processing, presentation software, spreadsheets, desktop publishing, and Internet research.

*Offered: Fall, Occasionally January, Spring.*

**BUS 130 • Business Problem Solving 2 Credits**

Builds a foundation for understanding and solving business problems. Introduces business concepts and terminology, along with skills needed to solve common business problems. Emphasizes how to identify problems and then apply tools and techniques to solve them. Encourages the development of critical-thinking and decision-making skills needed for success in business.

*Offered: Spring.*

**BUS 201M • Business Math & Statistics 4 Credits**

Fundamental mathematical and statistical concepts and skills. Mathematical topics include algebra, percentages, ratios, markup/markdown, and interest. Statistical topics include descriptive statistics, probability distributions, hypothesis testing, correlation, regression analysis, and basic inferential statistics. Emphasizes real-world scenarios and practical problem-solving skills, analysis and interpretation of data, and the use of relevant software.

*Offered: Fall, Occasionally January, Spring. Special Notes: Students may not receive credit for both BUS 201M and PSY 230M, MAT 207M or AHS 250M.*

**BUS 202Z • Introduction to International Business 4 Credits**

An introduction to international business involving off-campus study exposing students to critical concepts and the day-to-day practice of global business. Students interact with a culture through a series of activities. The countries under study vary from year to year.

*Prerequisites: GES 104. Offered: January*

**BUS 210 • Financial Accounting 4 Credits**

Basic financial accounting concepts and their application to the recording and reporting of business events.

*Prerequisites: BUS 106. Offered: Fall, Spring.*

**BUS 211 • Managerial Accounting 2 Credits**

An introduction to managerial accounting concepts, product/service costing, profitability analysis, budgeting, and performance evaluation. Focus on using financial information for decision-making.

*Prerequisites: BUS 210. Offered: Fall, Spring.*

**BUS 212 • Personal Finance 2 Credits**

Management and planning of personal and family finances. Emphasizes budgeting, investments, individual income tax, and insurance.

*Offered: January.*

**BUS 213 • Personal Financial Literacy 4 Credits**

Explores fundamental personal financial management topics. Enables learners to make values-based financial decisions. Uses a variety of tools to evaluate risk and make choices regarding debt management, savings, budgeting, investing, and long-range personal financial planning.

*Offered: Fall, Spring.*

**BUS 220 • Principles of Marketing 4 Credits**

Role of marketing in society and the economy. The business firm as a marketing system. Management of the firm's marketing effort.

*Prerequisites: Sophomore standing or Consent of instructor. Offered: Fall, Spring.*

**BUS 230 • Managing Organizations and People 4 Credits**

Fundamentals of managerial activities: planning, organizing, leading, and controlling organizations. Overview of human resource management and how employment laws impact the workplace.

*Offered: Fall, Spring.*

**BUS 232 • Innovation and Entrepreneurship 4 Credits**

Practical problems associated with starting and operating a small business, including feasibility analysis, innovation, entrepreneurship, legal and financial aspects, accounting, marketing, and personnel management.

*Prerequisites: BUS 220 and BUS 230. Offered: Spring.*

**BUS 306 • Public Administration 2 Credits**

How public policy is put into effect through governmental administrative agencies, the management problems of such agencies, and their relations with the public.

*Prerequisites: Sophomore standing. Offered: Spring. Special Notes: Carries cross-credit in political science. POS 100 is a recommended prerequisite.*

**BUS 309 • Brand Management 2 Credits**

Theoretical and practical knowledge necessary for successful management of brands and the creation of strategies that build and preserve brand equity. Introduces qualitative and quantitative methods of evaluating brand equity, brand strategy at different stages of the product life cycle, developing brand positioning, managing total brand experience and brand relevance.

*Prerequisites: BUS 220. Offered: Fall.*

**BUS 310 • Intermediate Accounting I 4 Credits**

Theories of accounting, accounting practice related to current asset measurement, and reporting. Analysis and evaluation of the measurement and reporting on noncurrent assets and current liabilities.

*Prerequisites: BUS 210. Offered: Fall.*

**BUS 311 • Intermediate Accounting II 4 Credits**

Current and alternative accounting theories relating to long-term liabilities, stockholders' equity, special income determination problems, and other accounting topics of current interest.

*Prerequisites: BUS 310. Offered: Spring.*

**BUS 314 • Taxation of Individuals 2 Credits**

Current tax law as it pertains to individuals. Includes an overview of taxation and tax planning.

*Prerequisites: BUS 210. Offered: Fall.*

**BUS 315 • Sales and Sales Management 2 Credits**

The concepts and practices of selling and sales management. Provides a guide for preparing sales presentations, one-on-one selling techniques, persuasive communication, oral and verbal presentation skills useful for one-to-one presentations, and the unique concepts of managing a sales team.

*Prerequisites: BUS 220. Offered: Fall.*

**BUS 317 • Business Analytics 4 Credits**

Descriptive and predictive analytics of data and facts to decision-making in business. Techniques of advanced data visualization, use of Excel in analytics, hypothesis testing, and machine learning methods like multiple regression analysis, classification methods and cluster analysis. Uses a variety of business analytics software.

*Prerequisites: Junior standing; BUS 201M or MAT 330. Offered: Fall, Spring.*

**BUS 318G • Global Marketing 4 Credits**

Study of marketing concepts and decision-making processes relative to individuals and firms engaged in the global marketplace. An examination of key strategies of global marketing and mission-critical variables including cultural distinctives, role of language and values, politics and laws, pricing norms, product values, and promotional environment.

*Prerequisites:* [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course and BUS 220. Offered: Fall, Spring.*

**BUS 319 • Advertising and Promotion 2 Credits**

Principles and techniques of advertising, sales promotion, and public relations. Consideration of customer motivation, ad copy, physical layout of ads and promotional pieces, media selection, advertising budgets, and coordination of advertising and sales promotion campaigns.

*Prerequisites:* BUS 220. *Offered: Spring.*

**BUS 321 • Marketing Research 4 Credits**

Marketing research methods, including design, sampling, data collection, and report writing. A research design project is an integral part of the course.

*Prerequisites:* BUS 201M and BUS 220. *Offered: Fall, Spring.*

**BUS 324 • Consumer Behavior 4 Credits**

A systematic examination of the behavioral, economic, cultural, and systemic factors that influence the behavior of the consumer. Students read relevant research in consumer behavior and design and complete a series of projects exploring major course topics.

*Prerequisites:* BUS 220. *Offered: Fall, Spring.*

**BUS 325 • Business Analysis and Database Management 4 Credits**

An understanding of business analysis principles, practices, tools, and techniques. Real-world applications involving the use of Enterprise Business Applications and an Agile project management approach.

*Prerequisites:* BUS 106 and BUS 230. *Offered: Fall.*

**BUS 326 • Business Information Systems 3 Credits**

Business information systems and their role in today's organizations. Explores computing hardware, security, networking, databases, enterprise application software, business analysis, project management, and other technology necessary for effective organizations. Strengthens proficiency in business applications.

*Prerequisites:* BUS 106. *Offered: Fall, Spring.*

**BUS 327 • Marketing and Management in Spain 4 Credits**

Theoretical and practical concepts of marketing and management in the semi-globalized world. The significant challenges globalization presents to management and marketing, specifically in the context of Spain. Business terminology and reality in a Spanish business environment.

*Prerequisites:* SPA 202UZ or SPA 261S. *Offered: Spring. Special Notes: This course is only offered as part of the Semester in Segovia program. This course carries cross listing in languages and cultures. This class is taught and assignments are completed in Spanish.*

**BUS 329 • Student Managed Investment Fund 1 Credit**

Students develop investment-related skills, including but not limited to wealth management, relationship management, marketing, operations, performance reporting, quantitative analysis, and economic analysis. These skills are applied as part of the student-managed investment fund and the Royals Investment Fund, LLC (the Fund).

*Prerequisites:* BUS 210; BUS 344 (may be taken concurrently) and selection by the faculty advisor through an application and interview process; Additional prerequisite for Chief Investment Officer and Fund Managers: BUS 390. *Offered: Fall, Spring. Special Notes: This course is graded on an S/U basis.*

**BUS 330 • Compensation and Benefits 4 Credits**

Compensation and reward practices in organizations' wage and salary administration. Theories of design and implementation of pay programs using job evaluation, salary surveys, job and skill-based pay, incentive pay, benefits and other reward systems.

*Prerequisites:* BUS 201M (may be taken concurrently); BUS 230; BUS 344 (may be taken concurrently).

*Offered:* Fall.

**BUS 331 • Staffing, Onboarding, and Training 4 Credits**

Explore methods for recruiting and selecting employees, orienting them to an organization, using training to properly equip them for their positions, and facilitating career development. Hands-on approach to designing and conducting interviews and training. Design a portfolio with staffing, training, and onboarding outcomes.

*Prerequisites:* BUS 230. *Offered:* Fall.

**BUS 333 • Entrepreneurship Strategies and Tools 4 Credits**

Strategic and tactical tools associated with starting and operating a small or entrepreneurial business. Students develop an understanding of how to move from the development of a business plan to actually financing and running a small business.

*Prerequisites:* BUS 210; BUS 232; ECO 202; ECO 203. *Offered:* Fall.

**BUS 334 • Principles of Project Management 2 Credits**

Theory and practice of effective project management, including project planning, risk analysis, execution/implementation, and control. Explores project management styles, critical success factors, organizational support systems, project authority and politics, and ethics in project execution. Project management software to develop and track project plans for case studies and project simulations utilized.

*Prerequisites:* BUS 230, COM 248, or COS 277. *Offered:* Spring.

**BUS 335 • Employee and Organization Development 4 Credits**

Factors that influence the effectiveness of organizations. Explores methods for diagnosing organizational health and designing interventions for the individual (employee relations; motivation; diversity, equity and inclusion; work-related attitudes), group (teamwork, conflict, cooperation, collaboration), and organizational (culture, change, leadership) levels in order to implement planned organizational change.

*Prerequisites:* BUS 230. *Offered:* Spring.

**BUS 336 • Agile Project Management 2 Credits**

Fundamentals of agile project management principles and best practices. Students will be exposed to the Agile Manifesto, core principles, the mindset required, and the tools needed to successfully implement Agile. The Scrum framework and project management tools will be explored. Agile will be contrasted with the classical planned/waterfall methodology.

*Prerequisites:* BUS 230, COM 248, or COS 277. *Offered:* Spring.

**BUS 337 • Human Resources with Analytics 2 Credits**

Evaluate in-depth Human Resource functions developing strategic decision making. Use data and various metrics to understand possible real-world solutions.

*Prerequisites:* BUS 230 or (COM 248 if a non-business department student). *Offered:* Fall, Spring.

**BUS 344 • Managerial Finance 4 Credits**

Principles of financial management, including financial analysis, capital structures, working capital management, and investment decisions.

*Prerequisites:* BUS 210. *Offered:* Fall, Spring.

**BUS 352 • Financial Modeling & Valuation 4 Credits**

Builds on principles of finance through the use of case studies and Excel modeling to identify, quantify, and manage business risks. Includes developing and utilizing intermediate-level financial analysis skills, critical-thinking objectives, and demonstration of an ability to synthesize material into a defined model of financial valuation.

*Prerequisites:* BUS 344. *Offered:* Fall, Spring.

**BUS 357 • Principles of Digital Marketing 2 Credits**

Study of digital marketing strategy, content development, and media channels to help students leverage digital techniques and understand how they integrate with the marketing plan as a whole. Students design and analyze digital campaigns within a team environment. Best practices leveraged as the digital marketplace evolves.

*Prerequisites:* BUS 220. *Offered:* Spring. *Special Notes:* This course carries cross credit in communication studies.

**BUS 361 • Business Law 2 Credits**

An introduction to the legal aspects and general structure of business dealings. Topics include an overview of the American legal system, general contract law, pertinent aspects of the Uniform Commercial Code, and various forms of business organizations. Some aspects of employment and real estate law are also covered.

*Prerequisites:* BUS 230 and one other 200-level business course. *Offered:* Fall, Spring.

**BUS 362 • Taxation of Business Entities 2 Credits**

Current tax law as it pertains to business entities such as corporations and partnerships.

*Prerequisites:* BUS 314. *Offered:* Fall.

**BUS 390 • Investments 4 Credits**

Characteristics and interrelationships of investments, the operation and regulation of the markets, analysis of risk and return, valuation of speculative assets, portfolio planning, and timing and trading strategies.

*Prerequisites:* BUS 344. *Offered:* Fall, Spring.

**BUS 410 • Advanced Accounting 4 Credits**

Principles and problems relating to partnerships, international accounting, consolidated financial statements, corporate mergers, and governmental accounting.

*Prerequisites:* BUS 311 and all business core courses except BUS 481. *Offered:* Fall.

**BUS 414 • Auditing Principles and Procedures 4 Credits**

Auditing objectives, standards, and procedures employed in the examination of business enterprises and verification of their financial statements. Includes an evaluation of internal control, preparation of work papers, report writing, professional ethics, and current trends.

*Prerequisites:* BUS 311 and All business core courses except BUS 481 and Senior standing. *Offered:* Spring.

**BUS 416 • Machine Learning and Artificial Intelligence for Business 4 Credits**

Techniques in machine learning and artificial intelligence with business applications. Topics include data wrangling, supervised machine learning methods, deep learning, model selection, evaluation metrics, and time series forecasting. Applications include forecasting sales and revenue, predicting and classifying business outcomes. Emphasizes practical learning through real-world data, case studies, and industry-relevant software.

*Prerequisites:* BUS 317; BUS 100 or MAT 124M; COS 101 and Senior standing. *Offered:* Spring.

**BUS 417 • Analytics and Artificial Intelligence Seminar 4 Credits**

Capstone course in Analytics and Artificial Intelligence emphasis. Integrates theories and practices learned in other courses through casework and practical exercises focused on equipping students to enter the Artificial Intelligence, Business Analysis, Business Analytics, and Business Consulting markets. Examines ethical questions that influence decision-making.

*Prerequisites:* BUS 317; BUS 325; all business core courses except BUS 481. *Offered:* Spring.

**BUS 420 • Marketing Seminar 4 Credits**

Capstone course in the marketing emphasis. Main course elements include case study analysis where students integrate prior course knowledge with relevant brand examples. Students utilize critical and ethical analysis of marketing practices and develop marketing strategies and plans with a real client.

*Prerequisites:* Four of the following: BUS 309, BUS 315, BUS 318G, BUS 319, BUS 321, BUS 324, or BUS 357; all business core courses except BUS 481; Senior standing. *Offered:* Fall, Spring.

**BUS 430 • Strategic Management 4 Credits**

Strategy formulation and implementation for operational management. Includes data analysis and critical thinking decision-making. Complete a simulation with a competitive business strategy. Case analysis of real-world organizations.

*Prerequisites: All business core courses except BUS 481. Offered: Spring.*

**BUS 440 • Capital Markets 4 Credits**

Comprehensive overview of the capital markets with an emphasis on major financial institutions and international financial centers. Evaluation of managing risk within the context of the capital markets in both a domestic and a global economy.

*Prerequisites: BUS 352 or BUS 390; Senior standing. Offered: Fall, Spring.*

**BUS 470 • Finance Seminar 4 Credits**

Capstone course in the Finance emphasis. Systematic examination of financial, economic, cultural, ethical, and systemic factors that influence financial decision making. Through a case study approach, students integrate the theories and practices learned in other finance courses. Use of Excel to complete detailed analysis.

*Prerequisites: BUS 352 or BUS 390; Senior standing. Offered: Fall, Spring.*

**BUS 475 • Innovation and Entrepreneurship Seminar 4 Credits**

Development of an individualized and intensive personal business plan as a major course project. Plan is submitted to a panel of entrepreneurs to evaluate as part of a competition. Includes ethical discussions, entrepreneurial guest speakers, and case analyses of entrepreneurial ventures.

*Prerequisites: All business core courses (except BUS 481) and BUS 333. Offered: Spring.*

**BUS 481 • Internship in Business 3-4 Credits**

A learning/practicing experience to apply understanding and skills in an off-campus professional setting. Includes participation in an online course with weekly assignments.

*Prerequisites: Major or minor within the business department; Completion of 20 credits of BUS/ECO courses; Consent of department. Offered: Fall, Spring, Summer. Special Notes: This course is graded on an S/U basis. May not be transferred into Bethel.*

**BUS 493 • Capstone: Effective Human Resources Practices 4 Credits**

Integration of theories and practices learned in other courses through casework and practical exercises focused on equipping students to enter the HR labor market. Examines ethical questions that influence HR decision making.

*Prerequisites: All business core courses (except BUS 481) and Senior standing in the Managing Organizations and Human Resources emphasis. Offered: Spring.*

**CHE 101 • Introduction to Chemistry 3 Credits**

Overview of atoms—their composition, ability to form bonds, and to interact as molecules. Open to all students but tailored for nursing and allied health fields.

*Corequisites: Concurrent registration in CHE 101D is required. Offered: Fall, Spring.*

**CHE 101D • Introduction to Chemistry Lab 1 Credit**

Laboratory experience accompanying CHE 101.

*Corequisites: Concurrent registration in CHE 101 is required. Offered: Fall, Spring.*

**CHE 113 • General Chemistry 3 Credits**

Chemical properties and principles, structure and reactivity, stoichiometry, thermodynamics, atomic and molecular theory, and states of matter.

*Prerequisites: Two years of high school math; High school chemistry or CHE 101/CHE 101D. Corequisites: Concurrent registration in CHE 113D is required. Offered: Fall, Spring.*

**CHE 113D • General Chemistry Lab 1 Credit**

Laboratory experience accompanying CHE 113 to improve experimental skills such as accurate observation, data collection, and analysis while mastering techniques used by chemists for the precise measurements of mass, volume, and concentration. Small group collaboration and experimental design are included.

*Corequisites: Concurrent registration in CHE 113 is required. Offered: Fall, Spring.*

**CHE 200 • Laboratory Safety and Chemical Hygiene 1 Credit**

High standards of safety and chemical hygiene make the science laboratory a safe, comfortable, interesting place to work. Standards and federal/state guidelines pertaining to safety and hygiene in the laboratory are reviewed.

*Prerequisites: CHE 113/CHE 113D. Offered: Fall, Spring.*

**CHE 214 • General Chemistry II 3 Credits**

Study of solutions, chemical kinetics, thermodynamics, solution equilibria, acids and bases, electrochemistry, descriptive inorganic chemistry, and nuclear chemistry.

*Prerequisites: CHE 113/CHE 113D (with a C or higher). Corequisites: Concurrent registration in CHE 215 is required. Offered: Fall, Spring.*

**CHE 215 • General Chemistry II Lab 1 Credit**

Laboratory experience accompanying CHE 214.

*Corequisites: Concurrent registration in CHE 214 is required. Offered: Fall, Spring, Occasionally summer.*

**CHE 224 • Organic Chemistry I 3 Credits**

Structure, nomenclature, function, and reactivity of organic compounds. Topics include bonding theory, acid-base reactions, conformational analysis, stereochemistry, nucleophilic substitution and elimination reactions, addition reactions, radical reactions, organic reaction mechanisms, and energy relations.

*Prerequisites: CHE 214/CHE 215. Corequisites: Concurrent registration in CHE 225 is required. Offered: Fall.*

**CHE 225 • Organic Chemistry I Lab 1 Credit**

Laboratory experience accompanying CHE 224.

*Corequisites: Concurrent registration in CHE 224 is required. Offered: Fall.*

**CHE 226 • Organic Chemistry II 3 Credits**

Continues Organic Chemistry I by exploring the structure, nomenclature, function, and reactivity of additional organic compounds. Topics include the reactions of aromatic and carbonyl containing compounds, carbon-carbon bond-forming reactions, multi-step synthesis, and polymer chemistry. The chemistry of biological compounds such as carbohydrates, DNA, proteins, and lipids is also studied.

*Prerequisites: CHE 224/CHE 225. Corequisites: Concurrent registration in CHE 227 is required. Offered: Spring.*

**CHE 227 • Organic Chemistry II Lab 1 Credit**

Laboratory experience accompanying CHE 226. Laboratory includes single- and multi-step synthesis, purification, and identification of organic compounds. Infrared spectroscopy, 1D and 2D nuclear magnetic resonance spectroscopy, mass spectroscopy, and computational chemistry used to explore the outcomes of organic reactions and their mechanisms.

*Corequisites: Concurrent registration in CHE 226 is required. Offered: Spring.*

**CHE 304 • Essentials of Biochemistry 3 Credits**

A survey of the structure, function, interactions, and chemical properties of the four major macromolecules: proteins, nucleic acids, lipids, and carbohydrates. Examination of primary metabolic pathways, bioenergetics, regulation, and homeostasis.

*Prerequisites: CHE 224/CHE 225 and BIO 120/BIO 120D or BIO 124/BIO 124D. Offered: Spring. Special Notes: Not open to students who have taken CHE 388/CHE 389.*

**CHE 312 • Quantitative Analysis 3 Credits**

Principles and practice of modern quantitative analysis. Acid-base and ionic equilibria. Statistics, method selection and development, chromatography, and electrochemistry.

*Prerequisites: CHE 214/CHE 215. Corequisites: Concurrent registration in CHE 313 is required. Offered: Spring.*

**CHE 313 • Quantitative Analysis Lab 1 Credit**

Fundamental quantitative analysis techniques laboratory experience accompanying CHE 312. Topics include solution preparation, statistics, titrations, spectroscopy, and chromatography.

*Corequisites: Concurrent registration in CHE 312 is required. Offered: Spring.*

**CHE 320 • Instrumental Analysis** 3 Credits

Methods of instrumental analysis. Study of chemical and physical principles and practical application of spectroscopy, spectrometry, chromatography and electroanalysis. Fundamental electronic circuitry and computer data acquisition and control.

*Prerequisites:* CHE 226/CHE 227 or CHE 312/CHE 313. *Offered:* Fall, odd # years.

**CHE 344 • Thermodynamics, Kinetics, and Statistical Mechanics** 3 Credits

Physical chemistry of the laws of thermodynamics and their application to phase and chemical equilibria. Chemical kinetics of reaction rates and reaction mechanisms. Statistical mechanics as it relates spectroscopy with thermodynamics and kinetics.

*Prerequisites:* CHE 214/CHE 215; [PHY 202/PHY 202D; PHY 206/PHY 207 or PHY 292/PHY 292D; PHY 296/PHY 297]; MAT 125. *Corequisites:* Concurrent registration in CHE 345 is required. *Offered:* Fall.

**CHE 345 • Thermodynamics, Kinetics, and Statistical Mechanics Lab** 1 Credit

Laboratory experience accompanying CHE 344. Includes hands-on experience with physiochemical systems and computational modeling.

*Corequisites:* Concurrent registration in CHE 344 is required. *Offered:* Fall.

**CHE 348 • Quantum Chemistry and Spectroscopy** 3 Credits

Physical chemistry of the laws of quantum mechanics applied to atoms and molecules. Quantum mechanical solutions of model systems and their application to chemical spectroscopy. Methods of computational chemistry and experience with modern programs.

*Prerequisites:* CHE 214/CHE 215; [PHY 202/PHY 202D; PHY 206/PHY 207 or PHY 292/PHY 292D; PHY 296/PHY 297]; MAT 125. *Offered:* Spring, even # years.

**CHE 364 • Inorganic Chemistry** 3 Credits

Chemistry of elements and their compounds, including symmetry, bonding theories, solid-state chemistry, coordination compounds, organometallics, and bioinorganic compounds.

*Prerequisites:* CHE 224/CHE 225. *Offered:* Spring, odd # years.

**CHE 388 • Biochemistry I** 3 Credits

Physical and chemical properties of living systems with an emphasis on macromolecular interaction, structure, and function. Structure, classification, purification, and function of nucleic acids, proteins, carbohydrates, and lipids, including membrane transport and enzymology.

*Prerequisites:* BIO 120/BIO 120D or BIO 124/BIO 124D; CHE 226/CHE 227. *Corequisites:* Concurrent registration in CHE 389 is required. *Offered:* Fall. *Special Notes:* Not open to students who have taken CHE 304. BIO 128/BIO 128D is a recommended prerequisite.

**CHE 389 • Biochemistry I Lab** 1 Credit

Standard biochemical techniques laboratory experience accompanying CHE 388. Topics included are protein expression, protein purification, and spectrophotometric assays as well as with advanced biomolecule analysis using NMR and GC-MS.

*Corequisites:* Concurrent registration in CHE 388 is required. *Offered:* Fall.

**CHE 393 • Research** 1-4 Credits

Utilization of the techniques and understanding of chemical principles on a term project. Use of original literature to formulate and conduct an original laboratory or computational research project under the supervision of a chemistry faculty member.

*Prerequisites:* Consent of instructor. *Offered:* Fall, January, Spring. *Special Notes:* May only be taken for credit once.

**CHE 395 • Chemistry Seminar: Research and Professional Development** 1 Credit

Students search the chemical literature and develop a proposal for their capstone research project. Discussion of chemical careers, graduate and professional school preparation, and ethical conduct in science.

*Prerequisites:* CHE 200 (may be taken concurrently); Junior standing; Major in chemistry or biochemistry/molecular biology. *Offered:* Fall.

**CHE 396 • Biochemistry II 3 Credits**

Metabolic pathways, bioenergetics, metabolic regulation, and metabolism of macromolecules (carbohydrates, lipids, proteins, and nucleotides). Macromolecular synthesis of RNA, DNA, and proteins, including an introduction to biotechnology.

*Prerequisites:* CHE 388/CHE 389. *Corequisites:* Concurrent registration in CHE 397 is required. *Offered:* Spring.

**CHE 397 • Biochemistry II Lab 1 Credit**

Laboratory experience accompanying CHE 396. Laboratory includes mammalian cell culture techniques and bioassays, and plant biochemical techniques including lipid extraction and analysis. RNA and DNA, PCR, and gene expression.

*Corequisites:* Concurrent registration in CHE 396 is required. *Offered:* Spring.

**CHE 490 • Chemistry Seminar: Research 2 Credits**

Students pursue an original research project in chemistry or biochemistry supported by a faculty mentor. Required time commitment is approximately 3.5 hours per week per credit, including a weekly meeting with faculty mentor.

*Prerequisites:* CHE 395 and Consent of instructor. *Offered:* Fall, Spring.

**CHE 491 • Advanced Research 1-4 Credits**

Students continue an original research project in chemistry or biochemistry supported by a faculty mentor. Required time commitment is approximately 3.5 hours per week per credit, including a weekly meeting with faculty mentor.

*Prerequisites:* CHE 490 and Consent of instructor. *Offered:* Fall, January, Spring. *Special Notes:* This course is repeatable for credit.

**CHE 492 • Chemistry Seminar: Summer Research 0 Credit**

Student pursues an original research project in chemistry or biochemistry alongside a faculty mentor. Time commitment is approximately 40 hours per week for 9 weeks. Registration is limited by the availability of research funding, and requires mutual agreement of a student and faculty member.

*Prerequisites:* CHE 395 and Consent of Instructor. *Offered:* Summer.

**CHE 494 • Chemistry Seminar: Research Presentation 1 Credit**

Students prepare and deliver formal presentations, both oral and written, of their research results. Seminar meets weekly for discussion of current topics.

*Prerequisites:* CHE 490 or CHE 492. *Offered:* Fall, Spring.

**CHL 110 • Introduction to Healthcare 2 Credits**

An introduction to various health professions and the healthcare system in the United States.

Emphasis on understanding the healthcare system, current issues in healthcare, and healthcare career paths. Development of healthcare literacy and navigating healthcare culture. Students examine education, training and licensure and/or certification requirements for potential careers.

*Offered:* Fall, Spring.

**CHL 212L • Public and Community Health in the 21st Century 4 Credits**

Analyze the impact of historical health events on public and community health practice in contemporary America. Evaluate how roles and responsibilities have evolved into the current public and community health system. Examine the community and public health policy process at organizational and governmental levels.

*Prerequisites:* GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently). *Offered:* Spring.

**CHL 314 • Foundations, Administration, and Evaluation of Health Education 4 Credits**

Introduces the health education and health promotion professions, including historical, philosophical, and theoretical foundations of health education. Explores theories of behavior change, the responsibilities of health educators, and investigates career opportunities. Examines the theoretical and practical basis for planning, implementing, administering, and evaluating health education programs.

*Prerequisites:* CHL 212L. *Offered:* Spring.

**CHL 318 • Epidemiology 4 Credits**

Introduces the history, philosophy and methodology of epidemiology to identify, prevent, and control disease and health-related conditions in populations. Students collect, interpret, and communicate epidemiologic data and study results.

*Prerequisites: CHL 212L. Offered: Fall, even # years.*

**CHL 345 • Disease Prevention and Epidemiology 4 Credits**

Analysis of chronic and chronic infectious diseases, and injuries from personal, societal, and global perspectives. Focuses on the prevention, identification, and control of diseases and injuries. Examines the relationship of health promotion and lifestyle to disease and injury.

*Prerequisites: CHL 212L. Offered: Fall.*

**CHL 493 • Public and Community Health Internship I 2 Credits**

Applies academic knowledge and professional skills to achieve personal and professional goals in a 90-hour, practical, off-campus experience. The faculty instructor must approve the site during the semester before the internship. An on-line seminar meets regularly with the Bethel faculty instructor and student peers to process internship experiences and assignments.

*Prerequisites: CHL 314; Major in public and community health; Consent of instructor. Offered: Fall, Spring.*

*Special Notes: Course is graded on an S/U basis.*

**CHL 494 • Public and Community Health Internship II 4 Credits**

Applies academic knowledge and professional skills to achieve personal and professional goals in a 180-hour, practical, off-campus experience. The faculty instructor must approve the site during the semester before the internship. An on-line seminar meets regularly with the Bethel faculty instructor and student peers to process internship experiences and assignments.

*Prerequisites: CHL 314; CHL 493. Offered: Fall, Spring. Special Notes: This course is graded on an S/U basis.*

**COM 110 • Basic Communication 4 Credits**

Informal and formal communication patterns that characterize daily life, analysis of communication situations, and improvement of effective communication. Includes interpersonal, intercultural, small group, and speaker/audience communication settings.

*Offered: Fall, Spring, Summer.*

**COM 130A • Producing Video for Social Media 4 Credits**

Using everyday technology (e.g., cell phone, computer) to create, develop, and distribute defined messages through a unique YouTube channel. Explores image composition, visual storytelling, basic set design and lighting, editing, channel development, branding, analytics, viewership, keywords, monetization, advertising, and participatory culture. No experience with media production equipment or software required.

*Offered: Summer.*

**COM 164 • Basic Communication Skills 4 Credits**

An examination of the fundamentals of the human communication process. Emphasis on communication in these areas: interpersonal, small group, public speaking, and computer mediated. Concentration on how meaning is created, communicated, and transformed within personal, professional, and global contexts.

*Offered: Fall, Spring.*

**COM 170A • Introduction to Media Production 4 Credits**

Equips students with the most basic "hands-on" visual media production skills in which students learn the fundamentals of visual media production, including multi-camera studio production, digital filmmaking, and digital post-production.

*Offered: Fall, Spring.*

**COM 208U • Native Americans and the Media 4 Credits**

Analysis of media portrayals of Native Americans. Emphasis on Native American cultures and voices, mainstream portrayals of Native Americans through a variety of media, and social and media critical tools for examining media mainstream images of minority groups.

*Prerequisites: GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: January, Occasionally spring.*

**COM 209 • Health Communication 4 Credits**

Introduces students to communication surrounding health care. History of health care and theoretical foundations of what health and illness mean. Explores provider-patient communication, social support, health literacy, cross-cultural barriers to health care, ethical considerations in health care, health literacy, public health campaigns, and a Christian approach to health and illness.

*Prerequisites: CHL 110 (may be taken concurrently). Offered: Spring, odd # years.*

**COM 210 • Perspectives on Human Communication 4 Credits**

Examination of the communication discipline through the exploration of career areas and application of communication theories. Provides a theoretical foundation by exploring significant communication concepts in the areas of human, media, organizational, and rhetorical communication.

*Offered: Fall, Spring.*

**COM 213 • Media Communication 2 Credits**

An overview of mass media industries, including print, broadcast, cable, film, and the internet. Survey of media history, functions, and impacts on society.

*Offered: Fall, Spring.*

**COM 216 • Content Strategy and Creation 4 Credits**

Foundational skills include content ideation, audience analysis, and creating, disseminating, measuring and managing content. Students develop content strategy for an organization or brand; create multimedia content such as podcasts, blogs, video and design projects for social media and online channels; and produce a digital portfolio of their work.

*Offered: Occasionally fall, odd # years.*

**COM 220 • Group Communication 4 Credits**

Vital role that small groups play in daily life, group problem-solving and interaction, and greater effectiveness in working in small groups. Examination of leadership, group cohesiveness, and conflict management.

*Offered: Fall, Spring.*

**COM 248 • Organizational Communication 2 Credits**

Communication practices and problems found in organizations. Communication concerns related to organizational structure, conflict, effectiveness, roles (emphasizing leadership), work processes, and decision making.

*Offered: Fall.*

**COM 249 • Introduction to Public Relations 2 Credits**

An overview of the strategic communication industry, as well as an understanding of how PR may enhance work in related fields such as marketing, journalism, relational communication, graphic design, media production, ministry, health, human resources, environmental studies, corporate social responsibility, politics, lobbying and government relations, and psychology.

*Offered: Fall.*

**COM 264 • Storytelling 2 Credits**

An examination of communication in electronic media through the analysis and development of narrative structure and story elements as they are used in a variety of media industries. Students learn to create compelling stories for audio and visual media through the analysis of scene, character arc, action, motif, etc.

*Prerequisites: COM 170A or Consent of instructor. Offered: Spring, even # years.*

**COM 271 • Royal Media Studio 1 Credit**

Laboratory experience in media production within the context of a simulated production company. Project-based work from ideation to deliverable and work with clients. Students lead teams in writing, directing, producing and editing different types of media productions, both live-streamed and recorded.

*Prerequisites: COM 170A. Offered: Fall, Spring. Special Notes: Course may be repeated for credit.*

**COM 277 • Interpersonal Communication 2 Credits**

Theory and pragmatics related to person-to-person (dyadic) communication. Explores issues such as self-identity, self-esteem, perception, listening, emotions, gender, conflict, and nonverbal communication. Opportunity to evaluate and develop personal interaction skills.

*Offered: Fall, Spring.*

**COM 302 • Media Law 4 Credits**

Examination of mass media law and policy through the use of court cases, policy documents, legislation, legal history, and legal philosophy. Special emphasis on First Amendment and ethical issues related to media practices.

*Offered: Occasionally fall, Spring.*

**COM 310K • Communication, Technology and Society 4 Credits**

An examination of the impact communication technology has on communication and society. Evaluation and exploration of technologies such as digital media, the internet, and other emerging technologies. Analysis of the ethical and spiritual implications and applications of these technologies.

*Prerequisites: Laboratory Science (D) course and Mathematics (M) course. Offered: Fall, January, Spring.*

**COM 314G • Communication of Gender and Sexuality 4 Credits**

Examines the force of rhetoric on historical and social movements related to gender and sexuality since 1800. Concentrates on topics that cross gender and sexuality lines and impact modern individuals. Considers verbal and nonverbal gender differences and similarities.

*Prerequisites: [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Fall.*

**COM 315GZ • Culture and Communication in a Global Context 4 Credits**

Introduction to cultural patterns, communities, and communication styles within a specific geographical region through exploration of socio-cultural factors such as worldview, faith, history, education, political economy, ecology, and art. Multiple opportunities to connect with local communities and partner in projects addressing local issues. Possible focus on diaspora/emigration issues in the region.

*Prerequisites: GES 104; [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Occasionally January.*

**COM 323 • Event Management & Leadership 4 Credits**

Designing integrated communication approaches for conferences, sporting events, professional meetings, celebratory events, and community outreach programs. Engages the professional, interpersonal, and organizational coordination of information, people, and budgets. Specific attention to developing creative and constructive responses to unanticipated "rhetorical interruptions" and to identifying opportunities for institutional enhancement.

*Prerequisites: COM 248 and COM 249 or Consent of instructor. Offered: Spring, odd # years.*

**COM 324 • Professional and Technical Communication 4 Credits**

Introduction to professional and technical communication skills. Topics include interviewing, technical speaking, speaking and writing to a lay audience, and visual communication skills. Students learn how to present complex information in a variety of formats with an audience-centered approach.

*Offered: Spring, even # years.*

**COM 340 • Facilitating Difficult Conversations 2 Credits**

Exploration of inter-group dialogue. Examines the challenges of engaging in difficult conversations, including topics such as perception, social identities, emotional triggers, narratives, and privilege. Students participate in dialogue on difficult topics and become skilled in listening, questioning, and facilitating small group interactions.

*Prerequisites: GES 140. Offered: Occasionally spring.*

**COM 342 • Advanced Editing and Visual Effects 4 Credits**

Continued study in video editing and post production including advanced editing concepts for storytelling and impact, visual effects and green screen work, and motion graphics.

*Prerequisites: COM 170A. Offered: Spring, even # years.*

**COM 350 • Corporate Communication 4 Credits**

Theories and principles of corporate communication, including issues related to public relations, media relations, corporate identity management, investor communication, and crisis communication in both for-profit and not-for-profit organizations.

*Prerequisites: COM 248 and COM 249 or Consent of instructor. Offered: January.*

**COM 352 • Broadcast Journalism 2 Credits**

Theories and principles of broadcast writing with practical experience in writing news stories for radio and television. Analysis of broadcast news programming and procedures.

*Offered: Fall.*

**COM 355Z • Intercultural Communication 4 Credits**

The study of socio-cultural variability and its influence on verbal and nonverbal communication.

Beginning with cultural self-awareness, the examination of theory is balanced by an examination of practical applications designed to improve intercultural competence in various contexts.

*Prerequisites: World Cultures (U) course. Special Notes: The course includes a 30-hour intercultural service learning component. Offered: Fall, Spring.*

**COM 357 • Principles of Digital Marketing 2 Credits**

Study of digital marketing strategy, content development, and media channels to help students leverage digital techniques and understand how they integrate with the overall marketing plan. Students design and analyze digital campaigns within a team environment. Best practices are leveraged as the digital marketplace evolves.

*Prerequisites: BUS 220. Offered: Spring. Special Notes: This course carries cross credit in business.*

**COM 363 • Methods of Communication Research 4 Credits**

The modern foundations for study, evaluation, and research in the entire field of communication. Readings, statistics, and finished research projects are the focus of study.

*Prerequisites: COM 210 and Two courses in communication studies. Offered: Fall.*

**COM 366 • Strategic Social Media in Organizations 2 Credits**

Examination of the role of social media in business marketing and public relations. Analyzes how new media are changing the way businesses sell their products, communicate with customers, make decisions, and create community.

*Offered: Fall.*

**COM 367 • Advanced Interpersonal Conflict 2 Credits**

Theories and principles of interpersonal conflict are examined. How personal history, tactics, styles of expression and strategies of interaction impact types of conflict and their eventual resolution. Evaluates models of conflict resolution with an emphasis on issues of forgiveness and reconciliation.

*Offered: Occasionally spring.*

**COM 368 • Nonverbal Communication 2 Credits**

Nonverbal communication codes examined, including their structures, usages, and interrelationships. Understanding, analysis, and application of nonverbal communication through lecture, discussion, and experiential activities. Explores the impact of nonverbal communication on culture and interaction.

*Offered: Occasionally spring.*

**COM 369 • Social Media Analytics 2 Credits**

Organization leaders today expect communication professionals to make data-driven decisions and demonstrate results. Social Media Analytics provides language and tools to meet these expectations. Through a hands-on simulation, students will learn how to understand social media data and apply this information to help improve the success of communication programs.

*Prerequisites: COM 366 (may be taken concurrently). Offered: Fall.*

**COM 371 • Royal Media Studio 1 Credit**

Laboratory experience in media production within the context of a simulated production company. Project-based work from ideation to deliverable and work with clients. Students lead teams in writing, directing, producing, and editing different types of media productions, both live-streamed and recorded.

*Prerequisites:* COM 170A. *Offered:* Fall, Spring. *Special Notes:* This course may be repeated for credit.

**COM 372 • Advanced Audio Production 4 Credits**

Continued study in audio production processes including sound design, foley, podcasting, and music recording.

*Prerequisites:* COM 170A. *Offered:* Spring, odd # years.

**COM 373 • Digital Filmmaking 4 Credits**

Hands-on, single-camera production on location. Areas of study include: cinema verité, documentary, and experimental/music video.

*Prerequisites:* COM 170A. *Offered:* Fall, even # years.

**COM 374 • Sports and Live Events Production 4 Credits**

In-depth engagement of sports programming, advanced multi-camera and live event production, field reporting, and streaming.

*Prerequisites:* COM 170A. *Offered:* Fall, odd # years.

**COM 375 • Media Criticism and Theory 4 Credits**

Explores theoretical and critical approaches to the study of video, audio, film, and digital culture. Examines issues relating to production and authorship in the media arts, audience reception and effects, political ideology, ethics, aesthetics, cultural diversity, and schools of thought. Extensive critical writing and reading in media criticism and theory.

*Prerequisites:* COM 213. *Offered:* Spring.

**COM 376 • Public Relations Writing and Strategies 4 Credits**

Explores techniques for conducting research and writing within key public relations contexts. Essential writing skills and strategies needed to perform a variety of projects in the public relations profession, including biographies, press releases, fact sheets, backgrounders, newsletters, brochures, pitch letters, speeches, feature stories, and social media posts.

*Prerequisites:* COM 248 and COM 249 or Consent of instructor. *Offered:* Spring, even # years.

**COM 377 • Relational Communication 2 Credits**

An examination of the theory and application of intimate relationships, building on concepts from Interpersonal Communication. Explores issues such as attraction, self-disclosure, dialectical tensions, love languages and attitudes, disengagement and breakups, turning points, and forgiveness. theories and practical ways to approach these. Opportunity to evaluate and develop relational interaction skills.

*Corequisites:* COM 277 (may be taken concurrently). *Offered:* Fall, Spring.

**COM 386 • Advanced Public Speaking 4 Credits**

Preparation and delivery of speeches at an advanced level. Speeches can include persuasive, entertaining, informative, special occasion, business presentations, and storytelling.

*Prerequisites:* Junior standing or Consent of instructor. *Offered:* Fall, Spring, odd # years.

**COM 387 • Speaking in Ministry Contexts 4 Credits**

Creation and delivery of the types of messages required in ministry contexts. Students work on biblical interpretation, adapting a biblically-based message to specific audiences and contexts, and learning to communicate in a clear and relevant manner.

*Prerequisites:* Junior or senior standing or Consent of instructor. *Offered:* Occasionally spring.

**COM 400 • Family Communication 4 Credits**

Examines communication patterns that help or hinder relationships within the family system. Approaches to, and impacts of, conflict, power, stress, intimacy, and family health are studied. Explores the family system in light of Christian attitudes and life patterns.

*Prerequisites:* Junior standing. *Offered:* Spring.

**COM 460 • Topics in Organizational Communication 2 Credits**

Advanced studies in organizational communication with the specific topic announced prior to registration. Topics may include public relations, corporate communication, consulting, training and development, or media relations. Explores current issues from both a theoretical and hands-on perspective.

*Prerequisites: COM 350 and Consent of instructor. Offered: Occasionally fall. Special Notes: This course may be repeated if a different topic is emphasized.*

**COM 462 • Topics in Relational Communication 2 Credits**

Advanced studies in relational communication with the specific topic announced prior to registration. Topics may include the dark side of communication, persuasion, divorce, advanced interpersonal theory.

*Offered: Occasionally spring.*

**COM 464 • Dating, Mating, & Relating: Lifespan Communication 4 Credits**

Explores the communication development and patterns of children and adolescents, family communication, peer-group communication, intergenerational communication, and later-life communication, as well as theoretical studies of lifespan communication development, communication during lifespan transitions, and lifespan communication research methods.

*Offered: Occasionally spring.*

**COM 471 • Royal Media Studio 1 Credit**

Laboratory experience in media production within the context of a simulated production company. Project-based work from ideation to deliverable and work with clients. Students lead teams in writing, directing, producing, and editing different types of media productions, both live-streamed and recorded.

*Prerequisites: COM 170A. Offered: Fall, Spring. Special Notes: This course may be repeated for credit.*

**COM 491 • Communication Internship and Seminar 4 Credits**

A supervised applied learning experience in structured, off-campus settings, such as corporations, governmental offices, nonprofit organizations, television and radio stations, and corporate media departments. Includes a seminar in which students process internship experiences, discuss work-life topics, and prepare for initial job searches. Requires minimum of 135 hours in internship setting.

*Prerequisites: Junior standing or Consent of department. Offered: Fall, Spring, Summer. Special Notes: This course may be repeated for credit.*

**COM 495 • Capstone: Relational Communication 2 Credits**

Guided exploration of "understudied relationships" specific to the relational communication discipline. Focus on synthesizing and integrating faith, communication skills, knowledge, theory, research, and competencies learning in the relational communication emphasis.

*Prerequisites: COM 220; COM 277; COM 363; COM 377. Offered: Spring.*

**COM 496 • Capstone: Organizational Communication 2 Credits**

Engages students in the process of researching, structuring, conducting, and evaluating communication audits or public relations campaigns. Emphasizes synthesis and integration of skills and theories learned in the organizational communications major.

*Prerequisites: COM 350; COM 363; COM 376 (may be taken concurrently); Senior standing. Offered: Spring.*

**COS 101 • Introduction to Procedural Programming 2 Credits**

An introduction to programming using a current procedural (imperative) programming language. Standard data types and control structures are introduced.

*Offered: Fall, Spring. Special Notes: Students may not receive credit for both COS 101 and COS 111.*

**COS 110 • Introduction to Object-Oriented Programming 2 Credits**

Continuation of procedural programming and an introduction to object-oriented programming. Fundamental search and sort algorithms, and recursion.

*Prerequisites: COS 101 with a C- or higher (may be taken concurrently) or Consent of instructor. Offered: Fall, Spring. Special Notes: Students may not receive credit for both COS 110 and COS 111.*

**COS 111 • Introduction to Programming 4 Credits**

An introduction to procedural and object-oriented programming. Standard data types and control structures are introduced. Fundamental search and sort algorithms, and recursion.

*Offered: Fall, Spring. Special Notes: Students may not receive credit for both COS 111 and COS 101 or COS 110.*

**COS 211 • Data Structures 4 Credits**

Elementary data structures such as arrays, linked lists, stacks, queues, hash tables, and trees. Further development of object-oriented design principles such as encapsulation, inheritance, and polymorphism.

*Prerequisites: COS 110 with a C- or higher or COS 111 with a C- or higher. Offered: Fall, Spring.*

**COS 235 • Computer Systems 4 Credits**

Assembly and machine language to study computer organization and structure, including addressing techniques, digital logic and representation of numbers and arithmetic, structure of operating systems, memory management, process management, resource allocation, and operating system monitors. Also includes an introduction to C.

*Prerequisites: COS 211 with a C- or higher. Offered: Spring.*

**COS 277 • Software Development Fundamentals 4 Credits**

Formal approach to the design and development of software. Multiple process models discussed and compared. Other topics include design patterns, system and data description, verification and validation, and process improvement. Extensive object-oriented programming assignments.

*Prerequisites: COS 211 with a C- or higher. Offered: Fall.*

**COS 299 • Careers in Mathematics and Computer Science Seminar 0 Credit**

Explores careers in mathematics and computer science through a selection of videos, lectures, tours, or guest speakers. Activities may include developing practical professional skills such as writing resumes and cover letters, accumulating connections and experience, and techniques for interviewing.

*Prerequisites: COS 110 with a C- or higher or COS 111 with a C- or higher. Offered: Fall.*

**COS 313 • Database Systems 2 Credits**

Relational and object-oriented databases, schemas, and normalization. Topics may include database management systems, SQL, concurrent transactions, logging/disaster recovery, query optimization, application program interaction with database management systems, and NoSQL.

*Prerequisites: COS 211 with a C- or higher. Offered: Fall, even # years.*

**COS 318 • Web Programming 4 Credits**

An examination of the foundational technologies used for creating web applications. Includes client and server programming, as well as fundamentals of cloud services, including security, storage, and reliability.

*Prerequisites: COS 277 with a C- or higher. Offered: Fall, odd # years. Special Notes: Some knowledge of HTML and the basics of JavaScript are expected.*

**COS 320 • Computer Graphics Programming 4 Credits**

Introduces the drawing methods, geometrical transformations, and illumination models that are fundamental to computer graphics programming. Modeling of 2D and 3D objects, local and global illumination simulation, shading, color models, procedural modeling, and discrete (fragment) techniques, including texture mapping. A current graphics API is used, including custom shaders.

*Prerequisites: COS 277 with a C- or higher; MAT 248 with a C- or higher or Consent of instructor. Offered: Fall, odd # years.*

**COS 334 • Data Mining and Machine Learning 3 Credits**

Introduces widely-used techniques for extracting information from large data sets such as medical databases, credit reports, weather history, and the stock market. Includes algorithms for nominal and ordinal data and metrics to measure their performance. Students implement common algorithms with real data and choose appropriate algorithms for different applications.

*Prerequisites: COS 277 with a C- or higher; MAT 248 with a C- or higher or MAT 330 with a C- or higher or Consent of instructor. Offered: Spring, even # years.*

**COS 335 • Computer Security 3 Credits**

An introduction to the concepts of security as applied to areas such as programming, databases, networks, systems, and applications. General concepts and specific instances of security-related threats are presented. Security risks are discussed in the context of several computer operating system and architecture components.

*Prerequisites:* COS 235 with C- or higher. *Offered:* Spring, odd # years. *Special Notes:* COS 386 is a recommended prerequisite.

**COS 341 • Computability and Complexity 4 Credits**

Investigate two big questions: How efficiently can computers solve problems? Are there problems that cannot be solved by computers at all? Computability theory: formal models of computation, Turing machines, universality, reductions, nondeterminism, and the Church–Turing thesis. Complexity theory: polynomial-time mapping reductions, NP-completeness, and the famous "P versus NP" problem.

*Prerequisites:* COS 110 with a C- or higher or COS 111 with a C- or higher; MAT 248 with a C- or higher or Consent of instructor. *Offered:* Fall, even # years.

**COS 348 • Algorithms and Advanced Data Structures 4 Credits**

Fundamental algorithms, algorithm analysis, and advanced data structures.

*Prerequisites:* COS 211 with C- or higher; MAT 248 with C- or higher or Consent of instructor. *Offered:* Spring, odd # years.

**COS 351 • High-Performance Computing 4 Credits**

Fundamental concepts and techniques for parallel computation in relevant programming languages (load balancing, communication, synchronization, serial program decomposition) using industry-standard parallel computing libraries.

*Prerequisites:* COS 235 with C- or higher. *Offered:* Occasionally.

**COS 371 • Organization of Programming Languages 4 Credits**

Formal programming language specification using various grammars and the Backus-Naur Form. Data types and structures, control structures, and data flow of several programming languages, including interpreters and compilers. Introduction to parsing and lexical analysis.

*Prerequisites:* COS 277 with a C- or higher; MAT 248 with a C- or higher or Consent of instructor. *Offered:* Spring, even # years.

**COS 386 • Data Communications and Computer Networks 3 Credits**

Data communications including interprocess communication, computer networking, and associated software protocols. Topics include network topologies, point-to-point network protocols, local area networks, and interconnection of networks.

*Prerequisites:* COS 235 with a C- or higher. *Offered:* Fall, even # years.

**COS 389 • Artificial Intelligence 3 Credits**

Basic concepts and techniques of artificial intelligence, including representation, notational structures, searches, control structures, and logic programming languages. Samples of current work in several application areas including natural language systems, expert systems, and neural networks.

*Prerequisites:* COS 277 with a C- or higher. *Offered:* Occasionally.

**COS 420 • Software Process 3 Credits**

Balancing the various real-world challenges that a software engineer encounters, including ambiguity, conflicting requirements, task-time estimation, team dynamics, requests from customers, product managers or architects.

*Prerequisites:* COS 277 with a C- or higher. *Offered:* Spring, odd # years. *Special Notes:* COS 477 is a recommended prerequisite. This course carries cross credit in engineering.

**COS 450 • Humans and Computers 2 Credits**

Examines the ways that humans and computers interact. Christian and professional ethics in the development and application of computing technology are extensively examined.

*Prerequisites:* COS 277 with a C- or higher; Senior standing. *Offered:* Spring.

**COS 477 • Machine Learning and Artificial Intelligence (AI) for Business 3 Credits**

Formal approach to the design and development of software. Multiple process models discussed and compared. Other topics include design patterns, project management and estimation, team management, formal methods, documentation, system and data description, verification and validation, and process improvement.

*Prerequisites:* COS 277 with a C- or higher. *Offered:* Spring, even # years. *Special Notes:* This course carries cross credit in engineering.

**COS 490 • Topics in Computer Science 4 Credits**

An in-depth study of a specific field of computer science.

*Prerequisites:* COS 277 with a C- or higher. *Offered:* Fall, odd # years.

**DES 105 • Introduction to Digital Media 4 Credits**

Understand the tools and concepts of digital art-making and graphic design with an emphasis on foundational proficiency in industry standard software and hardware. Utilize and combine digital tools to solve visual and technical problems as part of a growing design and studio art practice.

*Offered:* Fall, Spring.

**DES 150 • Typography 4 Credits**

Typography—the visual presentation of language—is a foundational component of graphic design. Identify and investigate basic principles and communicative potential through project-based exploration of the following topics: terminology, letterforms, readability, hierarchy, structure, visual syntax, history, and context.

*Prerequisites:* DES 105. *Offered:* Spring.

**DES 212 • Graphic Design I 4 Credits**

Explore the foundational visual components of design and their communicative and creative potential through visual experiments, isolated studies, and careful observation. Develop original content through a design process that includes idea generation, material experimentation, evaluation, and iteration.

*Prerequisites:* DES 105. *Offered:* Fall, Spring.

**DES 312 • Graphic Design II 4 Credits**

Combine and extend basic design and typography principles through a range of real-world project scenarios. Engage with clients and manage projects from initial ideation through production stages. Special attention to strategizing, problem-defining and solving, collaboration, client interaction, and production.

*Prerequisites:* DES 150 and DES 212. *Offered:* Fall.

**DES 324 • Interactive Design 4 Credits**

Develop and maintain a variety of interactive projects including websites, digital publishing, interactive documents, and applications. Work collaboratively to strategize solutions for complex projects that identify and respond to users' needs. Understand and adapt to the rapid evolution of technology through research and self-teaching.

*Prerequisites:* DES 312 or Consent of instructor. *Offered:* Fall.

**DES 412 • Graphic Design III 4 Credits**

Engage complex open-ended design problems in a collaborative environment. Utilize research, prototyping, and user interaction to develop efficient and scalable solutions. Develop personal design approach, values, ethical convictions, and portfolio materials.

*Prerequisites:* DES 312 or Consent of instructor. *Offered:* Spring.

**DES 481 • Internship in Design 1-4 Credits**

Educational and practical experience in applying understanding and skill in a professional setting. An internship can be arranged in a design studio, advertising firm, non-profit organization, or other appropriate workplace. Supervised by a design faculty member.

*Prerequisites:* Five DES courses or Consent of instructor; Major in graphic design. *Offered:* Fall, Spring.

**DIG 200A • Introduction to Digital Humanities 4 Credits**

Explores how to tell stories in the humanities with digital insights from graphic design and computer science. 3D-modeling, virtual reality, digital mapping, and data analysis are combined with the study of history, literature, philosophy, the arts, and other humanities disciplines. Students create aesthetically-informed projects accessible to a modern audience.

*Offered: Spring.*

**ECO 202 • Principles of Microeconomics 2 Credits**

An introductory course in microeconomics that helps students understand how economic decisions are made by individuals and firms and how these decisions affect the overall functioning of the economy. Topics include: supply and demand, elasticity, government policies, production and cost, market structures, and market failure.

*Offered: Fall, Spring. Special Notes: It is expected that students take ECO 202 and ECO 203 in the same term.*

**ECO 203 • Principles of Macroeconomics 2 Credits**

An introductory course in macroeconomics that helps students understand how the economy as a whole functions and how government policies can affect economic outcomes. Topics include: measures of economic aggregates like GDP, inflation, and unemployment, the study of concepts like aggregate demand and supply, and monetary and fiscal policy.

*Offered: Fall, Spring. Special Notes: It is expected that students take ECO 202 and ECO 203 in the same term.*

**ECO 301 • Managerial Economics 2 Credits**

Models of consumption, production, and pricing in competitive and noncompetitive markets.

*Prerequisites: ECO 202 and ECO 203. Offered: Fall, Spring.*

**ECO 302 • Intermediate Macroeconomics 2 Credits**

Models of real output and monetary behavior. Policies affecting unemployment, inflation, and economic growth.

*Prerequisites: ECO 202 and ECO 203. Offered: Fall, Spring.*

**EDU 200 • Introduction to Education 3 Credits**

Contemporary issues in education in the light of history and educational thought. Various aspects of growth and development are included.

*Prerequisites: 15 Credits. Corequisites: Concurrent registration in EDU 201 is required. Offered: Fall, Spring.*

**EDU 201 • Introduction to Education Field Experience 1 Credit**

A field experience requiring four hours per week observing and serving in an elementary or secondary school classroom.

*Corequisites: Concurrent registration in EDU 200 is required. Offered: Fall, Spring. Special Notes: Designated times are set by the Education department.*

**EDU 203 • School Health and Drugs 2 Credits**

Examines the roles of teachers and schools in responding to adolescent health problems, including alcohol/drug problems, with particular attention to health promotion, prevention, and referral. Adolescent drug/alcohol use from a variety of perspectives: behavioral, pharmacological, social, legal, and clinical. Emphasizes the characteristics of effective comprehensive school-based drug abuse prevention programs.

*Offered: Fall, Spring.*

**EDU 220 • Introduction to Middle Level Education 3 Credits**

Conceptualizes exemplary and typical middle and junior high schools: philosophy, organizational structure, curriculum, and instructional characteristics. Students develop an understanding of the physical, emotional, social, cognitive, and moral stages of adolescent development and begin to develop the ability to relate middle-level program possibilities to adolescent developmental needs.

*Prerequisites: EDU 200/EDU 201; Admission to the Education program. Offered: Fall, Spring.*

**EDU 236UZ • Exploring British Education and Culture 4 Credits**

Immersion in British culture and educational system, with an emphasis on the diverse populations of Pakistani and Indian students and schools. Provides three learning experiences: 1) observing and participating in British elementary and secondary schools; 2) homestay with a British family; and 3) cultural exploration of London and surrounding areas.

*Prerequisites:* GES 104; EDU 200/EDU 201; GES 130 or GES 149; Admission to the Education program.

*Offered:* January, odd # years.

**EDU 241 • Educational Psychology Field Experience 1 Credit**

A field experience requiring four hours per week in an elementary or secondary school for observation and tutorial experience in a special education setting.

*Prerequisites:* EDU 200/EDU 201; EDU 276 (must be taken concurrently); Admission to the Education program. *Offered:* Fall, Spring. *Special Notes:* Designated times are set by the Education department.

**EDU 272 • Language and Literacy Development for Young Learners (K-3) 4 Credits**

Foundational knowledge about language and literacy development, instructional methods, assessment practices, the creation of a literate and motivating environment, and the encouragement of family engagement in literacy.

*Prerequisites:* EDU 200/EDU 201; EDU 273 (must be taken concurrently); EDU 276 (must be taken concurrently); Admission to the Education program. *Offered:* Fall, Spring.

**EDU 273 • Primary Grade Field Experience 1 Credit**

Application of effective practices done in a primary classroom, working with individual students and small reading groups.

*Prerequisites:* EDU 200/EDU 201; EDU 272 (must be taken concurrently); EDU 276 (must be taken concurrently); Admission to the Education program. *Offered:* Fall, Spring.

**EDU 275 • Kindergarten Education 2 Credits**

Characteristics of kindergarten children and the curriculum and teaching strategies appropriate for their developmental level.

*Prerequisites:* EDU 200/EDU 201; Admission to the Education program. *Offered:* Fall, Spring.

**EDU 276 • Educational Psychology 4 Credits**

Examines the psychological foundations of teaching and learning. Asks how people learn and how educators can facilitate and amplify the learning process. Focuses on examples and projects in K-12 classrooms. Explores such topics as current neuroscience, learning theories, diverse learners, motivation, engagement, and various ways to assess learning.

*Prerequisites:* EDU 200/EDU 201; EDU 273 (may be taken concurrently) or EDU 241 (may be taken concurrently) and EDU 272 (must be taken concurrently); Admission to the Education program. *Offered:* Fall, Spring. *Special Notes:* This course is intended for K-6 Elementary Education and Secondary Education licensure students only.

**EDU 277 • Equitable Tech Integration Across Disciplines 3 Credits**

Considers integration of technologies to enhance learning with attention to interdisciplinary approaches and historically marginalized disciplines. Discussions and activities promote exploration of innovative digital learning environments that engage learners. Lenses of equity and empowerment used to explore ethical technology use, resource utilization, innovative instructional design, and professional growth.

*Prerequisites:* EDU 200 with a grade of C or higher and EDU 201; Admission to the Education program. *Offered:* Fall, Spring.

**EDU 317GZ • Educational Equity 4 Credits**

Root causes and historical origins of the current disparity of opportunities in U.S. educational systems. Prepares future educators to be culturally competent and responsive critical thinkers who understand the barriers that perpetuate inequities. Addresses these challenges from a biblical and leadership perspective.

*Prerequisites:* [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. *Offered:* Fall, Spring. *Special Notes:* This course includes experiential learning in schools and community events.

**EDU 320 • Pedagogy and the Young Adolescent Learner 1 Credit**

Discusses the differences in philosophy and pedagogy of teaching in a middle school and in a junior high school. Course activities help students define, describe, and develop the following components of contemporary middle level schools: appropriate curriculum, interdisciplinary structure, and interdisciplinary teaching.

*Prerequisites:* EDU 220 (may be taken concurrently); EDU 276; EDU 241 or EDU 273. *Corequisites:* Concurrent registration in EDU 321 is required. *Offered:* Fall, Spring.

**EDU 321 • Integrated Literacy in the Content Areas 2 Credits**

Understanding of literacy development strategies and the role of reading in teaching content material related to specific subject areas. Review of content area texts, assessment and practice in adapting content materials to student needs.

*Prerequisites:* EDU 220 (may be taken concurrently); EDU 276; EDU 241 or EDU 273. *Corequisites:* Concurrent registration in EDU 320 is required. *Offered:* Fall, Spring.

**EDU 331 • Teaching and Learning 2 Credits**

A foundational knowledge of learning psychology and teaching methodology. Examines unique considerations for youth and adult learners, metacognition, formal/informal learning, multi-modal learning, learning in a variety of fields/contexts, and iterative program assessment.

*Offered:* Fall.

**EDU 363 • Health Curriculum and Methods 1 Credit**

Principles, curriculum, and methods of teaching health in grades K-6. Role of the teacher and school in responding to the special health needs of elementary-age children.

*Prerequisites:* EDU 200/EDU 201; Admission to the Education program. *Offered:* Fall.

**EDU 365 • Physical Education Curriculum and Methods 1 Credit**

Principles, curriculum, and methods of teaching physical education in grades K-6.

*Prerequisites:* EDU 200/EDU 201; Admission to the Education program. *Offered:* Fall.

**EDU 366A • Visual Arts Curriculum and Methods 1 Credit**

Methods, materials, and resources for teaching visual arts in grades K-6.

*Prerequisites:* EDU 200/EDU 201; Admission to the Education program. *Offered:* Spring.

**EDU 368A • Music Curriculum and Methods 1 Credit**

Methods, materials, and resources for teaching music in grades K-6.

*Prerequisites:* EDU 200/EDU 201; Admission to the Education program. *Offered:* Spring.

**EDU 390 • General Field Experience 0 Credit**

Students work in local schools with licensed cooperating teachers.

*Prerequisites:* Approval of the Director of Education Clinical Practice. *Offered:* Fall, Spring.

**EDU 406 • Methods in Teaching 5-8 English 3 Credits**

An examination of how middle level philosophy translates into practice in English classes in grades 5-8. Designed to accompany a 1 credit practicum experience in a middle level school.

*Prerequisites:* EDU 276; EDU 241 or EDU 273; EDU 407 (must be taken concurrently); Admission to the Education program. *Offered:* Spring.

**EDU 407 • Middle Level Education Field Experience in English 1 Credit**

Classroom-based practicum in an English class of young adolescent learners. Emphasizes evaluation and application of concepts and strategies previously introduced.

*Prerequisites:* EDU 276; EDU 241 or EDU 273; EDU 406 (must be taken concurrently) or EDU 408 (must be taken concurrently); Admission to the Education program. *Offered:* Spring.

**EDU 408 • Methods in Teaching 5-12 English 3 Credits**

Methods and curriculum employed in teaching English in middle and high schools. Examines current technology in English education as well as interactive learning and teaching. Emphasizes vocabulary and academic language. Lesson and unit planning using best practices and developmentally appropriate principles.

*Prerequisites:* EDU 276/EDU 241; EDU 407 (must be taken concurrently); Admission to the Education program. *Offered:* Spring. *Special Notes:* EDU 320 is a strongly recommended corequisite.

**EDU 410 • Methods in Teaching 5-8 Mathematics 3 Credits**

Teaching methodologies, materials, assessment, historical and current trends and issues in curriculum, development of a philosophy of mathematics education, and other topics related to teaching and learning mathematics in grades 5-8. Practice in planning lessons and units, implementing technology, and teaching.

*Prerequisites:* EDU 276; EDU 241 or EDU 273; EDU 411 (must be taken concurrently); Admission to Education program. Offered: Fall.

**EDU 411 • Mathematics Education Field Experience in grades 5-8 or 5-12 1 Credit**

Students observe and participate in a high school and/or middle school mathematics classroom (minimum 40 hours on site). Deeper understanding of preadolescent and adolescent learners as well as curriculum, instruction, and assessment in the context of grades 5-12 school communities.

*Prerequisites:* EDU 276; EDU 241 or EDU 273; EDU 410 (must be taken concurrently) or EDU 412 (must be taken concurrently); Admission to the Education program. Offered: Fall.

**EDU 412 • Methods in Teaching 5-12 Mathematics 3 Credits**

Teaching methodologies, materials, assessment, historical and current trends and issues in curriculum, development of a philosophy of mathematics education, and other topics related to teaching and learning mathematics in grades 5-8 and 9-12. Practice in planning lessons and units, implementing technology, and teaching.

*Prerequisites:* EDU 276/EDU 241; EDU 411 (must be taken concurrently); Admission to the Education program. Offered: Fall.

**EDU 418 • Methods in Teaching 9-12 Social Studies 2 Credits**

Development of ability to take concepts from several component disciplines of social studies and communicate them effectively to, or direct their acquisition by, students in grades 9-12. Curriculum trends, materials, classroom methodologies, and teacher competencies are studied and applied.

*Prerequisites:* EDU 220; EDU 276/EDU 241; Admission to the Education program. Offered: Spring. *Special Notes:* Concurrent enrollment in EDU 419 is required for students enrolled in secondary education programs.

**EDU 419 • 5-8 Social Studies Methods and Field Experience 2 Credits**

Classroom-based practicum in a social studies class of young adolescent learners. Emphasizes evaluation and application of concepts and strategies previously introduced.

*Prerequisites:* EDU 220; EDU 276; EDU 241 or EDU 273; Admission to the Education program. Offered: Spring. *Special Notes:* Concurrent enrollment in EDU 418 is required for students enrolled in secondary education programs.

**EDU 432 • Methods in Teaching Elementary Music 3 Credits**

Methods and materials for teaching music in the elementary school. The skills of singing, playing, moving, improvising, reading, and listening are explored as a means of helping children gain an intuitive and theoretical understanding of musical principles.

*Prerequisites:* EDU 276/EDU 241; Major or minor in music; Admission to the Education program. Offered: Fall.

**EDU 433 • Methods in Teaching Secondary Music 3 Credits**

Methods and materials for teaching music in the middle school, junior high, and high school vocal and instrumental programs.

*Prerequisites:* EDU 432; Major or minor in music; Admission to the Education program. *Corequisites:* Concurrent enrollment in EDU 434 is required. Offered: Spring.

**EDU 434 • Middle Level Education Field Experience in Music 1 Credit**

Classroom-based practicum in a music class of young adolescent learners. Emphasizes evaluation and application of concepts and strategies previously introduced.

*Prerequisites:* EDU 432 and Major or minor in music. *Corequisites:* Concurrent registration in EDU 433 is required. Offered: Spring.

**EDU 470 • Math Curriculum and Methods 4 Credits**

Methods, materials, and resources for teaching mathematics in grades K-6. Emphasis placed on problem solving, inquiry, and conceptual understanding in a standards-based classroom.

*Prerequisites:* EDU 272; EDU 273; EDU 275; EDU 276; EDU 277; MAT 202; NAS 101D; NAS 102D; NAS 103D; NAS 104D; Admission to the Education program. *Corequisites:* Concurrent registration in EDU 471; EDU 473; EDU 474; EDU 476; EDU 477 is required. Offered: Fall, Spring.

**EDU 471 • Science Curriculum and Methods 3 Credits**

Methods, materials, and resources for teaching science in grades K-6. Emphasis placed on inquiry and discovery learning, planning, and teaching in a standards-based classroom.

*Prerequisites:* EDU 272; EDU 273; EDU 275; EDU 276; EDU 277; MAT 202; NAS 101D; NAS 102D; NAS 103D; NAS 104D; Admission to the Education program. *Corequisites:* Concurrent registration in EDU 470; EDU 473; EDU 474; EDU 476; EDU 477 is required. Offered: Fall, Spring.

**EDU 473 • Reading/Language Arts Curriculum and Methods 4 Credits**

Reading methods and processes with a strong emphasis on comprehension and vocabulary development. Language arts skills: writing process, grammar, spelling, drama, listening and speaking skills, viewing skills for students in grades 4-6. A variety of creative and critical response modes to integrate literature across the curriculum.

*Prerequisites:* EDU 272; EDU 273; EDU 275; EDU 276; EDU 277; MAT 202; NAS 101D; NAS 102D; NAS 103D; NAS 104D; Admission to the Education program. *Corequisites:* Concurrent registration in EDU 470; EDU 471; EDU 474; EDU 476; EDU 477 is required. Offered: Fall, Spring.

**EDU 474 • Social Studies Curriculum and Methods: Planning 4 Credits**

Methods, materials, and resources for teaching social studies in grades K-6. Emphasis placed on the use of process skills of the social scientist. Long- and short-term planning including integration of curriculum across content areas, embedding Minnesota Graduation Standards.

*Prerequisites:* EDU 272; EDU 273; EDU 275; EDU 276; EDU 277; MAT 202; NAS 101D; NAS 102D; NAS 103D; NAS 104D; Admission to the Education program. *Corequisites:* Concurrent registration in EDU 470; EDU 471; EDU 473; EDU 476; EDU 477 is required. Offered: Fall, Spring.

**EDU 476 • Intermediate Grade Field Experience 1 Credit**

Application of effective practices done in a 3rd-6th grade classroom, working with large groups as well as small groups, adapting lessons for students with special needs. Special focus on integrated planning.

*Prerequisites:* EDU 272; EDU 273; EDU 275; EDU 276; EDU 277; MAT 202; NAS 101D; NAS 102D; NAS 103D; NAS 104D; Admission to the Education program. *Corequisites:* Concurrent registration in EDU 470; EDU 471; EDU 473; EDU 474; EDU 477 is required. Offered: Fall, Spring. *Special Notes:* A residency option is available by application. Residents stay in the same cooperating classroom for Block 2 and student teaching.

**EDU 477 • Elementary Teaching & the Inclusive Classroom 2 Credits**

Examines asset-based teaching and the gathering of information about our students and using it to plan instruction. Presents the importance of sociocultural, familial, and community contexts. Introduces anti-racist, culturally-affirming, reciprocal/collaborative concepts for teaching with discussion on culturally sensitive assessment practices and teacher-bias in Curriculum Based Management (CBM) practices and interpretation.

*Prerequisites:* EDU 272; EDU 273; EDU 275; EDU 276; EDU 277; MAT 202; NAS 101D; NAS 102D; NAS 103D; NAS 104D; Admission to the Education program. *Corequisites:* Concurrent registration in EDU 470; EDU 471; EDU 473; EDU 474; EDU 476 is required. Offered: Fall, Spring.

**EDU 490 • Student Teaching Block 2 Credits**

Students teach in a school setting corresponding with their licensure area(s). Students work with a cooperating teacher and grow into teaching independently. Attendance at regularly scheduled seminars is required.

*Prerequisites:* Admission to Student Teaching. Offered: January. *Special Notes:* Students earning a license to teach in two programs must register for EDU 490. This course is graded on an S/U basis.

**EDU 491 • Student Teaching in Middle Level 3 Credits**

Observation and student teaching in fields in which a student will be licensed to teach. Involves student teaching in a Middle Level endorsement area.

*Prerequisites:* Admission to student teaching. *Offered:* Occasionally. *Special Notes:* This course is graded on an S/U basis.

**EDU 492 • Student Teaching Grades K-12 and 5-12 6-12 Credits**

Students teach in a school setting corresponding with their licensure area(s). Students work with a cooperating teacher and grow into teaching independently. Attendance at regularly scheduled seminars is required.

*Prerequisites:* One of the following: EDU 408, EDU 412, EDU 418, or EDU 433; Admission to student teaching and 2.50 GPA for majors in communication arts and literature education 5-12, mathematics education 5-12, music education k-12 (instrumental emphasis), music education k-12 (vocal emphasis), 2.75 GPA for elementary and special education integrated major, 3.00 GPA for social studies education 5-12. *Corequisites:* Concurrent enrollment in EDU 495 is required. *Offered:* Fall, Spring. *Special Notes:* Students earning a license to teach in two programs must also register for EDU 490. Both student teaching placements can occur within the same semester with the addition of student teaching during January Session. Course is graded on a S/U basis.

**EDU 493 • Student Teaching Seminar 2 Credits**

Designed to support students as they enter schools as a student teacher and continue through the semester into preparing for interviews and securing a teaching position. Provides time for students to ask questions, share stories, and work toward the required Authentic Assessment. Topics include assignments, and guest speakers require students to learn details important to their success in the classroom.

*Prerequisites:* EDU 470; EDU 471; EDU 473; EDU 474; EDU 476; EDU 477; Admission to student teaching and 2.75 GPA for k-6 elementary education, k-6 elementary education with communication arts and literature 5-8 endorsement, k-6 elementary education with mathematics 5-8 endorsement, k-6 elementary education social studies 5-8 endorsement, and elementary and special education integrated major. *Corequisites:* Concurrent enrollment in EDU 494 is required. *Offered:* Fall, Spring. *Special Notes:* Students earning a license to teach in two programs must also register for EDU 490. Both student teaching placements can occur within the same semester with the addition of student teaching during the January Session. This course is graded on an S/U basis.

**EDU 494 • Student Teaching Elementary K-6 6-12 Credits**

Students teach in a school setting corresponding with their license area(s). Student work with a cooperating teacher and grow into teaching independently. Attendance at regularly scheduled seminars is required.

*Prerequisites:* EDU 470; EDU 471; EDU 473; EDU 474; EDU 476; EDU 477; Admission to student teaching and 2.75 GPA for k-6 elementary education, k-6 elementary education with communication arts and literature 5-8 endorsement, k-6 elementary education with mathematics 5-8 endorsement, k-6 elementary education social studies 5-8 endorsement, and elementary and special education integrated major. *Corequisites:* Concurrent enrollment in EDU 493 is required. *Offered:* Fall, Spring. *Special Notes:* Students earning a license to teach in two programs must also register for EDU 490. Both student teaching placements can occur within the same semester with the addition of student teaching during the January Session. This course is graded on an S/U basis.

**EDU 495 • Student Teaching Seminar: K-12 and 5-12 Education Students 2 Credits**

Supports students as student teachers and continues through the semester into preparing for interviews and securing a teaching position. Provides time for students to ask questions, share stories, and work toward the required Authentic Assessment. Students learn details important to their success in the classroom.

*Prerequisites:* One of the following: EDU 408, EDU 412, EDU 418, or EDU 433; Admission to student teaching and 2.50 GPA for majors in communication arts and literature education 5-12, mathematics education 5-12, music education k-12 (instrumental emphasis), music education k-12 (vocal emphasis), 2.75 GPA for elementary and special education integrated major, 3.00 GPA for social studies education 5-12. *Corequisites:* Concurrent enrollment in EDU 492 is required. *Offered:* Fall, Spring. *Special Notes:* Students earning a license to teach in two programs must also register for EDU 490. Both student teaching placements can occur within the same semester with the addition of student teaching during the January Session. Course is graded on a S/U basis.

**ENJ 100 • How Stories Change the World: How to Read & Why 4 Credits**

Introductory exploration of great stories (both poetry and prose) and their power to illuminate the human experience, connect with readers' minds and hearts, and portray great ideas, hopes, joys, and sorrows. Students gain experience interpreting literature with greater comprehension and pleasure.

*Offered:* Fall or Spring.

**ENJ 102 • British Literature 4 Credits**

An exploration of great stories (both poetry and prose) from the British Isles. Students enhance comprehension and appreciation through study of historical and cultural contexts as well as literary interpretation skills.

*Offered:* Spring, odd # years.

**ENJ 103 • Topics in American Literature 4 Credits**

Through a combination of survey and deep dive into a literary movement, students engage American literature within its historical and cultural contexts and its significance to American life today.

*Offered:* Spring, even # years.

**ENJ 110A • Introduction to Creative Writing 4 Credits**

Exploration of the creative act, addressing writing as a means for discovering the created world and ourselves as created beings within it. Emphasis on writing original work in three major genres: fiction, creative nonfiction, and poetry.

*Offered:* Fall, Spring.

**ENJ 120 • Reporting 4 Credits**

Introduction to fundamentals of reporting and writing for the news media, emphasizing print journalism. Covers news values, news judgment, the structure of news stories, information gathering, research techniques, and Associated Press style. Students learn to write quickly, accurately, and concisely on deadline.

*Offered:* Fall.

**ENJ 121 • Digital Storytelling 4 Credits**

Experimentation in advanced forms of storytelling in multiple media – including images, audio/video and graphics – to build a more diverse set of storytelling tools, and understanding when and how to use them, especially on a storytelling team.

*Offered:* Spring.

**ENJ 200L • Story in Modern America 4 Credits**

Explores forms, purposes, and functions of American story and how they have evolved. Students examine their roles and responsibilities as truth-seekers by reading, viewing, and creating texts - from short story to graphic novel, from film to podcast - that challenge and confirm assumptions about story in modern American culture.

*Prerequisites:* GES 130 and GES 160 or GES 149. *Offered:* Fall.

**ENJ 201 • Literature on Location: Minnesota Authors 4 Credits**

Explore Minnesota and the storytellers who have shaped its past and its present, and will shape its future. Learn how place matters in literature and how contexts matter in reading and writing. Read and experience Minnesota writers from Fitzgerald to Erdich in the landscapes of prairie, lakes, rivers, and cities.

*Offered: January, odd # years.*

**ENJ 202 • Juvenile Literature 4 Credits**

An exploration of a wide range of books written for children and teens in grades 5-9, as well as resources for effectively finding, reading, and interacting with them. Major topics of discussion include censorship, diversity, representation, and literary merit.

*Offered: Spring, even # years.*

**ENJ 203U • World Literature 4 Credits**

Focused study of literature from a non-western region of the world, examining social and historical contexts.

*Prerequisites: GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: Spring, odd # years.*

**ENJ 204L • Modern Mythmakers 4 Credits**

Consideration of how writers and filmmakers appropriate mythic structures and archetypes to create meaningful narratives of human experience. Modern mythmakers may include: J.R.R. Tolkien, George Lucas, Toni Morrison, C.S. Lewis, and others.

*Prerequisites: GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).*

*Offered: Occasionally.*

**ENJ 210A • Prose Studio 4 Credits**

A workshop for exploring and sharpening prose style in nonfiction forms utilized in blogs, personal essays, technical writing, and op-ed writing. Includes reading and writing in a variety of prose forms, voices, and topics to assist students in developing persuasive, precise, and personal writing styles.

*Prerequisites: GES 130 and GES 160 or GES 149. Offered: Occasionally.*

**ENJ 211 • Methods of Tutoring Writing 1 Credit**

Introduction to the practical applications of writing theory, with a focus on tutoring student writers.

Course readings with supervision will guide reflection on the student's work as a Writing Center tutor.

*Prerequisites: Consent of instructor. Offered: Fall or Spring. Special Notes: This course is required of all first-time Writing Center tutors.*

**ENJ 220 • Principles of Editing 4 Credits**

Editing of copy for publication in newspapers, magazines, and online media. Exposure to the book publishing process. Course includes working with the Associated Press and Chicago Style manuals.

*Offered: Spring, even # years.*

**ENJ 221 • Feature Writing 4 Credits**

Analyzing, writing, and marketing feature stories of various types: service articles, profiles, human-interest pieces, and in-depth issue articles for possible publication online or in print.

*Prerequisites: ENJ 120. Offered: Spring 2026.*

**ENJ 300 • Shakespeare: The Art of the Dramatist 4 Credits**

Major plays in Shakespeare's distinct periods and genres: history, comedy, tragedy, and romance.

Both literary and theatrical aspects are examined, with attention to historical context. Emphasis on performance.

*Offered: Spring, even # years.*

**ENJ 305G • Truth-Telling: The Stories of Resistance 4 Credits**

Literature, film, and stories that reveal truths regarding systems of oppression. Explores the struggle for justice through the narratives and the imaginative response of the oppressed. Literary historical foci include the Holocaust, the experience of Native Americans, African Americans, women, and the oppressed in Minnesota.

*Prerequisites:* [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Fall.*

**ENJ 310 • Ways of Reading 4 Credits**

Theory offers us a deeper way to engage with texts. Students interact with texts through a succession of perspectives and apply concepts and techniques for engaging with literature and culture in more perceptive and satisfying ways.

*Prerequisites:* ENJ 100. *Offered: Occasionally.*

**ENJ 311 • Writing for Social Change 4 Credits**

An exploration of persuasive writing through essays, blogs, and opinion pieces in which students use their writing skills to engage in public discourse of important issues in the hope of initiating social change.

*Prerequisites:* ENJ 120 or ENJ 210A. *Offered: Occasionally.*

**ENJ 312AZ • Travel Writing 4 Credits**

Art and craft of travel writing studied and practiced while traveling. Focus on reading travel writing from the past and present, and writing about one's own travel experience as it happens. May also include reading literature and other books related to the place of travel.

*Prerequisites:* GES 104. *Offered: January, odd # years.*

**ENJ 314A • Fiction Writing 4 Credits**

Practice in modern narrative techniques. Emphasis on writing and peer criticism of short fiction.

*Offered: Fall, even # years.*

**ENJ 315A • Poetry Writing 4 Credits**

Metrics, imagery, and other techniques of versification, with practice in writing in a wide variety of genres.

*Offered: Spring, even # years.*

**ENJ 317 • Publishing & Being Published 4 Credits**

Connect with local literary publishing houses to learn about the editorial processes of professional publishing. Obtain hands-on experience by participating in all aspects of publishing Bethel's literary arts journal, Coeval: from reviewing submissions and selecting content to editing and designing. Students will also submit their own creative work for publication.

*Prerequisites:* ENJ 110A. *Offered: Spring.*

**ENJ 321GZ • Media and Communication in Developing Countries 4 Credits**

An examination of the socioeconomic, technological, and political factors that have influenced the development of communication systems in developing countries, with special emphasis on the role of Christian journalists. Includes comparative analysis of western media systems and those of developing nations.

*Prerequisites:* GES 104; [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course and Junior or senior standing. Offered: January, even # years.*

**ENJ 323 • Sports Reporting 4 Credits**

Develop skills in reporting, writing and multimedia storytelling, gain exposure to award-winning sports reporting and sports reporters in multiple media and learn to think critically about sports media, as a journalist, fan, consumer, teammate, ethicist, and Christian.

*Prerequisites:* ENJ 120. *Offered: Spring 2027.*

**ENJ 324 • Arts & Cultures Reporting 4 Credits**

Develop skills in reporting, writing and multimedia storytelling, gain exposure to award-winning arts and culture reporting and reporters in multiple media and learn to think critically about arts and culture media, as a journalist, fan, producer, consumer, ethicist, and Christian.

*Prerequisites: ENJ 120 and ENJ 121 (may be taken concurrently). Offered: Spring 2029.*

**ENJ 325 • Topics in Journalism 4 Credits**

Study of a specialized topic of relevance to the practicing journalist with emphasis on the impact of journalism within a specific cultural context and the unique role of the Christian journalist.

*Prerequisites: ENJ 120. Offered: Occasionally.*

**ENJ 330 • Topics in Literary Studies 4 Credits**

Close study in a specific topic or genre of literature. Emphasis on applying the skills of literature study to a closely-focused topic.

*Prerequisites: ENJ 100. Offered: Occasionally.*

**ENJ 400 • StoryForge I 2 Credits**

Prepare for StoryForge II and the future by reflecting on strengths and gaps, casting a vision, and developing a project or internship proposal. Hear from speakers and read texts that will help build one's faith in God and self-confidence as one thinks about life after college.

*Prerequisites: Major or minor in the department of English and Journalism and Junior standing. Offered: Spring. Special Notes: This course can be repeated for credit.*

**ENJ 498 • Internship in Writing 3-4 Credits**

Placement in an off-campus writing position. Must be planned well in advance of placement in consultation with advisor.

*Prerequisites: Major or minor in English and Journalism department and Completion of 10 credit hours in English and journalism. Offered: By arrangement.*

**ENJ 499 • StoryForge II 4 Credits**

Launch from work in StoryForge I to complete a capstone project that implements and showcases skills gained throughout one's education in and outside the classroom. As crucible and scaffold, a structure for vibrant, responsive, sustainable independent work to bridge students to career, graduate school, or freelance work is modeled.

*Prerequisites: ENJ 400 and a major in the department of English and Journalism. Offered: Fall. Special Notes: This course can be repeated for credit.*

**ENR 160 • Introduction to Engineering 2 Credits**

Introduction to engineering fields, engineering practice, engineering work, and the tools and techniques that engineers use. Topics include: engineering design process and methodology, the development of specifications and prototypes, and the ethics and responsibilities of engineers.

*Offered: Fall.*

**ENR 260 • Careers in Engineering and Physics Seminar 1 Credit**

Developing careers in high-technology fields such as engineering and physics. Explores the wide variety of specific careers possible through video, lecture, tours, and guest speakers. Develops practical professional skills such as writing resumes and cover letters, accumulating connections and experience, and techniques for interviewing.

*Prerequisites: PHY 296/PHY 297. Offered: Fall. Special Notes: This course carries cross-credit in physics.*

**ENR 265 • Computer Aided Design and Engineering 2 Credits**

An introduction to computer aided design tools and techniques. Emphasizes the generation of engineering graphics necessary for the engineering design process, such as two-dimensional drawing and three-dimensional solid modeling. Other topics may include simulation modeling and manufacturing considerations.

*Offered: Fall. Special Notes: ENR 160 is a recommended prerequisite.*

**ENR 304 • Engineering Materials and Manufacturing 3 Credits**

Introduction to material properties and selection for engineering applications. Topics include: materials and their characteristics; design-based material selection; crystallography; material properties; fracture; fatigue; phase diagrams; engineering alloys; forming, separation, and shaping as manufacturing process for materials; processing of materials according to their properties; surface treatments.

*Prerequisites:* MAT 125; CHE 113/CHE 113D; PHY 292/PHY 292D with a grade of a C or higher. *Offered:* Fall, odd # years.

**ENR 306 • Digital Logic and Design 3 Credits**

Topics may include Boolean algebra, design and optimization of combinational and sequential logic, the use of programmable logic devices such as FPGA, VHDL or Verilog modeling, and an introduction to processors and memory. Extensive lab experience in the simulation, design, construction and testing of digital circuits.

*Prerequisites:* PHY 302/PHY 303 and MAT 125. *Corequisites:* Concurrent registration in ENR 307 is required. *Offered:* Spring, even # years.

**ENR 307 • Digital Logic and Design Lab 1 Credit**

Laboratory experience accompanying ENR 306.

*Corequisites:* Concurrent registration in ENR 306 is required. *Offered:* Spring, even # years.

**ENR 308 • Statics and Mechanics of Materials 4 Credits**

Force and moment vectors, equilibrium of rigid bodies in two and three dimensions; trusses, friction, centroids, and moments of inertia. Linear elasticity; introduction to stress and strain analysis applied to beams, vessels, pipes, and combined loading; stress and strain; axial, flexural, and torsional deflections for linear elastic materials.

*Prerequisites:* MAT 223 (may be taken concurrently) and PHY 292/PHY 292D with a grade of a C or higher. *Offered:* Spring, odd # years.

**ENR 316 • Analog Circuitry and Design 3 Credits**

Feedback principles and electronic circuit theory and device theory applied to multistage transistor amplifiers. Detailed study of operational amplifiers. Power supply design. Nonlinear circuits. Introduction to filter theory, noise analysis, and low noise design. Circuit design and construction experience emphasized in projects and the laboratory.

*Prerequisites:* PHY 302/PHY 303; [MAT 222 or MAT 224 (may be taken concurrently)] *Corequisites:* Concurrent registration in ENR 317 is required. *Offered:* Fall, odd # years.

**ENR 317 • Analog Circuitry & Design Lab 1 Credit**

Lab experience accompanying ENR 316.

*Corequisites:* Concurrent registration in ENR 316 is required. *Offered:* Fall, odd # years.

**ENR 318 • Engineering Thermal Science 3 Credits**

Fundamental laws of thermodynamics. Energy transfer modes. The properties, equations of state, processes, and cycles for reversible/irreversible thermodynamic systems. Equations for conservation of mass and energy, plus entropy balances. Application of thermodynamic principles to modern engineering systems.

*Prerequisites:* PHY 292/PHY 292D with a grade of a C or higher and MAT 223. *Offered:* Spring, even # years.

**ENR 321 • Statistical Methods in Engineering 2 Credits**

Development of skill in statistical techniques useful to practicing engineers. Included are: random variables and processes; probability distributions and cumulative functions; confidence intervals; hypothesis testing; quality control; random sampling.

*Prerequisites:* [MAT 222 or MAT 224 (may be taken concurrently)] and MAT 223. *Offered:* Fall.

**ENR 322 • Mathematical Methods in Physics and Engineering 2 Credits**

Development of skill in mathematical techniques useful in the solution of physics and engineering problems. Included are Fourier analysis; complex numbers; partial differential equations and their solutions.

*Prerequisites:* [MAT 222 or MAT 224 (may be taken concurrently)] and MAT 223. *Offered:* Fall. *Special Notes:* This course carries cross-credit with physics. ENR 321 is a strongly encouraged prerequisite.

**ENR 326 • Circuit Analysis & Simulations 4 Credits**

Circuit analysis techniques as applied to sinusoidal steady state analysis with power calculations, first and second order transient analysis in both time and Laplace domains, three-phase circuits and magnetically coupled circuits. Additional topics include: frequency response, resonance, filters, Bode plots. Simulation of electrical and electronic circuits are emphasized.

*Prerequisites:* [MAT 222 or MAT 224 (may be taken concurrently)] and MAT 223 and PHY 302/PHY 303.

*Offered:* Spring, odd # years.

**ENR 336 • Signals and Systems 4 Credits**

Continuous and discrete-time signals and systems. Topics include: definitions and properties of signals and systems, convolution, solution of differential and difference equations, Laplace and Z transforms, and Fourier analysis. Emphasis on applications to signal processing, communication and control systems.

*Prerequisites:* MAT 222 or MAT 224; PHY 302/PHY 303; ENR 352/PHY 352/ENR 353/PHY 353. *Offered:* Fall, even # years. *Special Notes:* This course carries cross-credit with physics.

**ENR 340 • Mechanics 4 Credits**

Particle and rigid body dynamics, conservative and nonconservative forces, central forces, accelerated coordinate systems, and Lagrange's equations of motion.

*Prerequisites:* PHY 296/PHY 297 with a C grade or higher and MAT 223. *Offered:* Fall. *Special Notes:* This course carries cross credit in physics.

**ENR 348 • Heat Transfer 3 Credits**

Further development of the understanding of thermodynamics, fluid mechanics, mathematics, and physics. The problems in heat transfer and system design are emphasized for systems in which thermal transport processes are important.

*Prerequisites:* ENR 318 and MAT 222 or MAT 224. *Offered:* Spring, odd # years.

**ENR 352 • Computer Methods in Physics and Engineering 3 Credits**

Application of the computer to solve applied problems of interest to physicists and engineers. Computer techniques are developed for numerical methods, simulation models, and data acquisition and control in the laboratory.

*Prerequisites:* COS 101 or COS 111 and MAT 223 or MAT 224 and PHY 296/PHY 297 with a grade of a C or higher or Consent of instructor. *Corequisites:* Concurrent registration in ENR 353 is required. *Offered:* Spring. *Special Notes:* PHY 302/PHY 303 is a recommended prerequisite. This course carries cross-credit in physics.

**ENR 353 • Computer Methods in Physics and Engineering Lab 1 Credit**

Laboratory experience accompanying ENR 352.

*Corequisites:* Concurrent registration in ENR 352 is required. *Offered:* Spring. *Special Notes:* This course carries cross-credit in physics.

**ENR 356 • Applied Strength of Materials 3 Credits**

How the fundamental concepts of stress, strain, and deformation associated with mechanical loading are used in mechanical design. Topics include: axial tensile and compressive effects, torsion, and bending; stress-strain relationships, safety factor, beam deflection methods, buckling, failure prevention theories for ductile and brittle materials, fatigue-life methods and fatigue failure criteria.

*Prerequisites:* ENR 265; ENR 304 (may be taken concurrently); ENR 308; MAT 223. *Corequisites:* Concurrent enrollment in ENR 357 is required. *Offered:* Fall, odd # years.

**ENR 357 • Applied Strength of Materials Laboratory 1 Credit**

Laboratory experience accompanying ENR 356.

*Corequisites:* Concurrent registration in ENR 356 is required. *Offered:* Fall, odd # years.

**ENR 358 • Design of Mechanical Components 4 Credits**

Emphasizes product design. Developing a mechanical component design problem. Selecting standard mechanical components such as bearings, gears, springs, and fasteners. Analysis and synthesis of motion in machines. Displacement, velocity, and acceleration of mechanisms. Introduction to lubrication theory, flexible mechanical elements, and power transmissions.

*Prerequisites:* ENR 356/ENR 357. *Offered:* Spring, even # years. *Special Notes:* PHY 340 is a recommended prerequisite.

**ENR 402 • Mechanical Measurements Lab 3 Credits**

A laboratory course focused on careful measurements of physical properties such as temperature, pressure, stress, force, emissivity, and vibration modes. Emphasis placed on experimental methods, statistical estimates of experimental uncertainty, methods of calibration, transducers for mechanical measurement, data acquisition and processing. Appropriate written and oral presentations of measurements.

*Prerequisites: ENR 304; MAT 223; PHY 296/PHY 297. Offered: Spring, even # years.*

**ENR 420 • Software Process 3 Credits**

Balancing the various real-world challenges that a software engineer encounters, including ambiguity, conflicting requirements, task-time estimation, team dynamics, requests from customers, product managers or architects.

*Prerequisites: COS 277 with a C- or higher. Offered: Spring, odd # years. Special Notes: This course carries cross credit with computer science. ENR 477 is a recommended prerequisite.*

**ENR 422 • Fluid Mechanics 3 Credits**

Laws of statics, kinematics, and dynamics applied to fluid mechanics. Integral and differential conservation laws for mass, momentum, and energy. Dimensional analysis, viscous pipe flow, boundary layers, separated flows, and potential flow.

*Prerequisites: MAT 223 and PHY 296/PHY 297 with a grade of a C or higher or Consent of instructor.*

*Corequisites: Concurrent registration in ENR 423 is required. Offered: Fall. Special Notes: This course carries cross-credit in physics.*

**ENR 423 • Fluid Mechanics Lab 1 Credit**

Laboratory experience accompanying ENR 422.

*Corequisites: Concurrent registration in ENR 422 is required. Offered: Fall. Special Notes: This course carries cross-credit in physics.*

**ENR 424 • Electronic Materials and Devices 3 Credits**

Theory and application of condensed matter and materials. Physical origin of electrical, optical, mechanical, thermal, and magnetic properties. Emphasis on devices such as pn junction diodes, LEDs, piezoelectrics, and sensors.

*Prerequisites: PHY 302/PHY 303 or PHY 312/PHY 313. Corequisites: Concurrent registration in ENR 425 is required. Offered: Fall, even # years. Special Notes: This course carries cross-credit in physics.*

**ENR 425 • Electronic Materials and Devices Laboratory 1 Credit**

Laboratory component of ENR 424. Explores characterization of materials and the design, fabrication, and testing of devices.

*Corequisites: Concurrent registration in ENR 424 required. Offered: Fall, even # years. Special Notes: This course carries cross-credit in physics.*

**ENR 436 • Microprocessors 3 Credits**

Advanced principles of microcomputer hardware and software. Topics include: computer organization, instruction sets and addressing modes, assembly language programming, arithmetic and logic operations, input/output, buffers, interrupts and special purpose features such as A/D converters.

*Prerequisites: ENR 306/ENR 307. Corequisites: Concurrent registration in ENR 437 is required. Offered: Fall, even # years.*

**ENR 437 • Microprocessors Lab 1 Credit**

Lab experience accompanying ENR 436.

*Corequisites: Concurrent registration in ENR 436 is required. Offered: Fall, even # years.*

**ENR 446 • Control Systems 3 Credits**

Time and frequency domain representation of feedback control systems. Topics include: stability criteria, root locus methods, frequency response techniques, digital implementation and hardware considerations.

*Prerequisites: PHY 302/PHY 303; MAT 222 or MAT 224 (may be taken concurrently). Corequisites: Concurrent registration in ENR 447 is required. Offered: Spring, odd # years.*

**ENR 447 • Control Systems Lab 1 Credit**

Lab experience accompanying ENR 446.

*Corequisites: Concurrent registration in ENR 446 is required. Offered: Spring, odd # years.*

**ENR 450 • Topics in Physics and Engineering 3-4 Credits**

Topics selected from various fields of engineering and physics for the purpose of illustrating the practical application of physical principles. Emphasis on developing the skills and viewpoints commonly used by engineers and physicists. The field of engineering or physics is announced prior to registration.

*Prerequisites: Consent of instructor. Offered: Occasionally. Special Notes: This course may be repeated when a different topic is emphasized. This course carries cross-credit in physics.*

**ENR 465 • Engineering Design Seminar 1 Credit**

Prepares students for engineering practice through a major design experience. Design projects have a major engineering component to them and are intentionally multi-disciplinary in nature. Students work in teams to design a system to meet a given specification that requires the incorporation of relevant engineering standards.

*Prerequisites: Senior standing and Major in engineering. Offered: Fall.*

**ENR 477 • Software Engineering 2 Credits**

Formal approach to the design and development of software. Multiple process models discussed and compared. Other topics include design patterns, project management and estimation, team management, formal methods, documentation, system and data description, verification and validation, and process improvement.

*Prerequisites: COS 277 with a C- or higher. Offered: Spring, even # years. Special Notes: This course carries cross credit with computer science.*

**ENR 490 • Engineering Design Project 3 Credits**

Prepares students for engineering practice through a major design and prototyping experience. The design produced in ENR 465 is the basis for building a prototype system. The prototype incorporates relevant engineering standards. Final designs and prototypes are documented in a professional manner and presented publicly.

*Prerequisites: ENR 465. Offered: Spring.*

**ENS 104 • Environment and Humanity 3 Credits**

Interrelationships and interactions of humans with the natural environment in which they live. Causes of and potential solutions to environmental problems like pollution of water, air, and soil; extinction of wildlife; and degradation of natural and human ecosystems are examined, using the science of ecology as a knowledge base.

*Corequisites: Concurrent registration in ENS 104D is required. Offered: Fall, Spring.*

**ENS 104D • Environment and Humanity Lab 1 Credit**

Laboratory experience accompanying ENS 104. Includes some outdoor and off-campus investigations.

*Corequisites: Concurrent registration in ENS 104 is required. Offered: Fall, Spring.*

**ENS 205L • Sustainable Living 4 Credits**

A multidisciplinary approach to the challenges of living a sustainable life in a complex world. Considers how ecological, ethical, and cultural understandings inform our responsibility for personal and global decisions.

*Prerequisites: GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: Spring.*

**ENS 316 • Wildlife Ecology 3 Credits**

Analysis of terrestrial vertebrate populations, communities, and habitats. Exploration of how these analyses are applied to the manipulation, exploitation, protection, and restoration of animal populations and communities.

*Prerequisites: BIO 218 (may be taken concurrently) and junior or senior standing. Corequisites: Concurrent registration in ENS 317 is required. Offered: Spring, even # years. Special Notes: This course carries cross-credit in biology. This course is not open to students who have taken AUS 316.*

**ENS 317 • Wildlife Ecology Lab 1 Credit**

Laboratory experience accompanying ENS 316. Includes some outdoor and off-campus investigations.

*Corequisites: Concurrent registration in ENS 316 is required. Offered: Spring, even # years. Special Notes:*

*This course carries cross-credit in biology.*

**ENS 318KZ • Ecology in the Tropics: Natural History and Future Prospects 4 Credits**

Travel in Ecuador or Kenya surveying the land, climate, plants, animals, homes, transportation, and industries, noting especially the impact of human presence. Kenya includes Nairobi, African savanna, the Rift valley, and Masai Mara. Ecuador includes the Amazon rainforest, Andean cloud forests, volcanic mountains, highlands, towns, cities, and the Galapagos Islands.

*Prerequisites: GES 104; Laboratory Science (D) course; Mathematics (M) course. Offered: January. Special Notes: This course carries cross-credit in biology and general studies.*

**ENS 330 • Ecology 3 Credits**

Structure and function of wild nature. Topics include: interrelationships of organisms with their environments, factors that regulate such interrelationships, and various roles that humans play in modifying patterns and processes of nature at organism, community, and ecosystem levels.

*Prerequisites: BIO 218 (may be taken concurrently). Corequisites: Concurrent registration in ENS 331 is required. Offered: Fall, odd # years. Special Notes: This is a designated research course. This course carries cross credit in biology.*

**ENS 331 • Ecology Lab 1 Credit**

Laboratory experience accompanying BIO 330.

*Corequisites: Concurrent registration in ENS 330. Offered: Fall, odd # years. Special Notes: This course carries cross credit in biology.*

**ENS 335K • Environmental Ethics 4 Credits**

Examines the intersection of science, society, and technology as it pertains to issues in environmental ethics. Moves from theory to application by concluding with a major research project on an applied issue in environmental ethics involving scientific data and technological choice.

*Prerequisites: Laboratory Science (D) course and Mathematics (M) course. Offered: January, Occasionally spring. Special Notes: This course carries cross-credit in philosophy.*

**ENS 399 • Introduction to Research 2 Credits**

An introduction to research methodology in the environmental sciences, with experience in the use of environmental literature and an examination of how to distinguish and evaluate different types of scientific writing and presentations. Experience in the development of a research proposal.

*Prerequisites: Major in biology or environmental science and BIO 218 or Major in biochemistry/molecular biology and BIO 124/BIO 124D and BIO 128/BIO 128D; Junior standing. Offered: Fall, Spring. Special Notes: This course carries cross-credit in biology.*

**ENS 481 • Internship in Environmental Science 3-4 Credits**

Off-campus field experience working with an environmental organization, business, or governmental agency.

*Prerequisites: Major in environmental science. Offered: Fall, Spring, Summer.*

**ENS 496 • Research in Environmental Science 1 Credit**

An opportunity to become involved in an independent research project of the student's choosing in some area of environmental studies. Experience in the collection, manipulation, analysis, and portrayal of information and development of skills needed to be effective in environmental research.

*Prerequisites: ENS 399; Completion or co-completion of a tagged research course; Consent of instructor. Offered: Fall, Spring, Summer. Special Notes: This course carries cross credit in biology.*

**ENS 497 • Advanced Research in Environmental Science 1 Credit**

Working under the supervision of a faculty mentor, students analyze the results of their original research completed in ENS 496 and write up their findings in a formal scientific paper. Results are presented in class and sometimes outside venues.

*Prerequisites: ENS 496 and Consent of instructor. Offered: Fall, Spring, Summer.*

**ENS 499 • Symposium 0 Credit**

The presentation of scientific research or internship experience. Culminates in a departmental symposium in which students present their original research or internship experience.

*Prerequisites: ENS 481 or ENS 497. Offered: Fall, Spring. Special Notes: This course carries cross credit in biology.*

**GEO 120 • Introduction to Geography 4 Credits**

Physical environment including weather, world climates, landforms, and natural vegetation. Humankind's response to geographical variations in terms of the use of land and sea, natural resources, population, economic activity, and political and social organization.

*Offered: Fall.*

**GEO 320K • History and the Human Environment 4 Credits**

Environmental and geographical background of human history. Agriculture, climate, energy resources, transportation, and diseases, especially as they have influenced the historical development of Western Europe and North America. Implications for current and future environmental concerns.

*Prerequisites: Laboratory Science (D) course and Mathematics (M) course. Offered: Spring. Special Notes: This course carries cross-credit in history.*

**GES 101 • Pre-Intercultural Engagement Preparation 0.5 Credits**

Prepares students to participate in a non-credit cross-cultural experience to fulfill the General Education Z-tag requirement. Includes introducing a method for reflecting on and analyzing an intercultural experience, assistance in creating a proposal for the Z-tag experience, and an opportunity to develop mid-experience exercises and activities for GES 102Z.

*Offered: Fall, Spring, Occasionally summer. Special Notes: Completion of GES 101 does not complete the Z-tag requirement, but is a prerequisite for GES 102Z. GES 101 must be taken before participating in the cross-cultural experience. This course is graded on an S/U basis.*

**GES 102Z • Post-Intercultural Engagement Processing 0.5 Credits**

Guided post-processing experience necessary for students to benefit fully from an independent cross-cultural experience to complete the General Education Z-tag requirement. Evaluates the method of reflection and analysis used during the intercultural experience, the implementation of the non-credit proposal approved in GES 101, and the mid-experience exercises and activities.

*Prerequisites: GES 101; Must be taken the semester following the completion of the independent cross-cultural experience. Offered: Fall, Spring, Occasionally summer. Special Notes: This course is graded on an S/U basis.*

**GES 103 • Writing Studio for Multilingual Students 1 Credit**

Focuses on knowledge and skills necessary for successful college-level academic research and writing in the U.S. Students apply reading and writing strategies to other course writing assignments. Instruction tailored to provide linguistic support for students who speak more than one language.

*Offered: Fall. Special Notes: This course is graded on an S/U basis.*

**GES 104 • Orientation to Study Abroad 0.5 Credits**

An orientation to a specific Bethel-led study-abroad course that helps orient students to important skills and intercultural knowledge related to the places visited in the particular course for which they have applied. Successful completion of this course is required before full acceptance into the study-abroad course is granted.

*Prerequisites: Consent of instructor. Offered: Fall. Special Notes: This course is graded on an S/U basis.*

**GES 107 • How Learning Works: Keys to College Success 4 Credits**

Equips students with essential study strategies to enhance cognitive skills. Through critical thinking and analysis of texts, students will use writing as a tool for reflection and personal growth, developing techniques to improve comprehension, communication, and academic success.

*Offered: Fall.*

**GES 109 • Orientation to College Studies 4 Credits**

Students understand and improve their approach to learning to enhance success in college. Strategies developed are directly applied to learning in the Christianity and Western Culture course as well as other courses taken during Fall term.

*Prerequisites: Consent of instructor. Corequisites: Concurrent registration in GES 130 is required. Offered: Fall. Special Notes: This course is required for provisionally admitted students.*

**GES 112 • College Composition 4 Credits**

Development of skills necessary for expressing oneself competently through writing. Emphasizes the writing process, critical thinking, sensitivity to audience, core documentation skills and responsibilities, and revision (with peer and instructor feedback).

*Offered: Fall, Spring.*

**GES 119 • Introduction to Bethel 4 Credits**

Introduces transfer students to resources to support and enhance their success at Bethel. Develops strategies to apply to learning in the Christianity and Western culture course as well as other courses taken during Fall term.

*Prerequisites: Consent of instructor. Corequisites: Concurrent registration in GES 130 is required. Offered: Fall. Special Notes: This course is required for provisionally admitted students.*

**GES 125 • Introduction to the Creative Arts 4 Credits**

Highlights the crucial experience of the creative arts; develops literacy in artistic language. Art forms may include dance, film, literature, music, theater, and visual arts. Stylistic, social, and historical contexts examined in light of various themes. Critical interaction and reflection from a variety of perspectives. Requires attendance at off-campus events.

*Offered: Fall, January, Spring.*

**GES 130 • Christianity & Western Culture 4 Credits**

Movements that influenced Europe and North America up through the Enlightenment. Explores with insight and empathy the writings and lives that influenced the course of world societies. Evaluates the diverse ways in which Christians have interacted with Western culture by shaping, absorbing, and criticizing the culture of the West.

*Offered: Fall, January, Spring.*

**GES 140 • Introduction to Wellbeing 2 Credits**

Explores many of the dimensions that influence wellbeing, including Spiritual, Cognitive, Emotional, Physical, Relational, and Meaning. Examines the dynamic interconnection between the dimensions. Students integrate foundational knowledge, experiences, and strategies to become successful whole and holy individuals not only in college but also throughout adult life.

*Offered: Fall, Spring.*

**GES 141 • Physiology of Wellness 4 Credits**

Synthesizes current evidence-based knowledge empowering healthy decisions around nutrition, fitness, emotional, and spiritual well-being. Identification of patterns of stress reduction through spiritual and physical health. Explanation of biological processes in the body. Analyzes the influence of culture, media, technology, and other factors on health.

*Offered: Fall, Spring.*

**GES 144 • Beginning Tennis 1 Credit**

Basic tennis strokes. Includes instruction, drills, practice, and playing time. Covers rules, simple strategy, player position, etiquette, and guidelines for equipment selection.

*Offered: Fall, Spring.*

**GES 145 • Humanities I: Greco-Roman through Middle Ages 4 Credits**

The first course in the Humanities Program focuses on great writings and works of art, music, and theatre from the Greeks through the Middle Ages. Likely figures for study include Homer, Thucydides, Plato, Virgil, Augustine, Anselm, and Dante.

*Offered: Fall. Special Notes: Completing GES 145 and GES 147 replaces GES 125.*

**GES 147 • Humanities II: Renaissance and Reformation 4 Credits**

The second course in the Humanities Program considers significant figures, movements, and texts in the Renaissance and the Reformation era. Likely figures for study include Luther, Calvin, Erasmus, Renaissance and Baroque artists, Machiavelli, Petrarch, and Shakespeare.

*Prerequisites:* GES 145. *Offered:* January. *Special Notes:* Completing GES 145 and GES 147 replaces GES 125.

**GES 149 • Humanities III: Enlightenment to Modernity 4 Credits**

Final course in the Humanities Program. Begins with great texts of the European Enlightenment and goes into modernity in the post-World War II era. Likely figures and themes include Voltaire, Rousseau, Burke, Paine, Mary Shelley, Frederick Douglass, Marx, Nietzsche, Freud, jazz, modern art, Nella Larsen, and Martin Luther King Jr.

*Prerequisites:* GES 147. *Offered:* Spring. *Special Notes:* Completing GES 149 replaces GES 130 and GES 160.

**GES 150 • Introduction to Art Appreciation 4 Credits**

Cultivation of critical reading and writing skills through examination of artistic “texts” from a variety of genres: literature, drama, cinema, music, or the visual arts. Discerns the rich dimensions of the texts—technique, genre, social-historical context—and reflects on their spiritual significance.

*Offered:* Occasionally.

**GES 152 • Yoga 1 Credit**

Development of physical fitness and self-awareness through core stabilizing and strengthening exercises as an integral part of health and wellness. Emphasis on the integration of Christian faith and exercise while learning correct postures, alignments, and focus.

*Offered:* January. *Special Notes:* Students must provide their own exercise/yoga mat.

**GES 160 • Inquiry Writing Seminar 4 Credits**

While exploring a topic of interest, students learn college-level skills in research, writing, and presentation. Collect, summarize, and evaluate sources. Formulate, develop, and support a thesis; document; plan, draft, edit. Consideration of rhetorical situation (purpose, audience, message). Develop, organize, and deliver oral presentations. Formative feedback from peers and instructor.

*Offered:* Fall, Spring.

**GES 181 • Disc Golf 1 Credit**

An introduction to the game of disc golf. Includes history, equipment, etiquette, rules, technique, scoring, and playing of the sport.

*Offered:* Fall.

**GES 182 • Slow Pitch Softball 1 Credit**

Fundamental skills of slow-pitch softball for the recreational player.

*Offered:* Spring.

**GES 183 • Walk, Jog, Run 1 Credit**

Basic introduction to running for health. Students learn to monitor heart rates as they process from a walking/jogging base to runs of up to an hour in length. Proper warmup and recovery are stressed. Students begin with workouts appropriate to their fitness levels and set goals appropriate for those levels.

*Offered:* Fall, Spring.

**GES 184 • Pickleball 1 Credit**

Fast paced net game with similarities to tennis, badminton, table tennis, and racquetball; content includes rules, strategies, techniques, and court positioning for singles and doubles, and extensive active practice and play.

*Offered:* Spring.

**GES 203 • Writing Studio for Multilingual Students 1 Credit**

Focus on knowledge and skills necessary for successful college-level academic research and writing in the U.S. Students apply reading and writing strategies to other course writing assignments. Instruction tailored to provide linguistic support for students who speak more than one language.

*Offered:* Spring. *Special Notes:* This course is graded on an S/U basis.

**GES 302K • Lethal Microbes 4 Credits**

Despite amazing scientific and technical successes in medicine in the last century, diseases like AIDS, tuberculosis, and malaria confront us today with both national and global healthcare crises. Living with the lethal microbes responsible for these diseases requires careful inquiry about these organisms and their wide impact on human society.

*Prerequisites: Laboratory Science (D) course and Mathematics (M) course. Offered: Occasionally.*

**GES 303K • Genetics, Ethics and the Law 4 Credits**

Study of the ethical and legal dilemmas created by recent advances in biotechnology. Focus on the question of what direction the law should take, specifically patent, family, and criminal law. Explores the struggle between the Christian worldview, rapid changes in science, and society's resolution of the questions these changes produce.

*Prerequisites: Laboratory Science (D) course and Mathematics (M) course. Offered: Occasionally.*

**GES 305K • Anatomy of a Pandemic 4 Credits**

The history, biology, and social and global impact of infectious diseases such as the bubonic plague, influenza, HIV/AIDS, and emerging pathogens. Evaluates technological advances that contribute to the treatment of infectious diseases, vaccine development, and modern epidemiology. Considers social factors related to disease ecology and the availability of medical treatment.

*Prerequisites: Laboratory Science (D) course and Mathematics (M) course. Offered: Occasionally January.*

**GES 307K • Natural Resources: Use Them but Don't Lose Them 4 Credits**

A consideration of the use and management of natural resources and their impact on society and vice versa. Primary resources considered include forests, agricultural land, and geologic/mineral resources. Global Positioning System (GPS) and Geographic Information System (GIS) technologies are spotlighted as key management tools.

*Prerequisites: Laboratory Science (D) course and Mathematics (M) course. Offered: Occasionally.*

**GES 309K • Biology of the Mind 4 Credits**

Survey of contemporary technologies and studies of brain structure and function and their relation to cognitive abilities and emotion. Introduction to modern technologies of brain mapping such as MRI, PET, and CAT scans. Combines neuroscience, philosophy of self, psychology, linguistics, and sociobiology.

*Prerequisites: Laboratory Science (D) course and Mathematics (M) course. Offered: Occasionally January.*

**GES 311K • Forensics: The Science of Crime 4 Credits**

An introduction to the roles that biology, chemistry, physics, and psychology play in criminal investigations. Discovery, identification, and comparison of physical evidence using various current techniques. Discussion of the processes and limitations of scientific knowledge.

*Prerequisites: Laboratory Science (D) Course and Mathematics (M) course. Offered: Occasionally fall, January, Spring.*

**GES 312G • Disability and Society 4 Credits**

Exploration of ideologies of disability including medical, moral, rehabilitative, and minority approaches. Identification of the social, economic, religious, and other barriers faced by people with disabilities. International perspectives on disability, as well as the concept of a "disability culture."

*Prerequisites: [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Occasionally January.*

**GES 314K • Stem Cells, Cloning, and Reproductive Technologies 4 Credits**

Stem cells, cloning, reproductive technologies, gene therapy, and drug production are all applications of biotechnology. Examines these applications along with their influence and impact on society.

*Prerequisites: Laboratory Science (D) course and Mathematics (M) course. Offered: Occasionally.*

**GES 317KZ • Science and Technology in New Zealand 4 Credits**

Exploration of historical development of science and technology in New Zealand, including current challenges. Topics include: inventions and inventors, health care, unique technologies, native and invasive species, sea life, earthquakes, hot springs, and volcanic activity in the context of historical Maori and British colonial cultures leading to the present day.

*Prerequisites: GES 104; Laboratory Science (D) course; Mathematics (M) course. Offered: January.*

**GES 318KZ • Ecology in the Tropics: Natural History and Future Prospects 4 Credits**

Travel in Ecuador or Kenya surveying the land, climate, plants, animals, homes, transportation, and industries, noting especially the impact of human presence. Ecuador includes the Amazon rainforest, Andean cloud forests, volcanic mountains, highlands, towns, cities, and the Galapagos Islands. Kenya includes Nairobi, African savanna, the Rift valley, and Masai Mara.

*Prerequisites:* GES 104; Laboratory Science (D) course; Mathematics (M) course. *Offered:* January. *Special Notes:* This course carries cross-credit in biology and environmental studies.

**GES 322K • Cancer: Science and Society 4 Credits**

The biology of cancer; the technologies of cancer diagnosis and treatment; and some social, family, and personal impacts of this disease.

*Prerequisites:* Laboratory Science (D) course and Mathematics (M) course. *Offered:* Occasionally.

**GES 326K • Plants and People 4 Credits**

The history, principles, and technology used to domesticate and improve food and beverage crops, lumber, cloth and rope fiber, medicinal, and herbal plants for human use. Emphasizes modern technologies to increase quality, shelf life, transportability, yield, pest resistance, growing season, and soil type tolerances. Includes technologies that raise ethical issues.

*Prerequisites:* Laboratory Science (D) course and Mathematics (M) course. *Offered:* Occasionally.

**GES 328K • Nutrition: The Total Diet 4 Credits**

Investigates the science of interactions between proper nutrition and weight management and examines the appropriate ethical, and perhaps limited, use of technology as a means to reverse obesity. Topics include how hormonal imbalances and genetic alterations may result in failure to regulate appetite and metabolism.

*Prerequisites:* Laboratory Science (D) course and Mathematics (M) course. *Offered:* Occasionally.

**GES 330KZ • History of Science in Europe 4 Credits**

Study of scientists and their discoveries throughout history within the context of an experiential learning opportunity in Europe. Astronomy, biology, chemistry, engineering, mathematics, medicine, and physics are addressed. Evaluation of the effect on society of these disciplines included.

*Prerequisites:* GES 104; Laboratory Science (D) course; Mathematics (M) course. *Offered:* January.

**GES 338K • Great Controversies in Science and Technology 4 Credits**

Overview of great scientific controversies past and present. Topics include: science versus religion, age of the earth, evolution and creation, global warming, and energy issues. Relationships between science and society with particular emphasis on discerning the difference among scientific results, popular consensus, and societal pressures.

*Prerequisites:* Laboratory Science (D) course and Mathematics (M) course. *Offered:* Occasionally January.

**GES 339K • Nano: Small Science, Big Ideas 4 Credits**

Investigation of nanotechnology: the science of very small things and their strange, unexpected behavior. Why and how nanotechnology is being applied to solve some of our greatest challenges in energy, medicine, and healthcare. Societal and environmental impacts and ethical concerns from a Christian perspective are explored.

*Prerequisites:* Laboratory Science (D) course and Mathematics (M) course. *Offered:* Occasionally.

**GES 355 • Advanced Writing Studio for Multilingual Students 1 Credit**

Students apply reading and writing strategies to writing lengthy assignments in advanced courses. Students are expected to take the studio in conjunction with a class that requires substantial writing and research. Instruction tailored to provide linguistic support for students who speak more than one language.

*Offered:* Fall. *Special Notes:* This course is graded on an S/U basis.

**GES 390K • Decision-Making and Medical Technology 4 Credits**

Health technologies that may be both harmful and beneficial to human health are explored from the perspectives of ethical decision making, psychosocial dynamics, faith, and health policy formation. Topics include: genetic testing, contraceptives, intensive treatment of newborns, assisted reproduction organ transplantation, enhancement technologies, aging, and end-of-life decisions.

*Prerequisites:* Laboratory Science (D) course and Mathematics (M) course. *Offered:* Fall, Spring.

**GES 407P • Women's Lives, Women's Choices 2 Credits**

Female experience during adolescence and adulthood, emphasizing female socialization and potential adult roles. Personal experiences, future life choices, and their consequences in light of the course content and Christian faith.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.

**GES 409P • Christian Leadership in a Secular World 2 Credits**

Current issues facing Christian leaders today. The formulation of a personal biblical approach to leadership to enable one to impact society. A variety of personal decisions that are designed to facilitate knowing oneself and understanding one's own responses in various situations.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.

**GES 412P • The Plot Thickens: Character Growth in Literature and Life 2 Credits**

Discussion of novels and short stories, examining characters and their values, and responses in the face of complex life situations. Insights of narrative theologians used to think about building character as individuals and the role of the community in this process.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.

**GES 413P • Women's Spiritual Experience 2 Credits**

Exploration of diverse women's spiritual experiences by reading spiritual autobiographies, biblical feminist writings, and research on gender and religion. Discussion of how gender influences religious institutions and Christian women's faith. Students write their spiritual autobiography.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.

**GES 420P • Bioethics 2 Credits**

How technological advances have increased our abilities to conceive, sustain, and alter human lives. How to make morally responsible decisions that shape a just society. Moral issues such as healthcare practices, reproductive methods, allocation of healthcare resources, and biomedical research.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Fall, Occasionally January, Spring.

**GES 425P • Censorship and Freedom of Expression 2 Credits**

Censorship from the perspective of various disciplines, such as psychology, theology, literature, history, and art. Key issues and formulation of student's own positions.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.

**GES 426P • Family Interaction 2 Credits**

An integration of a Christian worldview related to the contemporary family unit; styles of parenting, issues of grief, power, stress, intimacy, and wholeness. The family system in light of contemporary trends and Christian choices. Communication patterns are examined and evaluated.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Fall, Spring.

**GES 433P • Biblical Spirituality: Experiencing God 2 Credits**

A study of spirituality in a variety of biblical texts, both Old and New Testament. Essential issues related to spirituality, including: What is spirituality? What are biblical teachings regarding prayer, worship, and spiritual disciplines? How do we interpret biblical texts as paradigms for the contemporary practice of spirituality? .

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.

**GES 444P • Christians and Conflict 2 Credits**

Examines how we are called as Christians to respond to interpersonal conflicts that continually exist in our lives. Emphasizes many different types of interpersonal conflicts, including conflicts in friendships, marriages, parent/child relationships, workplaces, and churches. Analyzes conflict as it is currently portrayed in the media.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.

**GES 448P • Abusive Relationships and Christian Responsibility 2 Credits**

Explores different types of intimate violence using research from communication, psychology, and sociology. Examines the history of domestic violence, the prevalence of intimate violence, cycles of violence, and secular and Christian responses. Evaluates choices informed by Christian values, education, and personal experience. Develops personal strategies for responding to intimate violence.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally Fall, January, Spring.

**GES 449P • Chance or Design: Our Place in the Cosmos 2 Credits**

Exploration of recent advances in Big Bang cosmology and planetary science with an emphasis on apparent fine-tuning to conditions suitable for human life. Discussion of the possibility of extraterrestrial life. Analysis of design arguments, with the goal of developing a biblically sound view of our relationship to nature and God.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.

**GES 451P • Spirituality, Sexuality, and the Family 2 Credits**

Three powerful forces in everyday life that vitally affect people both personally and collectively. Both past and contemporary influences and experiences that are likely to impact people as they seek to make their personal sexuality, spirituality, and family relationships consistent with Christian values.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.

**GES 452P • Sports in Society 2 Credits**

Study of sports as a social phenomenon. Presentation of some of the basic elements involved in the interaction of the active human being. Includes sports and culture, sports in education, social stratification, race, and group dynamics.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Fall, January, Spring.

**GES 453P • Ethics and Faith in the Workplace 2 Credits**

Practical application of what it takes to function as a Christian in today's workplace. Emphasis on the transition from college to a professional environment, focusing on personal maturity, workplace ethics, and lifelong Christian growth and service.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally fall, January, Spring.

**GES 455P • Covenant Relationships: Marriage, Friendship, and Beyond 2 Credits**

An exploration of the relational dynamics of marriage, friendship, and Christian community within the context of the biblical concept of covenant relationship. Competing values within contemporary Western culture (e.g., individualism, hedonism) are explored and critiqued in light of the values associated with covenant community.

*Prerequisites:* Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Fall, Occasionally January, Spring.

**GES 457 • Advanced Writing Studio for Multilingual Learners 1 Credit**

Students apply reading and writing strategies to writing lengthy assignments in advanced courses. Students are expected to take the studio in conjunction with a class that requires substantial writing and research. Instruction tailored to English Language Learners (international or immigrant students from non-English speaking backgrounds).

*Offered: Fall, Spring. Special Notes: This course is graded on an S/U basis.*

**GES 463P • Masculinity Past and Present 2 Credits**

Study of how men have understood their identities as men in different historical contexts, including the present. While strength, individuality, and aggression may seem paramount, many societies have emphasized moral ideas like piety, cooperation, and self-control. Encourages critical evaluation of how gender helps construct personal identity.

*Prerequisites: Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. Offered: Occasionally.*

**GES 477 • Career Skills Internship 0 Credit**

A structured opportunity to develop major-specific skills under professional supervision. Must be related to the student's career goals and requires a minimum of 45 work hours. Includes a resume review, one meeting with a career coach, a mid- and end-of-term evaluation, and one feedback meeting with the on-site supervisor.

*Prerequisites: Consent of instructor. Offered: Fall, Spring, Summer. Special Notes: This course is graded on an S/U basis.*

**GRK 101 • Introductory Biblical Greek I 4 Credits**

Study of New Testament Greek for beginning students. Use of the New Testament to build a basic vocabulary and understanding of the elements of grammar and syntax.

*Offered: Fall.*

**GRK 102S • Introductory Biblical Greek II 4 Credits**

Continuation of the study of New Testament Greek for beginning students. Use of the New Testament to build a basic vocabulary and understanding of the elements of grammar and syntax.

*Prerequisites: GRK 101. Offered: Spring.*

**GRK 103 • Introduction to Biblical Greek 1A for Spanish Speakers 2 Credits**

Provides Spanish-speaking students (or non-native speakers or Spanish majors who have gained proficiency in the language) with a basic introduction to New Testament (Koine) Greek. Focus on vocabulary building, comprehension of basic grammatical concepts and practice in translating passages from the Greek New Testament.

*Prerequisites: Consent of instructor. Offered: Occasionally.*

**GRK 104 • Introduction to Biblical Greek 1B for Spanish Speakers 2 Credits**

Provides Spanish-speaking students (or non-native speakers or Spanish majors who have gained proficiency in the language) with a basic introduction to New Testament (Koine) Greek. Focus on vocabulary building, comprehension of basic grammatical concepts and practice in translating passages from the Greek New Testament.

*Prerequisites: GRK 103 or Consent of instructor. Offered: Occasionally.*

**GRK 105 • Introduction to Biblical Greek IIA for Spanish Speakers 2 Credits**

Second half of a two-part introduction to New Testament (Koine) Greek. Greek II focuses on vocabulary building, comprehension of basic grammatical concepts, and practice in translating passages from the Greek New Testament, with special focus on the latter.

*Prerequisites: GRK 104 or Consent of instructor. Offered: Occasionally.*

**GRK 106 • Introduction to Biblical Greek IIB for Spanish Speakers 2 Credits**

Second half of a two-part introduction to New Testament (Koine) Greek. Greek II focuses on vocabulary building, comprehension of basic grammatical concepts, and practice in translating passages from the Greek New Testament, with special focus on the latter.

*Prerequisites: GRK 105 or Consent of instructor. Offered: Occasionally.*

**HCE 481 • Healthcare Related Internship 0 Credit**

A learning internship experience of 135 hours. Apply understanding and skills in an off-campus, professional healthcare setting. Internship can be included in a student's major (students register for both the departmental and the healthcare endorsement internship) or students can choose to enroll only in the healthcare endorsement internship.

*Prerequisites: A declared healthcare endorsement. Offered: Fall, Spring, Summer.*

**HCE 491 • Culminating Project 0 Credit**

A culminating project that demonstrates both knowledge developed through completing a major and experience gained through the healthcare endorsement. The culminating project may incorporate elements of the endorsement in a project for the major or it may be a separate project created exclusively for the endorsement.

*Prerequisites: A declared healthcare endorsement. Offered: Fall, Spring, Summer.*

**HEB 101 • Introductory Biblical Hebrew I 4 Credits**

Study of Old Testament Hebrew. Designed for the beginning student. The Old Testament is used to build a basic vocabulary and understanding of the language's phonology, morphology, basic syntax, and semantics.

*Offered: Occasionally.*

**HEB 102S • Introductory Biblical Hebrew II 4 Credits**

Further study of Old Testament Hebrew. Designed for the beginning student. The Old Testament is used to build a basic vocabulary and understanding of the language's phonology, morphology, basic syntax, and semantics.

*Prerequisites: HEB 101. Offered: Occasionally.*

**HIS 200L • History of the United States 4 Credits**

Exploration of United States history from early Native American communities to the present. Particular attention paid to primary sources that allow for an examination of the interaction of social, cultural, economic, political, and religious movements.

*Prerequisites: GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: Fall.*

**HIS 205U • History of China, Japan, and Korea 4 Credits**

History and cultures of East Asia. Religion; economic development and trade; and family, social, and political organization. Primary focus on China, Korea, and Japan.

*Prerequisites: GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: Fall, Spring.*

**HIS 212U • History of Islam 4 Credits**

Islam from its inception and development to Islam as it is practiced today. Students interact with members of the Islamic community in Minnesota in an attempt to understand Islam from the personal experiences of Muslims. Contemporary issues and controversies are examined through the lens of the Muslim experience throughout history.

*Prerequisites: GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: Spring. Special Notes: This course carries cross-credit in religious studies.*

**HIS 216L • American Constitutional History 4 Credits**

Examination of the origins and development of American constitutional ideas and institutions from the colonial period to the present. Particular attention paid to the historical connections between major constitutional cases and broader social, political, economic, and cultural trends.

*Prerequisites: GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: Spring. Special Notes: This course carries cross-credit in political science.*

**HIS 223L • History of the American West 4 Credits**

Examines the history of the American West from 1492 to the present. Particular attention to the interaction and competition of different cultures; the construction of political, economic, and religious institutions; and the physical environment, its representations, and its symbolic importance in the broader context of American history.

*Prerequisites:* GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).

*Offered:* January, odd # years.

**HIS 230L • World War I 4 Credits**

An in-depth look at the shock that engulfed the Western world with World War I from the turn of the 20th century, through the initial welcome of "cleansing" annihilation in 1914, to bleak 20th century disillusionment. World War I songs, literature, and artwork carefully examined as artifacts of this period.

*Prerequisites:* GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).

*Offered:* Summer.

**HIS 231L • World War II 4 Credits**

The causes, course, conclusion, and legacy of World War II, particularly as experienced by the people of China, France, Germany, Great Britain, Japan, Russia, and the United States. Topics include collaboration and resistance, genocide, the war in film, remembrance and forgetting, and the social and economic impacts of the war.

*Prerequisites:* GES 104; GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently). *Offered:* January, even # years.

**HIS 236UZ • Medieval Worlds: Cultures and Beliefs in North Africa and Europe 4 Credits**

On-site investigation of intercultural relations in medieval and modern Europe and North Africa, and how the many different kinds of historical identity, whether Christian, Muslim, or Jew, still reverberate today. Studies the complex history of the region and promotes principles of effective modern pluralism through cross-cultural interaction.

*Prerequisites:* GES 104; GES 130 or GES 149. *Offered:* January, even # years. *Special Notes:* This course carries cross-credit with philosophy.

**HIS 241L • Revolution and Political Development 4 Credits**

Theory and process of modernization, with special emphasis on the Anglo-American historical experience; examination of U.S. efforts to promote democracy internationally in Europe, Asia, and the Middle East since World War II.

*Prerequisites:* GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).

*Offered:* Occasionally January. *Special Notes:* This course carries cross-credit in political science.

**HIS 252L • History and Politics of Sports 4 Credits**

The history of sports in the modern era, with particular attention paid to sports' connections to international politics and public policy and to sports as a mirror for the history of race, gender, education, business, labor, and religion in the United States.

*Prerequisites:* GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).

*Offered:* Spring, even # years. *Special Notes:* This course carries cross-credit in political science.

**HIS 290 • Introduction to History 2 Credits**

An introduction to the methodology and philosophy of history, with particular emphases on preparing students for historical research and writing, on the public uses of history, and on the discipline as a Christian vocation.

*Offered:* Fall, Spring.

**HIS 302 • History of Sexuality in the United States 4 Credits**

An examination of the history of sexuality from the colonial period to the present. Particular attention to the impact of religion, culture, government, science, and economics on the formation of sexual mores and identities, and the relationship between sexuality and gender, race, ethnicity, age, and class.

*Prerequisites:* Sophomore standing. *Offered:* Spring, even # years.

**HIS 305G • The Cold War 4 Credits**

The Cold War as an event in international history, studied from the perspective of the United States, the Soviet Union, China, Europe, and the Third World. Introduction to ongoing historical debates and to the sources historians use in those debates.

*Prerequisites:* [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course.* *Offered:* Fall, even # years. *Special Notes:* This course carries cross-credit in political science.

**HIS 310 • History of Ancient Greece 4 Credits**

Study of Greece from Homer and the Bronze Age through the development of citizenship in the Classical period to the empire of Alexander and the Hellenistic world. Focus on democratic Athens, conflicts with Persia and Sparta, and cultural achievements in art, literature, philosophy, and theater.

*Prerequisites:* GES 130 or GES 145; *Sophomore standing.* *Offered:* Fall, even # years.

**HIS 311 • History of Ancient Rome 4 Credits**

Roman history from their origins through their achievement of a world empire to their fall and medieval transition. Topics studied include politics, government, art, philosophy, gender, and religion as well as the emergence and growth of the Christian church.

*Prerequisites:* GES 130 or GES 145; *Sophomore standing.* *Offered:* Spring.

**HIS 312 • Medieval Europe 4 Credits**

Historical developments in Western Europe from the reign of Constantine to the era of Petrarch (A.D. 325-1350). Broad cultural, economic, political, social, and religious patterns, with emphasis on the development of the church in its social context.

*Prerequisites:* GES 130 or GES 145; *Sophomore standing.* *Offered:* Occasionally.

**HIS 320K • History and the Human Environment 4 Credits**

Environmental and geographical background of human history. Agriculture, climate, energy resources, transportation, and diseases, especially as they have influenced the historical development of Western Europe and North America. Implications for current and future environmental concerns.

*Prerequisites:* *Laboratory Science (D) course and Mathematics (M) course.* *Offered:* Spring. *Special Notes:* This course carries cross-credit in geography.

**HIS 324G • Human Rights in International History 4 Credits**

International and comparative exploration of how human rights have been defined, violated, and protected. Historical topics (e.g., abolition of the slave trade, social reform and Christian missions, genocides of the 20th century) as well as contemporary issues.

*Prerequisites:* [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course.* *Offered:* Occasionally. *Special Notes:* This course carries cross-credit in political science.

**HIS 328G • Muslim Women in History 4 Credits**

Global survey of the lives of Muslim women from the 7th century to the present. Examination of how Muslim women's lives have historically been shaped by their social context, with particular attention to religious interpretation and expression, culture, ethnicity, and geographic location.

*Prerequisites:* [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course.* *Offered:* Occasionally. *Special Notes:* This course carries cross-credit in religious studies.

**HIS 329 • African Politics 4 Credits**

Consideration of political development in Africa from the pre-colonial era through the present, focusing on changes in political regimes through time, the nature of economic struggles, and sources of violent conflict.

*Offered:* Spring, even # years. *Special Notes:* This course carries cross-credit in political science.

**HIS 333 • Crime and Punishment in the United States 4 Credits**

An examination of the historical study of crime in the United States. Particular attention to historical patterns of violence, the role and organization of the police, and the evolution of punishment in theory and practice as well as the differences in crime and punishment by race, gender, and age.

*Prerequisites:* *Sophomore standing.* *Offered:* Spring, odd # years.

**HIS 345 • Modern Political Thought 4 Credits**

In-depth examination of selected political thinkers such as Locke, Rousseau, Mill, Nietzsche, Kuyper, Rawls, and Taylor. Concentrates on primary sources.

*Prerequisites:* One course in political science, philosophy, or history and Sophomore standing. *Offered:* Fall, even # years. *Special Notes:* This course carries cross-credit in political science and philosophy.

**HIS 354 • Modern Europe 4 Credits**

The social, political, diplomatic, intellectual, and religious history of Europe since 1750. Key themes include political reforms and revolutions, gender roles, industrialization, migration, nationalism, imperialism, total war, totalitarianism, genocide, decolonization, and secularization.

*Prerequisites:* GES 130 or GES 149; Sophomore standing. *Offered:* Fall, odd # years.

**HIS 356 • Modern Middle East 4 Credits**

Political, social, religious, economic, and cultural history of the Middle East since 1800. Particular attention is paid to colonialism, globalization, war, gender roles, revolution, and reform. Discussion of controversies such as the Arab/Israeli conflict, the Islamic Revolution in Iran, Saddam Hussein's Iraq, and the U.S. war on terror.

*Prerequisites:* Sophomore standing. *Offered:* Fall. *Special Notes:* This course carries cross-credit in political science.

**HIS 360 • Classical Political Thought 4 Credits**

In-depth examination of selected political thinkers such as Plato, Aristotle, Cicero, Marcus Aurelius, Augustine, Thomas Aquinas, Machiavelli, and Hobbes. Concentrates on primary sources.

*Prerequisites:* One course in political science, philosophy, or history and Sophomore standing. *Offered:* Fall, odd # years. *Special Notes:* This course carries cross-credit in philosophy and political science.

**HIS 400 • Research in History 4 Credits**

An opportunity to work with a member of the history faculty on a major research project.

*Prerequisites:* Major in history; Coursework appropriate to the area of research; Invitation of supervising faculty member; Consent of department. *Offered:* Occasionally. *Special Notes:* No student may take more than eight credits in HIS 400 and/or directed study.

**HIS 481 • Internship in History 1-4 Credits**

A practical experience in applying academic skills in an off-campus setting under the dual supervision of a history faculty member and a practicing historian or related professional. Designed by student in consultation with history department faculty.

*Prerequisites:* Major in history. *Offered:* Occasionally.

**HIS 491 • Applied Humanities Seminar 4 Credits**

An interdisciplinary, experiential capstone course in which students draw on their studies in history, philosophy, political science, or the digital humanities in order to study a major challenge in contemporary society, analyzing causes, effects, and existing responses; and then work to propose new responses to it.

*Prerequisites:* Senior standing and Major in one of the following programs: business and political science, history, international relations, applied philosophy, political science, or social studies education 5-12. *Offered:* Fall, Spring. *Special Notes:* This course carries cross-credit with philosophy and political science.

**HON 001 • Scholarship Project 0 Credit**

A research project done in collaboration with the Honors Program and an additional course of the student's choosing.

*Prerequisites:* HON 160; Acceptance into the Pietas Honors Program. *Corequisites:* Concurrent registration in a course that corresponds to honors research project. *Offered:* Fall, January, Spring. *Special Notes:* This course is graded on an S/U basis.

**HON 002 • Stewardship Project 0 Credit**

A significant leadership or service position done in collaboration with the Honors Program.

*Prerequisites:* HON 160 and Acceptance into the Pietas Honors Program. *Offered:* Fall, January, Spring. *Special Notes:* This course is graded on an S/U basis.

**HON 160 • Pietas Seminar I 4 Credits**

Introduces the value of a liberal arts education in the Christian tradition and key facets of the Pietas Program. While exploring a specific topic of interest, the seminar promotes the establishment of community among students and faculty. Instruction and practice in writing, as well as preparing and delivering oral presentations.

*Prerequisites:* Admission to the Pietas Honors Program. *Offered:* Fall, Spring. *Special Notes:* This course fulfills the Inquiry Writing Seminar (GES 160) General Education requirement.

**HON 300G • Pietas Seminar II 4 Credits**

Analysis and evaluation of community in varying contexts. Investigation of different models of community through reflection, experiential learning, film, fiction, and non-fiction.

*Prerequisites:* HON 160; Admission to the Pietas Honors Program; [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. *Offered:* Spring.

**HON 305K • Pietas Seminar III 4 Credits**

Contemporary and historical topics illustrate societal and cultural interactions with concurrent developments in science and technology. Examples of personal and corporate decision-making processes are stressed, thereby working toward a goal of preparation and motivation for responsible citizenship.

*Prerequisites:* Laboratory Science (D) course and Mathematics (M) course; Admission to the Pietas Honors Program. *Offered:* Fall.

**HON 464P • Pietas Seminar IV 2 Credits**

Collaboratively research, discuss, evaluate, and address an interdisciplinary issue of contemporary civic importance. Synthesize work completed in other Honors courses and projects as well as reflect on the role of faith in the life of Christian scholarship.

*Prerequisites:* HON 160; HON 300G; HON 305K; Senior standing; [GES 149 or GES 160]; THE 201; [Contemporary Western Life and Thought (L) course or Comparative Systems (G) course] or World Cultures (U) course]. *Offered:* Spring.

**LEA 101 • Personal Mission and Leadership Development 2 Credits**

Development of an understanding of personal mission and a study of the application of that mission to leadership. Emphasis is on identifying personal talents and gifts, and developing leadership goals for future roles.

*Offered:* Fall, Spring.

**MAT 101M • Mathematics for the 21st Century 4 Credits**

Mathematical ideas that a liberally educated person should be familiar with in order to function well in a technological society.

*Prerequisites:* Two years of high school algebra, including logarithms and exponential functions. *Offered:* Fall, Spring. *Special Notes:* This course carries cross-credit with MATH 180.

**MAT 102M • Creative Problem Solving 4 Credits**

Learn to use creative thinking and intuition to gain confidence in understanding and solving some intriguing problems in mathematics.

*Prerequisites:* High school algebra and geometry. *Offered:* January.

**MAT 121M • Precalculus 4 Credits**

Mathematics topics required for MAT 124M or further study in the natural sciences. Equations and inequalities; graphs of functions and relations; polynomial, rational, exponential, logarithmic functions; trigonometric functions, identities, equations, and applications.

*Prerequisites:* A course in Geometry; Two years of high school algebra. *Offered:* Spring.

**MAT 122 • Calculus 1 Corequisite 2 Credits**

Concepts, strategies, and skills necessary to succeed in MAT 124M.

*Prerequisites:* Placement at MAT 122 or higher on the Math and Computer Science department placement exam; MAT 121M or equivalent high school or college course(s). *Offered:* Fall. *Special Notes:* Designed to give increased support to students concurrently taking MAT 124M.

**MAT 124M • Calculus 1 4 Credits**

A mathematical foundation for future college courses and beyond. Introduces the concepts and methods of the derivative and the integral, demonstrating how they are applied in real-world modeling situations. Topics are examined graphically, numerically, and algebraically, including using a symbolic computer algebra system to aid with understanding.

*Prerequisites:* Placement at MAT 124M on the Math and Computer Science department placement exam; MAT 121M, concurrent enrollment in MAT 122, or equivalent high school or college course(s). Offered: Fall, Spring.

**MAT 125 • Calculus 2 4 Credits**

A continuation of the equipping of students with tools for effective problem solving. Study of integration, sequences and series, and introduction to differential equations and approximation techniques. Each topic is approached from several viewpoints (graphical, numerical, algebraic) to involve students with different learning styles.

*Prerequisites:* MAT 124M with a C- or higher. Offered: Fall, Spring.

**MAT 201M • Mathematics for Elementary Education 1 4 Credits**

Introduction to problem solving; patterns and sequences; systems of numeration; sets and logic; concepts, operations, and algorithms for each subset of the real numbers; elementary number theory; concepts and applications of ratios, proportions, and percents; data analysis, statistics, combinations/permutations, and probability.

*Prerequisites:* Major in elementary education; minimum ACT mathematics score of 24, minimum SAT mathematics score of 580 or satisfactory completion of Bethel's online Math for Elementary Education prep course; 15 college-level credits completed. Offered: Fall, Spring. Special Notes: MAT 201M may not be used to fulfill the requirements for a major or minor in mathematics.

**MAT 202 • Mathematics for Elementary Education 2 2 Credits**

Problem-solving and reasoning strategies; algebraic expressions, equations, and functions; concepts and applications of two- and three-dimensional geometry and measurement.

*Prerequisites:* MAT 201M with a C or higher. Offered: Fall, Spring. Special Notes: MAT 202 may not be used to fulfill the requirements for a major or minor in mathematics.

**MAT 207M • Statistical Analysis 4 Credits**

Descriptive and inferential statistics. Specific topics include discrete probability spaces, random variables, distributions, normal distribution, estimation, hypothesis testing, linear regression, correlation analysis. Possible additional topics include: analysis of variance, goodness-of-fit, and contingency tables. Applications to business, economics, and science.

*Offered:* Fall, January, Spring. Special Notes: Students may not receive credit for both MAT 207M and BUS 201M or PSY 230M. MAT 207M will not count toward the psychology minor elective credit requirement.

**MAT 211 • Linear Algebra 4 Credits**

Linear systems, matrices, vectors and vector spaces, linear transformations, inner products, norms, eigenvalues and eigenvectors, orthogonality, and applications. A foundation for many areas of study in mathematics, computer science, engineering, and science.

*Prerequisites:* MAT 125 with a C- or higher or MAT 242 with a C- or higher. Offered: Fall.

**MAT 222 • Differential Equations 4 Credits**

Analytic solution methods for ordinary differential equations, including special methods for first- and second-order systems, and transformation methods. Analysis of systems of differential equations using linear algebra and qualitative phase plane techniques.

*Prerequisites:* MAT 125 with a C- or higher. Offered: Spring. Special Notes: Students may not receive credit for both MAT 222 and MAT 224.

**MAT 223 • Multivariable Calculus 4 Credits**

Calculus of parametric curves: arc length, curvature, motion. Calculus of real functions on  $\mathbb{R}^n$ : partial and directional derivatives, multiple integration, optimization techniques (including Lagrange multipliers). Calculus of vector fields: curl, divergence, line and surface integrals, and fundamental theorems.

*Prerequisites:* MAT 125 with a C- or higher. Offered: Fall, Spring.

**MAT 224 • Differential Equations with Linear Algebra 4 Credits**

A synthesis of discrete and continuous dynamical systems (difference equations and differential equations) using linear algebra. Standard symbolic, numerical, and qualitative solution methods for differential equations along with relevant computations and theoretical concepts from linear algebra, including: matrix operations, vector spaces, basis, dimension, change of basis, eigenvalues, and diagonalization.

*Prerequisites:* MAT 125 with a C- or higher. *Special Notes:* Students may not receive credit for both MAT 224 and MAT 222. *Offered:* Fall.

**MAT 242 • Introduction to Proofs 2 Credits**

An introduction to mathematical reasoning skills with a focus on proof techniques such as direct and indirect proof, proof by contradiction, and mathematical induction. Also includes examination of sets, logic, and elementary number theory. Emphasis on mathematical communication.

*Prerequisites:* MAT 124M with a C- or higher. *Offered:* Fall, Spring.

**MAT 248 • Mathematics of Computer Science 4 Credits**

Covers a set of topics necessary to computer science majors, including algorithm analysis, relations, counting, graphs, trees, and finite probability theory.

*Prerequisites:* COS 110 with a C- or higher or COS 111 with a C- or higher; MAT 242 with a C- or higher. *Offered:* Spring.

**MAT 299 • Careers in Mathematics and Computer Science Seminar 0 Credit**

Explores careers in mathematics and computer science through a selection of videos, lectures, tours, or guest speakers. Activities may include developing practical professional skills such as writing resumes and cover letters, accumulating connections and experience, and techniques for interviewing.

*Prerequisites:* MAT 124M with a C- or higher. *Offered:* Fall.

**MAT 300 • Numerical Analysis 2 Credits**

A study of accuracy, efficiency, and robustness of algorithms for numerical approximations of roots, fixed points, functions (interpolation), integration, and solutions of ordinary differential equations. Other topics may include numerical linear algebra.

*Prerequisites:* MAT 125 with a C- or higher. *Offered:* Spring, odd # years.

**MAT 309 • Financial Mathematics 3 Credits**

Topics and problem-solving practice for the actuarial exam in financial mathematics. Theory of interest topics include: time value of money, annuities, cash flows, amortized loans, bonds, portfolios, and immunization. Financial economics topics include: derivatives, options, forwards and futures, swaps, hedging, and investment strategies.

*Prerequisites:* MAT 125 with a C- or higher. *Offered:* Fall, even # years.

**MAT 322 • Complex Analysis 4 Credits**

Extends the concepts of calculus and analysis to the complex setting. Topics include complex numbers, analytic functions, elementary functions, differentiation, integration, series, residues, and poles.

*Prerequisites:* MAT 125 with a C- or higher. *Offered:* Spring, odd # years. *Special Notes:* MAT 223 and MAT 242 are strongly recommended prerequisites.

**MAT 330 • Probability and Statistics 3 Credits**

Basic axiomatic probability, conditional probability and Bayes' Theorem, discrete and continuous random variables and their distributions, moment generating functions, multivariate random variables and transformations, stochastic processes, sampling distributions and estimators, confidence intervals, hypothesis testing, and an introduction to simple linear regression. Applications to actuarial science, data science, and engineering.

*Prerequisites:* MAT 125 with a C- or higher. *Offered:* Fall.

**MAT 331 • Advanced Probability and Statistics 3 Credits**

Review of probability and statistics, with more depth. Other topics may include: convolution, advanced estimation and hypothesis testing theory and applications, likelihood ratio test, Neyman-Pearson Lemma, best tests, Bayesian estimation, linear and multilinear regression, factor analysis, including analysis of variance and experimental design, chi-square test, and quality control.

*Prerequisites:* MAT 330 with a C- or higher. *Offered:* Spring, even # years.

**MAT 376 • Operations Research 3 Credits**

Mathematical techniques used in systems analysis, including linear programming, simulation techniques, and other topics such as transportation models, integer programming, and network analysis.

*Prerequisites:* COS 110 with a C- or higher or COS 111 with a C- or higher; MAT 211 with a C- or higher or MAT 224 with a C- or higher. *Offered:* Fall, odd # years.

**MAT 410 • Abstract Algebra 4 Credits**

Study of groups, rings, fields, and applications of these algebraic structures from a firm axiomatic foundation with a strong emphasis on properly written proofs.

*Prerequisites:* MAT 211 with a C- or higher and MAT 242 with a C- or higher. *Offered:* Spring.

**MAT 422 • Real Analysis 4 Credits**

Elementary set theory, properties of real numbers, functions of real variables, sequences, series, differentiation, Riemann integration, and introduction to topological concepts.

*Prerequisites:* MAT 223 with a C- or higher and MAT 242 with a C- or higher. *Offered:* Fall.

**MAT 441 • Combinatorics and Graph Theory 4 Credits**

Combinatorics: permutations, combinations, multinomial coefficients, and generating functions. Graph theory: graphs, connectivity, Eulerian tours, trees, matchings, planarity, and chromatic number.

*Prerequisites:* MAT 242 with a C- or higher. *Offered:* Fall, odd # years.

**MAT 451 • Modern Geometry 4 Credits**

An exploration of informal and formal geometric topics using dynamic mathematics software.

Investigation of concepts, structure, proof, Euclidean, non-Euclidean, and transformational geometry.

*Prerequisites:* MAT 242 with a C- or higher. *Offered:* Fall, even # years.

**MAT 490 • Topics in Mathematics 4 Credits**

An in-depth study of a specific field of mathematics.

*Prerequisites:* MAT 211 with a C- or higher and MAT 242 with a C- or higher. *Offered:* Occasionally.

**MAT 499 • Senior Seminar 2 Credits**

A short history of mathematics' major transition points, overview of foundations of mathematics, axiomatic structures, and philosophies of mathematics in relation to Christian faith.

*Prerequisites:* MAT 410 with a C- or higher or MAT 422 with a C- or higher; Senior standing. *Offered:* January.

**MIN 200 • A Framework for Life: The Christian Life, Vocation, and Ministry 4 Credits**

Introduction to the theology and practice of ministry. Presents a conceptual, theological, and biblical understanding of ministry. Develop a usable, working philosophy of ministry and a model for critical thinking about the practice of contemporary ministry.

*Prerequisites:* BIB 101 (may be taken concurrently). *Offered:* Fall.

**MIN 210 • Adolescent Development and the Family 4 Credits**

Understanding child/adolescent development in the physical, cognitive, moral, psycho-social, cultural, and spiritual arenas, along with examining family social systems and family dynamics. Focus on application to practical ministry.

*Prerequisites:* MIN 200. *Offered:* Fall, odd # years.

**MIN 215 • The Influential Life: Leadership and Ministry 4 Credits**

Explores leadership through the lens of ministry. Presents practical theologies of leadership to assist students in on-going work of discerning capacities for leadership in a variety of settings. Emphasizes pastoral, parachurch, non-profit, and missional leadership. Explores ministry as a career through personality assessments and job shadowing.

*Prerequisites:* MIN 200 or Consent of instructor. *Offered:* Spring.

**MIN 320 • The Spiritual Life: Formation and Ministry 4 Credits**

Dynamics of spiritual development and faith formation. Review of biblical, historical, and theological models as well as contemporary social science research. Emphasizes the spiritual and faith formation of both ministers and those to whom they minister, and the interrelatedness of evangelism and discipleship as well as counseling and referral.

*Prerequisites: MIN 200. Offered: Fall.*

**MIN 328 • The Missional Life: Mission of God and Ministry 4 Credits**

Explores the doctrine of the Trinity and its connections to the *missio Dei* (mission of God) and how God's mission influences our thinking and practice as the church, with a special emphasis on the context of North America.

*Prerequisites: BIB 101 or THE 201 and Junior standing. Offered: Spring.*

**MIN 330 • Teaching in Ministry Contexts 4 Credits**

Preparation and delivery of presentations enabling students to teach effectively in various settings. Develop theology and philosophy of teaching and learning. Improving skills in teaching small and large groups, facilitating discussion, adapting curriculum to audiences and contexts, and self-analysis. Emphasis on biblical themes of reconciliation, diversity, and justice.

*Prerequisites: MIN 200. Offered: Fall, even # years.*

**MIN 385 • The Global Life: World Christianity and Ministry 4 Credits**

Exploration of the theological themes and ministry practices arising from World Christianity. Attention is given to how context shapes ministry praxis, and how the intercultural task of theology and ministry is generative for faithful ministry.

*Prerequisites: MIN 200 or Consent of instructor. Offered: Fall.*

**MIN 483 • Ministry Internship I 2 Credits**

Explores ministry as a career through a supervised ministry internship, seminars, readings, and reflections. Reflection especially on defining current sense of calling.

*Prerequisites: MIN 200; MIN 215. Offered: Fall. Special Notes: This course is graded on an S/U basis.*

**MIN 484 • Ministry Internship II 2 Credits**

Explores ministry as a career through a supervised ministry internship, seminars, readings, and reflections. Students integrate various components of their missional ministries major.

*Prerequisites: MIN 200; MIN 215; MIN 483. Offered: Spring. Special Notes: This course is graded on an S/U basis.*

**MIN 499 • Departmental Capstone 4 Credits**

Selected topics related broadly to the areas of ministry, Bible, and theology. A major research project in consultation with department faculty is followed by an oral and written presentation of its results.

*Prerequisites: Major in biblical and theological studies or missional ministries and Senior standing. Offered: Spring. Special Notes: This course carries cross credit with biblical studies and theological studies.*

**MUE 131A • Handbell Ensemble 1 Credit**

The Handbell Ensemble performs a wide range of repertoire from the finest original compositions and arrangements available for handbells. The ensemble performs in the Festival of Christmas, presents a spring concert, and performs in area churches. One rehearsal each week.

*Offered: Fall, Spring. Special Notes: Open by audition to students from all academic disciplines.*

**MUE 141A • Chamber Ensemble 1 Credit**

An opportunity to develop self-expression through the discovery and performance of instrumental chamber music. Meets once a week for 1.5 hours of coaching and requires 1.5 hours of additional preparation.

*Offered: Occasionally. Special Notes: Ensembles are arranged by individual audition and practicing is required.*

**MUE 151A • Jazz Orchestra 1 Credit**

Explores the unique American art form of jazz, performing various styles from traditional big band to fusion. Concerts include the spring Jazz in the Great Hall. Two rehearsals each week.

*Prerequisites: Approval of director of instrumental activities. Offered: Fall, Spring. Special Notes: Open by audition.*

**MUL 140A • Beginning Piano 1 Credit**

A series of class lessons recommended for students with no formal piano study. Using the keyboard laboratory, students learn to read music and harmonize simple folk melodies at the piano as well as acquire some basic theory.

*Offered: Fall, Spring.*

**MUL 141A • Beginning Voice 1 Credit**

A series of class lessons, lectures, and student performances providing the beginning vocalist a basic foundation in singing. Incorporates folk, musical theatre, and classic literature.

*Offered: Fall, Spring.*

**MUL 142A • Beginning Guitar 1 Credit**

A series of lessons designed to give the beginning guitarist a foundation in acoustic (nonelectric) guitar, including basic tuning techniques, chords in seven keys, reading of notes on the first five frets, strumming rhythms, fingerpicking, and song leading.

*Offered: Fall, Spring. Special Notes: Music education majors may use successful completion of this course to satisfy the guitar proficiency requirement.*

**MUL 242A • Intermediate Guitar 1 Credit**

A series of lessons designed to advance the student beyond the foundational guitar techniques introduced in MUL 142A, including barred chords, chord alteration, advanced strumming and fingerpicking, performance techniques, guitar music theory, and arranging.

*Offered: Spring.*

**MUL 300 • Applied Composition 1-2 Credits**

Private (or small group) study in composition beginning with single instruments followed by chamber groups and large ensembles. Computer notation and MIDI sequencing also included. Performance of original works when appropriate or required.

*Prerequisites: MUS 202 or Consent of instructor. Offered: Fall, Spring. Special Notes: The private lesson fee applies to this course.*

**MUP 101A • Lucia Chorum 1 Credit**

Lucia Chorum is open by audition to female students from all academic disciplines. The choir rehearses three times each week and performs on and off campus throughout the year.

*Offered: Fall, Spring.*

**MUP 111A • Bethel Choir 1 Credit**

The Bethel Choir is open by audition and presents concerts throughout the United States or Europe during its annual concert tours. The choir rehearses five days each week.

*Offered: Fall, Spring.*

**MUP 121A • Royal Register 1 Credit**

Male a cappella ensemble of auditioned voices. The group studies and performs vocal literature across genres and time periods with an emphasis on modern musical styles and vocal techniques such as contemporary music, reading sheet music, singing in tune, unifying an ensemble, and singing expressively.

*Prerequisites: Audition and the ability to sing at least folk song melody. Offered: Fall, Spring.*

**MUP 150A • Bethel Philharmonic Orchestra 1 Credit**

A fully symphonic orchestra open, by audition, to all members of the Bethel community, including students, faculty, staff, alumni and the larger community as openings allow. Rehearses one night a week and gives one concert a term.

*Offered: Fall, Spring.*

**MUP 153A • Bethel Chamber Orchestra 1 Credit**

A performance ensemble for music majors, minors, and other serious players. Performs repertoire from the Baroque to the Modern Era, tours annually, gives concerts, and participates in Festival of Christmas and Classics in the Great Hall. Plays in chapel and collaborates with the Opera Workshop and other musical theater events.

*Offered: Fall, Spring.*

**MUP 163A • Wind Symphony 1 Credit**

The Wind Symphony is an active performance group presenting concerts locally as well as throughout the United States or Europe. The Wind Symphony is open by audition to woodwind, brass, and percussion players from all academic disciplines of the university.

*Offered: Fall, Spring.*

**MUS 104 • Music Theory and Aural Skills I 3 Credits**

A continuation of MUS101 concepts and materials: voice-leading and part-writing of triads and seventh chords, and modulations in diatonic chorale style. Beginning development of ear-training and sight-singing, music technology, computer applications, and continuation of functional keyboard skills.

*Corequisites: Concurrent enrollment in MUS 105 is required. Offered: Fall.*

**MUS 105 • Keyboard Skills I 1 Credit**

A series of class lessons for music majors and minors who have little or no background in keyboard theory skills.

*Corequisites: Concurrent enrollment in MUS 104 is required or Consent of instructor. Offered: Fall. Special Notes: Students can test out of this course by successfully passing the Music and Performing Arts keyboarding exam.*

**MUS 195 • Music Hour 0 Credit**

A weekly informal recital meeting time for student performance or discussion of topics of significance to musicians. Music majors and minors are required to perform on their applied instruments in a minimum of one Music Hour recital per semester. First-semester freshmen perform at the discretion of the private instructor.

*Prerequisites: Major or minor in music. Offered: Fall, Spring. Special Notes: Music majors must register each semester in residence in order to complete the Recital and Concert Attendance requirements for graduation. This course is graded on an S/U basis.*

**MUS 202 • Music Theory and Aural Skills II 3 Credits**

A continuation of MUS 104 concepts and materials: voice-leading and part-writing of triads and seventh chords, and modulations in diatonic chorale style, chromaticism/non-diatonicism. Continued development of ear-training, sight-singing, music technology, and computer applications.

*Prerequisites: MUS 104. Corequisites: Concurrent registration in MUS 204 is required. Offered: Spring.*

**MUS 203 • Music Theory and Aural Skills III 4 Credits**

Practice in 16th century counterpoint; analysis of forms from 18th century counterpoint through classical forms; continuation of ear-training and sight-singing.

*Prerequisites: MUS 202. Offered: Fall.*

**MUS 204 • Keyboard Skills II 1 Credit**

A continuation of Keyboard Skills I: a series of class lessons for music majors and minors who have little or no background in keyboard theory skills.

*Prerequisites: MUS 104 or successful completion of the Music and Performing Arts department keyboarding exam. Corequisites: Concurrent enrollment in MUS 202 is required. Offered: Spring.*

**MUS 240 • Producing and Performing an Opera 4 Credits**

Instruction in opera production, literature, standards, and performance practices. One opera or operetta is studied and rehearsed during January session, then performed in the first week of the Spring term. Includes proper stagecraft for the operatic genre as well as the historical, cultural, and sociological significance of the work.

*Offered: January, odd # years.*

**MUS 262A • How to Write a Song: Songcraft 4 Credits**

An introduction to the art of songwriting. Grow in your songcraft and explore how a song can touch the soul. Gain a better understanding of the anatomy of a song by breaking down its elements: theme, melody, harmonic structure, feel, time, lyric, rhythm, instrumentation, collaboration, improvisation, and performance.

*Offered: Fall, Occasionally January. Special Notes: This course does not require any formal music background. This course includes a scheduled classroom time as well as an evening lab.*

**MUS 301 • Music Theory IV 2 Credits**

Advanced analysis and composition in all styles with a focus on 20th century music.

*Prerequisites: MUS 202 and MUS 203. Offered: Spring, odd # years.*

**MUS 305G • Music in World Cultures 4 Credits**

Introductory study of cultural traditions, belief systems, and practices of world cultures through the study and analysis of the music of ethnic groups. Specific cultures included may vary with each offering.

*Prerequisites: [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Spring, even # years.*

**MUS 312 • Music History and Literature I 4 Credits**

Chronological survey of Western musical art from the Greek civilization through the Baroque period with detailed examination of representative works.

*Offered: Fall.*

**MUS 313 • Music History and Literature II 4 Credits**

A continuation of MUS 312, from 1750 to the present.

*Offered: Spring.*

**MUS 322 • Instrumental Literature and Conducting 4 Credits**

Principles of conducting as applied to orchestral and band literature. Musical style and the responsibility of the conductor to the score. Instrumental music of the Classic, Romantic, and 20th century periods is explored.

*Prerequisites: MUS 324. Offered: Spring.*

**MUS 323 • Instrumentation 2 Credits**

Introduction of all major instruments with emphasis on transpositions, ranges, and idiomatic writing. Arranging of music for large and small combinations of woodwind, brass, string, and percussion instruments.

*Prerequisites: MUS 202 and MUS 312. Offered: Spring.*

**MUS 324 • Choral Literature and Conducting 4 Credits**

Development of conducting techniques with the application of stylistic principles to the styles of the Renaissance, Baroque, Classic, Romantic, and 20th century periods.

*Prerequisites: MUS 202 and MUS 313 or Consent of instructor. Offered: Fall.*

**MUS 326 • Vocal Literature 2 Credits**

Survey of solo vocal repertoire from early music through the present day. Develops skill in the study of song literature. Highlights significant features and developments inherent in the form.

*Prerequisites: MUS 203, MUS 313, Consent of instructor. Offered: Spring, even # years.*

**MUS 340 • Producing and Performing an Opera 4 Credits**

Instruction in opera production, literature, standards, and performance practices. One opera or operetta is studied and rehearsed during January session, then performed in the first week of the Spring term. Includes proper stagecraft for the operatic genre as well as the historical, cultural, and sociological significance of the work.

*Offered: January, odd # years.*

**MUS 358 • Brass Methods 1 Credit**

Methods of teaching brass instruments (trumpet, horn, trombone, tuba). Performance techniques and materials as well as practical experience on each of the representative instruments.

*Prerequisites: Major or minor in music. Offered: Fall, even # years.*

**MUS 359 • Percussion Methods 1 Credit**

Methods of teaching percussion (snare drum, keyboard/mallets, timpani, concert accessories/auxiliary, drum set). Performance techniques and materials as well as practical experience on most of the represented instruments.

*Prerequisites: Major or minor in music. Offered: Spring, odd # years.*

**MUS 360 • String Methods 1 Credit**

Methods of teaching stringed instruments (violin, viola, cello, bass). Performance techniques and materials as well as practical experience on each of the representative instruments.

*Prerequisites: Major or minor in music. Offered: Spring, even # years.*

**MUS 362 • Woodwind Methods 1 Credit**

Methods of teaching woodwind instruments (flute, clarinet, oboe, saxophone, bassoon). Performance techniques and materials as well as practical experience on each of the representative instruments.

*Prerequisites: Major or minor in music. Offered: Fall, odd # years.*

**MUS 363 • Vocal Pedagogy 1 Credit**

Methods of teaching the vocal mechanism and its functions. Performance techniques and materials as well as practical experience.

*Prerequisites: Four semesters of voice lessons. Offered: Spring, odd # years.*

**MUS 366 • Italian and English Lyric Diction 1 Credit**

Studies in pronunciation of Italian and English songs through the use of the International Phonetic Alphabet (IPA). Verbal, written, and sung realization of this work practiced on assigned repertoire.

*Prerequisites: One year private voice study or equivalent. Offered: Fall.*

**MUS 367 • French and German Lyric Diction 1 Credit**

Studies in pronunciation of French and German diction through use of the International Phonetic Alphabet (IPA). Verbal, written, and sung realizations practiced on assigned repertoire.

*Prerequisites: MUS 366. Offered: Spring.*

**MUS 395 • Junior Recital 0 Credit**

A culminating performance experience required for the bachelor of music applied performance major. A one half-hour recital of Level III repertoire is presented.

*Prerequisites: Pre-recital hearing. Offered: Fall, Spring.*

**MUS 495 • Half Senior Recital 0 Credit**

A culminating performance experience required for bachelor of music and bachelor of music education majors. A one half-hour recital of Level III repertoire is presented.

*Prerequisites: Pre-recital hearing. Offered: Fall, Spring.*

**MUS 496 • Full Senior Recital 0 Credit**

A culminating performance experience required for the bachelor of music applied performance major. A one-hour recital of Level IV repertoire is presented.

*Prerequisites: Pre-recital hearing. Offered: Fall, Spring.*

**NAS 101D • Science Concepts - Life Sciences 2 Credits**

Fundamental concepts and processes of life science. Emphasis on the means by which scientific knowledge is produced through inquiry-based activities, which are an important, active-learning component in elementary school education.

*Prerequisites: Major in elementary education or special education. Offered: Fall, Spring. Special Notes: This course is a half-term course. Students may not take this course and another NAS course the same half-term. Students must complete two different NAS science concepts courses to complete the Laboratory Science (D) course requirement for general education.*

**NAS 102D • Science Concepts - Earth/Space Science 2 Credits**

Fundamental concepts and processes of earth/space science. Emphasis on the means by which scientific knowledge is produced through inquiry-based activities, which are an important, active-learning component in elementary school education.

*Prerequisites:* Major in elementary education or special education. *Offered:* Fall, Spring. *Special Notes:* This course is a half-term course. Students may not take this course and another NAS course the same half-term. Students must complete two different NAS science concepts courses to complete the Laboratory Science (D) course requirement for general education.

**NAS 103D • Science Concepts - Chemistry 2 Credits**

Fundamental concepts and processes of chemistry. Emphasis on the means by which scientific knowledge is produced through inquiry-based activities, which are an important, active-learning component in elementary school education.

*Prerequisites:* Major in elementary education or special education. *Offered:* Occasionally January, Spring. *Special Notes:* This course is a half-term course. Students may not take this course and another NAS course the same half-term. Students must complete two different NAS science concepts courses to complete the Laboratory Science (D) course requirement for general education.

**NAS 104D • Science Concepts - Physics 2 Credits**

Fundamental concepts and processes of physics. Emphasis on the means by which scientific knowledge is produced through inquiry-based activities, which are an important, active-learning component in elementary school education.

*Prerequisites:* Major in elementary education or special education. *Offered:* Fall, January. *Special Notes:* This course is a half-term course. Students may not take this course and another NAS course the same half-term. Students must complete two different NAS science concepts courses to complete the Laboratory Science (D) course requirement for general education.

**NSC 130 • Introduction to Neuroscience 3 Credits**

An introduction to the biological basis of behavior. Focuses on two main themes: the cellular, molecular, and genetic processes that form the foundation of nervous system function and the systems-level organization of the nervous system that forms the foundation of human and animal behavior.

*Corequisites:* Concurrent registration in NSC 130D is required. *Offered:* Spring.

**NSC 130D • Intro to Neuroscience Lab 1 Credit**

Laboratory experience accompanying NSC 130.

*Corequisites:* Concurrent registration in NSC 130 is required. *Offered:* Spring.

**NSC 350 • Neuroscience Methods 3 Credits**

Principles and practice of neuroscience laboratory techniques. Laboratory and lecture experience are integrated to include an introduction to histological, molecular, electrophysiological, and computer-based neuroscience research. Collection of qualitative and quantitative data and data analysis.

*Prerequisites:* BIO 120/BIO 120D or BIO 124/BIO 124D and NSC 130/NSC 130D; PSY 230M. *Corequisites:* Concurrent registration in NSC 351 is required. *Offered:* Spring, even # years.

**NSC 351 • Neuroscience Methods Lab 1 Credit**

Laboratory experience accompanying NSC 350.

*Corequisites:* Concurrent registration in NSC 350 is required. *Offered:* Spring, even # years.

**NSC 358 • Neurobiology 3 Credits**

Nervous system of animals and humans from the subcellular to organismic and behavioral levels. Includes significant attention to the senses as well as mechanisms of neuronal communication, plasticity, and memory.

*Prerequisites:* BIO 218 or both PSY 101 and NSC 130/NSC 130D. *Corequisites:* Concurrent registration in NSC 359 is required. *Offered:* Fall. *Special Notes:* This course carries cross-credit in biology.

**NSC 359 • Neurobiology Lab 1 Credit**

Laboratory experience accompanying NSC 358.

*Corequisites:* Concurrent registration in NSC 358 is required. *Offered:* Fall. *Special Notes:* This course carries cross-credit in biology.

**NSC 481 • Internship in Neuroscience 1-4 Credits**

A learning/practicing experience in which the student applies neurological understanding and skills in an off-campus professional setting.

*Prerequisites: Major in neuroscience and Junior or senior standing. Offered: Fall, Spring.*

**NSC 493 • Literature Review in Neuroscience 2 Credits**

Survey of contemporary and classical neuroscience literature. Journal club format in which topics of the students' choosing are researched, discussed, and methodologies assessed. Students evaluate a variety of neuroscience research through a written summary.

*Prerequisites: Major in neuroscience and Junior standing. Offered: Fall.*

**NSC 496 • Neuroscience Research 1-4 Credits**

Students collect original data through independent laboratory/field research under the supervision of a neuroscience faculty member. Data is analyzed and conclusions are drawn and reported.

*Prerequisites: NSC 130/NSC 130D and Consent of instructor. Offered: Fall, Spring.*

**NSC 499 • Neuroscience Seminar 2 Credits**

Readings and discussion of topics that relate neuroscience to Christian faith as well as moral, ethical, and societal issues. Topics may include psychopharmacological enhancement of attention, memory, and mood; brain implants and homo augmentus; free will, the soul, responsibility, and personhood; definition of mental health and illness.

*Prerequisites: Major in neuroscience and Senior standing. Offered: Fall.*

**NUR 202 • Nursing Skills I: Health Assessment 2 Credits**

Introduction to assessment of the physical, cultural, psychosocial, and spiritual parameters in individuals and family health within the context of the nursing process.

*Prerequisites: Admission into the nursing program. Corequisites: Concurrent registration in BIO 350 and NUR 302 is required. Offered: Spring.*

**NUR 302 • Pharmacology for Nurses 2 Credits**

Exploration of the principles of pharmacology to promote health and manage illness from a patient-centered perspective for diverse populations across the lifespan. Emphasis on concepts of safe use and monitoring the effects of pharmacotherapeutic agents. Consideration of ethical, legal, and cultural implications of pharmacology.

*Prerequisites: Admission to the nursing program. Corequisites: Concurrent registration in BIO 350 and NUR 202. Offered: Spring.*

**NUR 311 • Nursing Skills II 2 Credits**

Development of beginning nursing skills related to caring for clients of various health/illness states. Emphasis on the nursing process, medication administration, communication, and evidence-based skills linked with theoretical content in concurrent courses.

*Prerequisites: BIO 350; NUR 202; NUR 302. Corequisites: Concurrent registration in NUR 313 and NUR 315 is required. Offered: Fall.*

**NUR 312 • Nursing Skills III 1 Credit**

Development of beginning nursing skills related to caring for clients of various health/illness states. Emphasis on intravenous medication administration and evidence-based skills linked with theoretical content in concurrent nursing courses.

*Prerequisites: NUR 311; NUR 313; NUR 315. Corequisites: Concurrent registration in NUR 314; NUR 318; NUR 322; NUR 324 is required. Offered: Spring.*

**NUR 313 • Nursing Care of Individuals I 4 Credits**

Analysis of nursing care relating to individuals experiencing selected acute, chronic, and/or potential health issues. Evidence, including clinical knowledge is used as a framework for developing nursing diagnosis, interventions, and expected outcomes.

*Prerequisites: BIO 350; NUR 202; NUR 302. Corequisites: Concurrent registration in NUR 311 and NUR 315 is required. Offered: Fall.*

**NUR 314 • Nursing Care of Individuals II 4 Credits**

Analysis of nursing care relating to individuals experiencing selected acute, chronic, and/or potential health issues. Evidence, including clinical knowledge is used as a framework for developing nursing diagnoses, interventions, and expected outcomes. This course is a continuation of NUR 313.

*Prerequisites:* NUR 311; NUR 313; NUR 315. *Corequisites:* Concurrent registration in NUR 312; NUR 318; NUR 322; NUR 324 is required. *Offered:* Spring.

**NUR 315 • Practicum I: Medical Surgical Nursing 2 Credits**

A focus on the care of individuals in various health/illness states. Students implement the nursing process in various healthcare settings, fulfilling nursing roles with a focus on clinical judgment and evidence-based practice.

*Prerequisites:* BIO 350; NUR 202; NUR 302. *Corequisites:* Concurrent registration in NUR 311 and NUR 313 is required. *Offered:* Fall.

**NUR 318 • Chronicity: Mental Health Focus 2 Credits**

Overview of chronic health issues throughout the lifespan in the context of families and communities with an emphasis on mental health issues.

*Prerequisites:* NUR 311; NUR 313; NUR 315. *Corequisites:* Concurrent registration in NUR 312; NUR 314; NUR 322; NUR 324 is required. *Offered:* Spring.

**NUR 322 • Practicum II: Medical Surgical Nursing II 3 Credits**

A focus on the care of individuals in acute and chronic health/illness states. Students implement the nursing process in simulated and inpatient medical-surgical health care settings, fulfilling nursing roles with a focus on clinical judgment and evidence-based practice.

*Prerequisites:* NUR 311; NUR 313; NUR 315. *Corequisites:* Concurrent registration in NUR 312; NUR 314; NUR 318; NUR 324 is required. *Offered:* Spring.

**NUR 324 • Practicum III: Mental Health and Community Based Nursing 2 Credits**

A focus on the care of individuals in acute and chronic health/illness states. Students implement the nursing process in mental health and community settings, fulfilling nursing roles with a focus on clinical judgment and evidence-based practice.

*Prerequisites:* NUR 311; NUR 313; NUR 315. *Corequisites:* Concurrent registration in NUR 312; NUR 314; NUR 318; NUR 322 is required. *Offered:* Spring.

**NUR 411 • Nursing Skills IV 1 Credit**

Development of nursing skills used in specialty areas of nursing with a focus on children and families. Enhancement of nursing informatics skills in order to improve the quality and safety of healthcare delivery.

*Prerequisites:* NUR 312; NUR 314; NUR 318; NUR 322; NUR 324. *Corequisites:* Concurrent registration in NUR 413; NUR 417Z, NUR 419; NUR 425G is required. *Offered:* Fall.

**NUR 412 • Nursing Skills V 1 Credit**

Practice and demonstrate competency in complex clinical situations. Includes consideration of the scope of nursing practice in the integration of technology, skills, resource allocation, interdisciplinary collaboration, and delegation and supervision of nursing personnel.

*Prerequisites:* NUR 411; NUR 413; NUR 417Z; NUR 419; NUR 425G. *Corequisites:* Concurrent registration in NUR 416, NUR 426; NUR 496 is required. *Offered:* Spring.

**NUR 413 • Practicum IV: Pediatric and Maternity Nursing 2 Credits**

A focus on the nursing care of pediatric and maternity patients and families. Students use clinical judgment and evidence-based practice to provide holistic nursing care in simulated, pediatric, and maternity health care settings.

*Prerequisites:* NUR 312; NUR 314; NUR 318; NUR 322; NUR 324. *Corequisites:* Concurrent registration in NUR 411; NUR 417Z; NUR 419; NUR 425G is required. *Offered:* Fall.

**NUR 416 • Practicum VI: Clinical Capstone 4 Credits**

An emphasis on baccalaureate nursing role synthesis. Students use clinical judgment, data and technology, evidence-based findings, and principles of leadership to manage complex patient problems and improve client health outcomes.

*Prerequisites:* NUR 411; NUR 413; NUR 417Z; NUR 419; NUR 425G. *Corequisites:* Concurrent registration in NUR 412; NUR 426; NUR 496 is required. *Offered:* Spring.

**NUR 417Z • Practicum V: Public Health Nursing 2 Credits**

Provision of population-based nursing care with an emphasis on diverse and underserved populations. Application of public health competencies and theories in population-based settings. Focus on advocacy and collaborator roles within the context of service-learning.

*Prerequisites:* NUR 312; NUR 314; NUR 318; NUR 322; NUR 324. *Corequisites:* Concurrent registration in NUR 411; NUR 413; NUR 419; NUR 425G is required. *Offered:* Fall.

**NUR 419 • Pediatric & Maternity Nursing 4 Credits**

Nursing care of pediatric and maternity patients and families. Application of theoretical frameworks and practice considerations to holistic nursing care.

*Prerequisites:* NUR 312; NUR 314; NUR 318; NUR 322; NUR 324. *Corequisites:* Concurrent registration in NUR 411; NUR 413; NUR 417Z; NUR 425G is required. *Offered:* Fall.

**NUR 425G • Population Focused Nursing Care 4 Credits**

Exploration of population-focused nursing care with an emphasis on culturally diverse and underserved populations. Includes epidemiological consideration.

*Prerequisites:* NUR 312; NUR 314; NUR 318; NUR 322; NUR 324; [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course.* *Corequisites:* Concurrent registration in NUR 411; NUR 413; NUR 417Z; NUR 419 is required. *Offered:* Fall. *Special Notes:* This course includes 1 credit of service learning.

**NUR 426 • Leadership Development 4 Credits**

Application of the leadership role in preparation to enter the professional nursing workforce. Integration of clinical judgment skills and leadership, management, professional ethics, and Christian worldview frameworks.

*Prerequisites:* NUR 411; NUR 413; NUR 417Z; NUR 419; NUR 425G. *Corequisites:* Concurrent registration in NUR 412; NUR 416; NUR 496 is required. *Offered:* Spring.

**NUR 431 • Conversations about End of Life 1 Credit**

Development of advanced care planning facilitation skills in the context of faith, cultural, healthcare system, and societal perspectives. A First Steps ACP Facilitator Certificate is available for students who successfully complete ACP Facilitator requirements.

*Prerequisites:* Senior standing in nursing or social work or consent of instructor. *Offered:* Spring. *Special Notes:* This course carries cross-credit in social work.

**NUR 481 • Internship in Nursing 1 Credit**

Clinical-based learning opportunities meant to encourage application of theory and research-based knowledge in clinical practice. Engagement in experiences to enhance the development of the professional nursing role.

*Prerequisites:* Completed junior year of nursing program and acceptance into an approved clinical internship program. *Offered:* January, Summer. *Special Notes:* This course is graded on an S/U basis.

**NUR 496 • Senior Nursing Synthesis 1 Credit**

Transition from the student role to the professional nurse role. Synthesizes nursing clinical concepts essential for nursing graduates to provide safe, quality care to individuals, families, and groups in a variety of clinical settings. Promotion of clinical judgment development and utilization of NCLEX-RN resources to prepare for NCLEX-RN.

*Prerequisites:* NUR 411; NUR 413; NUR 417Z; NUR 419; NUR 425G. *Corequisites:* Concurrent registration in NUR 412; NUR 416; NUR 426 is required. *Offered:* Spring.

**PHI 110 • Introduction to Ethics 2 Credits**

A philosophical analysis of relevant ethical issues in contemporary society, which may include: abortion, euthanasia, medical ethics, animal rights, sexual ethics, and distribution of resources. Traditional ethical theories will be used to evaluate different moral positions on issues. Emphasis on moral-decision making.

*Offered: Fall, January, Spring.*

**PHI 125M • Introduction to Logic 4 Credits**

A study of standard forms of deductive and inductive logical reasoning, critical thinking, and informal fallacies. Rules for evaluating arguments and ways to distinguish good arguments from bad ones, with the goal of problem solving and making reasonable decisions about beliefs and actions.

*Offered: Spring.*

**PHI 210L • The Modern Mind 4 Credits**

Themes and movements that have shaped European and American culture in the last 200 years, drawing on significant works in philosophy, literature, and art. Reflection on the personal and cultural meanings of living in the modern age.

*Prerequisites: GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).*

*Offered: Occasionally.*

**PHI 220L • Philosophies of Race and Gender in America 4 Credits**

Investigates the impact of theories of race and gender on life and thought in contemporary America. Analyzes the philosophical concepts and arguments underlying the historical development of these theories. Critically evaluates the philosophical commitments inherent in the moral and religious language used in discussions of race and gender in America.

*Prerequisites: GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).*

*Offered: Fall.*

**PHI 223L • Introduction to Gender Studies 4 Credits**

Provides a philosophical grounding in the field of Gender Studies. Introduces a broad spectrum of theories and ideas about gender, and explores key debates within the field. Examines how theories of gender emerge as well as shape and influence individual lives and social contexts in America and beyond.

*Prerequisites: GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).*

*Offered: Spring.*

**PHI 228L • Philosophies of Love and Sex 4 Credits**

Examines different perspectives on the nature of love and sexuality. Defines and distinguishes features associated with different types of love and sexuality. Explores norms and critically examines their role in contemporary American society.

*Prerequisites: GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).*

*Offered: Spring.*

**PHI 230U • Medieval Islamic Philosophy 4 Credits**

From A.D. 800-1200, Arabic civilization was the world's center of intellectual, cultural, and economic developments. A study of the philosophical and theological thought developed in the Arabic world during the medieval period, and its influence on later intellectual traditions, including the Western Christian tradition.

*Prerequisites: GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered:*

*Occasionally fall, January.*

**PHI 236UZ • Medieval Worlds: Cultures and Beliefs in North Africa and Europe 4 Credits**

On-site investigation of intercultural relations in medieval and modern Europe and North Africa, and how the many different kinds of historical identity, whether Christian, Muslim, or Jew, still reverberate today. Studies the complex history of the region and promotes principles of effective modern pluralism through cross-cultural interaction.

*Prerequisites: GES 104; GES 130 or GES 149. Offered: January, even # years. Special Notes: This course carries cross-credit with history.*

**PHI 305G • Philosophy of Religion 4 Credits**

Study of issues central to religious belief. Explores different approaches to the relation of faith and reason, the sources of religious knowledge, the nature of God, the problem of evil, religious diversity, and the afterlife.

*Prerequisites:* [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Spring, even # years.*

**PHI 310 • Aesthetics 4 Credits**

Problems and perspectives concerning the nature of art and aesthetic experience. Questions such as "What is art?" "What is good art?" and "What good is art?" in the context of the visual arts, music, literature, and film. The relationships among aesthetic, moral, and religious values are explored.

*Prerequisites:* GES 125. *Offered: Occasionally.*

**PHI 316 • Consciousness: Psychology and Philosophy in Dialogue 4 Credits**

A team-taught investigation of ancient, medieval, and modern philosophies of consciousness and the historical roots of contemporary psychology. Shows how philosophical and psychological theories of consciousness transcend disciplinary boundaries. Focus on interaction between philosophy and psychology, emphasizing the origins of cognitive science in philosophy of mind and consciousness.

*Prerequisites:* PSY 101 or One philosophy course. *Offered: Spring, odd # years. Special Notes: This course carries cross-credit in psychology.*

**PHI 320 • Advanced Topics in Ethics 4 Credits**

An advanced study of principle ethical theories and their application to relevant problems concerning the individual and society. Readings in classical and contemporary sources focus on questions such as the nature of justice, the common good, and the moral responsibilities of citizens.

*Prerequisites:* Two philosophy courses or Consent of instructor. *Offered: Spring, odd # years. Special Notes: This course carries cross credit in political science.*

**PHI 335K • Environmental Ethics 4 Credits**

Examines the intersection of science, society, and technology as it pertains to issues in environmental ethics. Moves from theory—considering science, society, and technology philosophically—to application by concluding with a major research project on an applied issue in environmental ethics involving scientific data and technological choice.

*Prerequisites:* Laboratory Science (D) Course and Mathematics (M) course. *Offered: January, Occasionally spring. Special Notes: This course carries cross-credit in environmental studies.*

**PHI 345 • Modern Political Thought 4 Credits**

In-depth examination of selected political thinkers such as Locke, Rousseau, Mill, Nietzsche, Kuyper, Rawls, and Taylor. Concentrates on primary sources.

*Prerequisites:* One course in political science, philosophy, or history and Sophomore standing. *Offered: Fall, even # years. Special Notes: This course carries cross credit in history and political science.*

**PHI 346G • Theories of Human Nature 4 Credits**

A comparative study of different theories of what it means to be human. A variety of theories from different historical, cultural, and religious perspectives is explored, giving special attention to the relationship between a theory and the norms and systems of the culture in which the theory emerges.

*Prerequisites:* [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Fall, even # years.*

**PHI 360 • Classical Political Thought 4 Credits**

In-depth examination of selected political thinkers such as Plato, Aristotle, Cicero, Marcus Aurelius, Augustine, Thomas Aquinas, Machiavelli, and Hobbes. Concentrates on primary sources.

*Prerequisites:* One course in political science, philosophy, or history and Sophomore standing. *Offered: Fall, odd # year. Special Notes: This course carries cross-credit in political science and history.*

**PHI 491 • Applied Humanities Seminar 4 Credits**

An interdisciplinary, experiential capstone course in which students draw on their studies in history, philosophy, political science, or the digital humanities in order to study a major challenge in contemporary society, analyzing causes, effects, and existing responses, and then work to propose new responses to it.

*Prerequisites:* Senior standing and Major in one of the following programs: business and political science, history, international relations, applied philosophy, political science, or social studies education 5-12. *Offered:* Fall, Spring. *Special Notes:* This course carries cross-credit in political science and history.

**PHY 102 • Physics of Everyday Life 3 Credits**

Explores how physics concepts can be used to understand everyday phenomena in the world around us. Topics include: mechanics, waves (including sound and light), thermodynamics, and atomic and nuclear physics. Lecture demonstrations and laboratories stress a clear understanding of observed phenomena.

*Corequisites:* Concurrent registration in PHY 102D is required. *Offered:* January.

**PHY 102D • Physics of Everyday Life-Lab 1 Credit**

Laboratory experience accompanying PHY 102.

*Corequisites:* Concurrent registration in PHY 102 is required. *Offered:* January.

**PHY 112 • Introduction to Astronomy 3 Credits**

The concepts, techniques, and tools of astronomy and astrophysics for nonscience students. Includes historical overview; identification of constellations; telescopes; the nature of light, atomic spectra, and structure; the nuclear physics of stars; the life cycle of stars; and current theories of the fate of the universe.

*Corequisites:* Concurrent registration in PHY 112D is required. *Offered:* Fall.

**PHY 112D • Introduction to Astronomy Lab 1 Credit**

Laboratory experience accompanying PHY 112. Includes optics, atomic spectra, and observations with simple instruments and telescopes.

*Corequisites:* Concurrent registration in PHY 112 is required. *Offered:* Fall.

**PHY 202 • Introductory Physics I 3 Credits**

Mechanics, thermal properties of matter and mechanical waves.

*Prerequisites:* MAT 121M, MAT 124M, or solid understanding and competency in high school mathematics as demonstrated by at least one of the following: a Math ACT score of at least 23, 519 on the Math portion of the SAT, a Math Placement Test score of at least 2. *Corequisites:* Concurrent registration in PHY 202D is required. *Offered:* Fall.

**PHY 202D • Introductory Physics I Lab 1 Credit**

Laboratory experience accompanying PHY 202.

*Corequisites:* Concurrent registration in PHY 202 is required. *Offered:* Fall.

**PHY 206 • Introductory Physics II 3 Credits**

Electricity and magnetism, sound waves, optical phenomena, and modern physics.

*Prerequisites:* PHY 202/PHY 202D. *Corequisites:* Concurrent registration in PHY 207 is required. *Offered:* Spring.

**PHY 207 • Introductory Physics II Lab 1 Credit**

Laboratory experience accompanying PHY 206.

*Corequisites:* Concurrent registration in PHY 206 is required. *Offered:* Spring.

**PHY 260 • Careers in Engineering and Physics Seminar 1 Credit**

Developing careers in high-technology fields such as engineering and physics. Explores the wide variety of specific careers possible through video, lecture, tours, and guest speakers. Develops practical professional skills such as writing resumes and cover letters, accumulating connections and experience, and techniques for interviewing.

*Prerequisites:* PHY 296/PHY 297. *Offered:* Fall. *Special Notes:* This course carries cross-credit in engineering.

**PHY 292 • General Physics I 3 Credits**

Kinematics, mechanics, oscillations, fluids, and conservation principles.

*Prerequisites:* MAT 124M or Consent of instructor. *Corequisites:* Concurrent registration in PHY 292D is required. *Offered:* Fall, Spring.

**PHY 292D • General Physics I Lab 1 Credit**

Laboratory experience accompanying PHY 292.

*Corequisites:* Concurrent registration in PHY 292 is required. *Offered:* Fall, Spring.

**PHY 296 • General Physics II 3 Credits**

Electricity, magnetism, thermodynamics, sound waves, and optics.

*Prerequisites:* PHY 292/PHY 292D (with a grade of a C or higher); MAT 125 or Consent of instructor.

*Corequisites:* Concurrent registration in PHY 297 is required. *Offered:* Fall, Spring.

**PHY 297 • General Physics II Lab 1 Credit**

Laboratory experience accompanying PHY 296.

*Corequisites:* Concurrent registration in PHY 296 is required. *Offered:* Fall, Spring.

**PHY 302 • Electronics 3 Credits**

Fundamentals of digital and analog electronics intended for scientists and engineers.

*Prerequisites:* MAT 125 or Consent of instructor. *Corequisites:* Concurrent registration in PHY 303 is required. *Offered:* Fall. *Special Notes:* PHY 296/PHY 297 is a strongly recommended prerequisite.

**PHY 303 • Electronics Lab 1 Credit**

Laboratory experience accompanying PHY 302. Extensive laboratory exercises and a choice of projects provide hands-on experience with circuits using transistors, operational amplifiers, logic gates, flip-flops, and other devices.

*Corequisites:* Concurrent registration in PHY 302 is required. *Offered:* Fall.

**PHY 312 • Modern Physics 3 Credits**

Relativity, quantum theory, introductory wave mechanics, nuclear processes, elementary particles, and cosmology.

*Prerequisites:* PHY 296/PHY 297 with a C grade or higher and MAT 223. *Corequisites:* Concurrent registration in PHY 313 is required. *Offered:* Spring.

**PHY 313 • Modern Physics Lab 1 Credit**

Laboratory experience accompanying PHY 312.

*Corequisites:* Concurrent registration in PHY 312 is required. *Offered:* Spring.

**PHY 322 • Mathematical Methods in Physics and Engineering 2 Credits**

Development of skill in mathematical techniques useful in the solution of physics and engineering problems. Included are Fourier analysis; complex numbers; partial differential equations and their solutions.

*Prerequisites:* [MAT 222 or MAT 224 (may be taken concurrently)] and MAT 223. *Offered:* Fall. *Special Notes:* This course carries cross-credit with engineering. ENR 321 is a strongly encouraged prerequisite.

**PHY 332 • Optics 3 Credits**

Principles of geometrical and physical optics.

*Prerequisites:* PHY 312/PHY 313 and MAT 223. *Corequisites:* Concurrent registration in PHY 333 is required. *Offered:* Spring, even # years.

**PHY 333 • Optics Lab 1 Credit**

Laboratory experience accompanying PHY 332 emphasizing physical optics measurements, laser technology, and holography.

*Corequisites:* Concurrent registration in PHY 332 is required. *Offered:* Spring, even # years.

**PHY 336 • Signals and Systems 4 Credits**

Continuous and discrete-time signals and systems. Topics include: definitions and properties of signals and systems, convolution, solution of differential and difference equations. Laplace and Z transforms, and Fourier analysis. Emphasis on applications to signal processing, communication, and control systems.

*Prerequisites:* MAT 222 or MAT 224; PHY 302/PHY 303; ENR 352/PHY 352 ENR 353/PHY 353. *Offered:* Fall, even # years. *Special Notes:* This course carries cross-credit with engineering.

**PHY 340 • Mechanics 4 Credits**

Particle and rigid body dynamics, conservative and nonconservative forces, central forces, accelerated coordinate systems, and Lagrange's equations of motion.

*Prerequisites:* PHY 296/PHY 297 with a C grade or higher; MAT 223. *Offered:* Fall. *Special Notes:* This course carries cross credit in engineering.

**PHY 352 • Computer Methods in Physics and Engineering 3 Credits**

Application of the computer to solving applied problems of interest to physicists and engineers. Computer techniques are developed for numerical methods, simulation models, and data acquisition and control in the laboratory.

*Prerequisites:* COS 101 or COS 111 and MAT 223 or MAT 224 and PHY 296/PHY 297 with a C grade or higher or Consent of instructor. *Corequisites:* Concurrent registration in PHY 353 is required. *Offered:* Spring. *Special Notes:* This course carries cross-credit in engineering and PHY 302/PHY 303 is a recommended prerequisite.

**PHY 353 • Computer Methods in Physics and Engineering Lab 1 Credit**

Laboratory experience accompanying PHY 352.

*Corequisites:* Concurrent registration in PHY 352 is required. *Offered:* Spring. *Special Notes:* This course carries cross-credit in engineering.

**PHY 365 • Physics Research Seminar 1 Credit**

An introduction to research in physics and the development of scientific writing skills. Emphasis on preparing for departmental research experiences such as PHY 490 and external research experiences such as those found in industry, summer fellowship programs, and graduate schools.

*Prerequisites:* PHY 260; PHY 312/PHY 313; Junior standing; A major in the Physics and Engineering department. *Offered:* Spring.

**PHY 400 • Electricity and Magnetism 4 Credits**

Electrostatics and magnetostatics, electric and magnetic fields in free space and in materials, electromagnetic waves, and transmission lines.

*Prerequisites:* PHY 296/PHY 297 with a C grade or higher; MAT 222 or MAT 224; MAT 223. *Offered:* Fall, odd # years.

**PHY 410 • Thermodynamics 4 Credits**

Laws of thermodynamics, conditions for thermodynamic equilibrium, and fundamentals of statistical mechanics.

*Prerequisites:* PHY 296/PHY 297 with a C grade or higher and MAT 223. *Offered:* Spring, odd # years. *Special Notes:* PHY 312/PHY 313 is a strongly recommended prerequisite.

**PHY 422 • Fluid Mechanics 3 Credits**

Laws of statics, kinematics, and dynamics applied to fluid mechanics. Integral and differential conservation laws for mass, momentum, and energy. Dimensional analysis, viscous pipe flow, boundary layers, separated flows, and potential flow.

*Prerequisites:* MAT 223 and PHY 296/PHY 297 with a C grade or higher. *Corequisites:* Concurrent registration in PHY 423 is required. *Offered:* Fall. *Special Notes:* This course carries cross-credit in engineering.

**PHY 423 • Fluid Mechanics Lab 1 Credit**

Laboratory experience accompanying PHY 422.

*Corequisites:* Concurrent registration in PHY 422 is required. *Offered:* Fall. *Special Notes:* This course carries cross-credit in engineering.

**PHY 424 • Electronic Materials and Devices 3 Credits**

Theory and application of condensed matter and materials. Physical origin of electrical, optical, mechanical, thermal, and magnetic properties. Emphasis on devices such as pn junction diodes, LEDs, piezoelectrics, and sensors.

*Prerequisites:* PHY 302/PHY 303 or PHY 312/PHY 313. *Corequisites:* Concurrent registration in PHY 425 is required. *Offered:* Fall, even # years. *Special Notes:* This course carries cross-credit in engineering.

**PHY 425 • Electronic Materials and Devices Laboratory 1 Credit**

Laboratory component of PHY 424. Explores characterization of materials and the design, fabrication, and testing of devices.

*Corequisites:* Concurrent registration in PHY 424 is required. *Offered:* Fall, even # years. *Special Notes:* This course carries cross-credit in engineering.

**PHY 432 • Laser Fundamentals 3 Credits**

Properties and types of lasers; lasing dynamics; modern applications.

*Prerequisites:* PHY 312/PHY 313 and MAT 223. *Corequisites:* Concurrent registration in PHY 433 is required. *Offered:* Spring, odd # years.

**PHY 433 • Laser Fundamentals Lab 1 Credit**

Laboratory experience accompanying PHY 432.

*Corequisites:* Concurrent registration in PHY 432 is required. *Offered:* Spring, odd # years.

**PHY 440 • Quantum Mechanics 4 Credits**

The concepts and techniques of quantum mechanics.

*Prerequisites:* PHY 312/PHY 313; MAT 222 or MAT 224; MAT 223. *Offered:* Fall, even # years.

**PHY 450 • Topics in Physics and Engineering 3-4 Credits**

Topics selected from various fields of engineering and physics for the purpose of illustrating the practical application of physical principles. Emphasis on developing the skills and viewpoints commonly used by engineers and physicists. The field of engineering or physics is announced prior to registration.

*Prerequisites:* Consent of instructor. *Offered:* Occasionally. *Special Notes:* This course may be repeated when a different topic is emphasized. This course carries cross-credit in engineering.

**PHY 481 • Internship in Physics 1-4 Credits**

A practical experience in an off-campus professional setting in which skills and perspectives of a physicist are applied. Experience is designed by student in consultation with a faculty member.

*Prerequisites:* Major in applied physics or physics and Junior or senior standing. *Offered:* Fall, Spring, Summer.

**PHY 490 • Research 3 Credits**

An opportunity for individual student projects under the supervision of the faculty.

*Prerequisites:* Senior standing; PHY 365; Major in Physics and Engineering department. *Offered:* Fall, Spring.

**POS 100 • American Politics and Government 4 Credits**

Structure and workings of major parts of the United States national government, such as the Constitution, the presidency, Congress, the courts, the electoral process, and others. How these institutions help Americans deal with significant current issues.

*Offered:* Fall, Spring.

**POS 202U • Introduction to International Relations 4 Credits**

How governments interact to further their different political, military, and economic interests; basic factors affecting international cooperation and conflict; topics such as summit meetings, terrorism, arms control, and food and energy resources distribution.

*Prerequisites:* Second semester freshman standing or higher; GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). *Offered:* Fall, Spring.

**POS 205 • Introduction to Comparative Politics 4 Credits**

An introduction to the subfield of Comparative Politics with special emphasis on the nature, history, and development of political regimes. Systems covered include Western democracies, communist and post-communist states, military dictatorships, and politically developing states.

*Offered: Fall.*

**POS 211 • The Political Quest 4 Credits**

Major problems of politics and international relations, such as the proper goals of political life, the nature of justice, and the role of the state. Methods of inquiry. Development of the student's personal political stance and its relation to his or her maturing faith.

*Prerequisites: One political science course. Offered: Spring.*

**POS 216L • American Constitutional History 4 Credits**

Examination of the origins and development of American constitutional ideas and institutions from the colonial period to the present. Particular attention paid to the historical connections between major constitutional cases and broader social, political, economic, and cultural trends.

*Prerequisites: GES 130; GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).*

*Offered: Spring. Special Notes: This course carries cross-credit in history.*

**POS 221L • American Political Ideologies 4 Credits**

Major modern American ideologies. Anarchism, conservatism, democratic liberalism, fascism, gender and ethnic, liberation theology, and socialism politics. Christian interfaces with various political theories.

*Prerequisites: GES 130; GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).*

*Offered: Occasionally.*

**POS 241L • Revolution and Political Development 4 Credits**

Theory and process of modernization, with special emphasis on the Anglo-American historical experience; examinations of U.S. efforts to promote democracy internationally in Europe, Asia, and the Middle East since World War II.

*Prerequisites: GES 130; GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).*

*Offered: Occasionally January. Special Notes: This course carries cross-credit in history.*

**POS 250 • Political Science Practicum 1 Credit**

In consultation with the political science faculty, students select an off-campus program of academic study. Students create a presentation to share their experiences in a colloquium with other international relations, political science, business, and political science majors. Integrates off-campus experiences with curricular learning experiences.

*Prerequisites: One political science course; Consent of instructor; Major in business and political science, international relations, or political science, or minor in political science. Offered: Fall, Spring. Special Notes: This course is graded on an S/U basis.*

**POS 252L • History and Politics of Sports 4 Credits**

The history of sports in the modern era, with particular attention paid to sports' connections to international politics and public policy and to sports as a mirror for the history of race, gender, education, business, labor, and religion in the United States.

*Prerequisites: GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently).*

*Offered: Spring, even # years. Special Notes: This course carries cross-credit in history.*

**POS 305G • The Cold War 4 Credits**

The Cold War as an event in international history, studied from the perspective of the United States, the Soviet Union, China, Europe, and the Third World. Introduces students to ongoing historical debates and to the sources historians use in those debates.

*Prerequisites: [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Fall, even # years. Special Notes: This course carries cross-credit in history.*

**POS 306 • Public Administration 2 Credits**

How public policy is put into effect through the administrative agencies of government and the problems in management of such agencies and their relations with the public.

*Prerequisites:* Sophomore standing. *Offered:* Spring. *Special Notes:* This course carries cross-credit in business. POS 100 is a recommended prerequisite.

**POS 310 • American Foreign Relations 4 Credits**

Development of United States foreign policy since the Nixon administration, with particular attention paid to contemporary issues, long-range historical trends, and the ways in which foreign policy is formulated and carried out.

*Prerequisites:* Sophomore standing with consent of instructor. *Offered:* Fall, even # years. *Special Notes:* POS 100 and POS 202U are recommended prerequisites.

**POS 313G • Globalization and International Institutions 4 Credits**

Examination of the processes, institutions, relationships, and dynamic trends in the international system. Attention is given to the creation or maintenance of international economic systems and international organizations as they address emerging or enduring problems of world politics. Key international institutions.

*Prerequisites:* [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course.* *Offered:* Spring, odd # years. *Special Notes:* POS 202U is a recommended prerequisite.

**POS 317 • Political Psychology 4 Credits**

The causes, dynamics, and consequences of human thinking and action in the context of politics. The psychology of decision making, political attitude formation, public opinion, personality and emotions, intergroup relations, ideology, and the role of mass media in politics.

*Offered:* Fall, odd # years. *Special Notes:* This course carries cross-credit in psychology.

**POS 320 • Advanced Topics in Ethics 4 Credits**

An advanced study of principle ethical theories and their application to relevant problems concerning the individual and society. Readings in classical and contemporary sources focus on questions such as the nature of justice, the common good, and the moral responsibilities of citizens.

*Prerequisites:* Two philosophy courses or Consent of instructor. *Offered:* Spring, odd # years. *Special Notes:* This course carries cross credit in philosophy.

**POS 321 • Contemporary Democracies 4 Credits**

The meaning of democracy in theory and practice throughout history and in the modern political systems of Great Britain, Japan, and Mexico. Independent research on other democratic systems.

*Offered:* Occasionally. *Special Notes:* POS 100 or POS 211 are recommended prerequisites.

**POS 324G • Human Rights in International History 4 Credits**

International and comparative exploration of how human rights have been defined, violated, and protected. Historical topics (e.g., abolition of the slave trade, social reform and Christian missions, genocides of the 20th century) as well as contemporary issues.

*Prerequisites:* [GES 130; GES 160 or GES 149]; *Contemporary Western Life and Thought (L) course or World Cultures (U) course.* *Offered:* Occasionally. *Special Notes:* This course carries cross-credit in history.

**POS 329 • African Politics 4 Credits**

Consideration of political development in Africa from the pre-colonial era through the present, focusing on changes in political regimes through time, the nature of economic struggles, and sources of violent conflict.

*Offered:* Spring, even # years. *Special Notes:* This course carries cross-credit in history.

**POS 340 • American Political Institutions 4 Credits**

Examination of the U.S. Congress, Supreme Court, and presidency, with attention to the effects of institutions on the democratic and policy processes. Consideration of political science research on political institutions and contemporary issues facing them.

*Prerequisites:* POS 100 or Consent of instructor. *Offered:* Spring, odd # years.

**POS 342 • American Public Policy 4 Credits**

Examination of public policy – the result of government action – through consideration of the policy process, policy design, and current status of American public policy. Special attention devoted to social policy with student investigation and research in public policy.

*Prerequisites: POS 100 or Consent of instructor. Offered: Fall, odd # years.*

**POS 345 • Modern Political Thought 4 Credits**

In-depth examination of selected political thinkers such as Locke, Rousseau, Mill, Nietzsche, Kuyper, Rawls, and Taylor. Concentrates on primary sources.

*Prerequisites: One course in history, philosophy, or political science and Sophomore standing. Offered: Fall, even # years. Special Notes: This course carries cross credit in history and philosophy.*

**POS 356 • Modern Middle East 4 Credits**

Political, social, religious, economic, and cultural history of the Middle East since 1800. Particular attention is paid to colonialism, globalization, war, gender roles, revolution, and reform. Controversies such as the Arab/Israeli conflict, the Islamic Revolution in Iran, Saddam Hussein's Iraq, and the U.S. war on terror are discussed.

*Prerequisites: Sophomore standing. Offered: Fall. Special Notes: This course carries cross-credit in history.*

**POS 360 • Classical Political Thought 4 Credits**

In-depth examination of selected political thinkers such as Plato, Aristotle, Cicero, Marcus Aurelius, Augustine, Thomas Aquinas, Machiavelli, and Hobbes. Concentrates on primary sources.

*Prerequisites: One course in history, philosophy, or political science and Sophomore standing. Offered: Fall, odd # years. Special Notes: This course carries cross-credit in philosophy and history.*

**POS 410 • Topics in Political Science 4 Credits**

Intensive study of a specialized topic in political science. The topic to be studied is announced prior to the relevant registration period.

*Prerequisites: Junior standing and Two courses in political science. Offered: Occasionally. Special Notes: Students may repeat course for credit provided a different topic is covered.*

**POS 481 • Internship in Political Science 1-4 Credits**

An off-campus working experience in a government agency or political organization under appropriate supervision. Placement is individually arranged with political science faculty.

*Prerequisites: Consent of department faculty. Offered: Occasionally.*

**POS 491 • Applied Humanities Seminar 4 Credits**

An interdisciplinary, experiential capstone course in which students draw on their studies in history, philosophy, political science, or the digital humanities in order to study a major challenge in contemporary society, analyzing causes, effects, and existing responses, and then work to propose new responses to it.

*Prerequisites: Senior standing and Major in one of the following programs: business and political science, history, international relations, applied philosophy, political science, or social studies education 5-12. Offered: Fall, Spring. Special Notes: This course carries cross-credit with history and philosophy.*

**PSY 101 • Introduction to Psychology I 2 Credits**

Survey of topics from psychological science such as brain and behavior, human development, psychopathology, social psychology, and others.

*Offered: Fall, Spring.*

**PSY 102 • Introduction to Psychology II 2 Credits**

Survey of topics from psychological science such as consciousness, sensation perception, conditioning and learning, personality, etc.

*Offered: Fall, Spring.*

**PSY 203 • Lifespan Development 4 Credits**

Interactive discussion and learning of physical, cognitive, emotional, social, moral, and spiritual development from conception to death. Includes a consistent focus on individual differences.

*Prerequisites: PSY 101. Offered: Fall, Spring.*

**PSY 206 • Child and Adolescent Development 2 Credits**

Focused exploration of contemporary issues in child and adolescent development.

*Prerequisites: PSY 101. Offered: Occasionally.*

**PSY 210Z • Psychology of Fandom 4 Credits**

A study abroad experience observing and analyzing fan behavior at European sporting events.

Examination of the research literature and lived experience of fans of all kinds (e.g., sports, music, superheroes, etc.). Analysis of the psychological benefits and drawbacks of being a fan. Includes interactions with local academics discussing the topic of fandom.

*Prerequisites: GES 104 and PSY 101; Consent of instructor. Offered: Occasionally January.*

**PSY 215 • Social Psychology 4 Credits**

Behavior and experience of individuals and groups in relation to other individuals and groups. Theory, method, and findings in areas such as conformity, persuasion, social cognition, attraction, altruism, aggression, prejudice, group behavior, and applied topics.

*Prerequisites: PSY 101. Offered: Fall, Spring.*

**PSY 230M • Introduction to Statistical Methods and Experimental Design 4 Credits**

Descriptive, correlational, and inferential statistics, plus experimental design. Statistical techniques are taught using a project-based learning approach.

*Offered: Fall, January, Spring. Special Notes: Students may not receive credit for both PSY 230M and BUS 201M, MAT 207M, or AHS 250M.*

**PSY 300 • Psychopathology 4 Credits**

Classification, causes, symptoms, and treatment of various forms of psychopathology. Analysis of medical model of psychopathology in relation to major issues in the field of mental health and to the Christian tradition. Surveys empirical approaches to the study of psycho pathology.

*Prerequisites: PSY 101; Junior standing. Offered: Fall, Spring.*

**PSY 302 • Introduction to Sport Psychology 2 Credits**

An overview of the principles of psychology related to sport, exercise, and recreational activity for enhanced interactions/performance. Reviews how motivation, goal setting, leadership, and group dynamics interact with sport and recreational activities.

*Prerequisites: PSY 101. Offered: Occasionally.*

**PSY 303 • Industrial/Organizational Psychology 2 Credits**

Examines psychological principles in relation to human behavior in the workplace. Explores topics ranging from selecting employees to improving work-life satisfaction and reducing work-stress.

*Prerequisites: PSY 101. Offered: Occasionally.*

**PSY 305 • Personality 2 Credits**

Examination of traditional and contemporary theories of personality. Explores some non-western and Christian perspectives of the description and development of personality and personhood. Reviews the validity of various measures of personality.

*Prerequisites: PSY 101. Offered: Occasionally spring.*

**PSY 308G • Cross-Cultural Psychology 4 Credits**

Behavior and experience related to cultural differences. Theory, method, and findings in areas of cognition, social psychology, and applied concerns. Specific people groups may be emphasized.

*Prerequisites: [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Occasionally.*

**PSY 310 • Addiction and Recovery 4 Credits**

Psychological, physiological, and causal aspects of addiction, with emphasis on understanding the experience of persons with addiction. Addictions studied include drugs, alcohol, gambling, sex, and the internet. Also covers family issues related to addiction, models of recovery, and treatment options. Integration of Christianity with this topic throughout the course.

*Prerequisites: PSY 101. Offered: January. Special Notes: This course carries cross-credit with ADST 450.*

**PSY 316 • Consciousness: Psychology and Philosophy in Dialogue 4 Credits**

A team-taught investigation of ancient, medieval, and modern philosophies of consciousness and the historical roots of contemporary psychology. How philosophical and psychological theories of consciousness transcend disciplinary boundaries. Focus on interaction between philosophy and psychology, emphasizing the origins of cognitive science in philosophy of mind and consciousness. *Prerequisites: PSY 101 or One philosophy course. Offered: Spring, odd # years. Special Notes: This course carries cross-credit in philosophy.*

**PSY 317 • Political Psychology 4 Credits**

The causes, dynamics, and consequences of human thinking and action in the context of politics. The psychology of decision making, political attitude formation, public opinion, personality and emotions, intergroup relations, ideology, and the role of mass media in politics.

*Offered: Fall, odd # years. Special Notes: This course carries cross-credit in political science.*

**PSY 320Z • European Pioneers in Psychology 4 Credits**

Study-abroad experience exploring prominent European and diverse figures in the history of psychology within the context of major historical currents and schools. Explores cultural, philosophical, intellectual, and spiritual roots of psychological theory, especially in connection with host countries. Site and museum visits and encounters with local professional and academic psychologists.

*Prerequisites: GES 104; PSY 101; Junior or senior standing; Consent of instructors; Timely completion of application process. Offered: Occasionally January.*

**PSY 323 • Motivation and Emotion 4 Credits**

How biological, environmental, cognitive, emotional, and personal systems interact to initiate and direct human behavior. How experimental psychologists study emotional and motivational systems.

*Prerequisites: PSY 101. Offered: Fall.*

**PSY 330 • Disabilities and Giftedness 4 Credits**

Focus on the development of individuals with disabilities and giftedness from a lifespan perspective. Cognitive, physical, emotional, and sociocultural variables relevant to developmental delay; giftedness; learning disabilities; physical, sensory, and communication disabilities; emotional disturbance; and multiple disabilities. Critical analysis of psychosocial educational interventions. Service learning with those with disabilities.

*Prerequisites: EDU 276/EDU 241, PSY 203 or PSY 206; Junior standing. Offered: Fall, Summer.*

**PSY 334 • The Science of Happiness 2 Credits**

Empirical exploration of what makes people happy with a direct application to modern lives.

*Prerequisites: PSY 101. Offered: Fall.*

**PSY 335 • Psychological Assessment 4 Credits**

Methods of assessing human behavior and the nature and significance of individual differences. Includes basic psychometric theory; principles of test construction; and theory and utilization of current standardized tests of intelligence, achievement, and personality.

*Prerequisites: PSY 101 and PSY 230M. Offered: Spring.*

**PSY 336 • Journal Club 1 Credit**

Survey of contemporary and classical psychological literature. Journal club format in which topics of the students' choosing are researched, discussed, and methodologies assessed.

*Prerequisites: PSY 101 and Major in psychological sciences. Offered: Occasionally.*

**PSY 340 • Physiological Psychology 4 Credits**

Physiological and neuroanatomical mechanisms underlying behavior.

*Prerequisites: PSY 101 and Mathematics (M) course. Corequisites: Concurrent registration in PSY 341 is required. Offered: Fall, Spring.*

**PSY 341 • Physiological Psychology Lab 1 Credit**

Laboratory experience accompanying PSY 340.

*Corequisites: Concurrent registration in PSY 340 is required. Offered: Fall, Spring.*

**PSY 346 • Animal Behavior 3 Credits**

Behavior from primitive invertebrates to advanced mammals, highlighting trends in behavior systems. Natural setting studies in the ethology tradition, comparative psychology studies, and biosociological principles with their implications for human social systems.

*Prerequisites: PSY 101 or BIO 218 (may be taken concurrently); Junior or senior standing. Corequisites: Concurrent registration in PSY 347 is required. Offered: Fall, even # years. Special Notes: This course carries cross-credit in biology.*

**PSY 347 • Animal Behavior Lab 1 Credit**

Laboratory course accompanying PSY 346.

*Corequisites: Concurrent registration in PSY 346 is required. Offered: Fall, even # years. Special Notes: This course carries cross-credit in biology.*

**PSY 348 • Conditioning and Learning 4 Credits**

Basic procedures of classical and operant conditioning, theories of learning, and applications of behavioral conditioning principles to selected problems in human learning. Includes laboratory experiences that involve working with animals.

*Prerequisites: PSY 101 and Mathematics (M) course. Corequisites: Concurrent registration in PSY 349 is required. Offered: Fall.*

**PSY 349 • Conditioning and Learning Lab 1 Credit**

Laboratory experience accompanying PSY 348.

*Corequisites: Concurrent registration in PSY 348 is required. Offered: Fall.*

**PSY 350 • Cognitive Psychology 4 Credits**

Psychological theory and research concerning thinking, memory, reasoning, language, and problem solving.

*Prerequisites: PSY 101 and PSY 230M. Offered: January, Summer.*

**PSY 355 • Research Methods 4 Credits**

Research methods in psychology in the context of designing independent research. Standard research designs (experimental, quasi-experimental, and non-experimental) are evaluated in terms of threats to internal, external, statistical, and construct validity.

*Prerequisites: PSY 101 and PSY 230M. Offered: Fall, Spring.*

**PSY 399 • Topics in Psychology 2 Credits**

Contemporary concerns in psychology not covered in the current formal course offerings of the department. Student may take this course twice given the varying topics covered.

*Prerequisites: PSY 101. Offered: Occasionally.*

**PSY 400 • Principles of Counseling and Psychotherapy 2 Credits**

Introduction and analysis of major therapy systems, basic counseling techniques, and current ethical issues facing the counseling professions. Explores Christian implications of the topics. Designed for students planning on graduate study in human services.

*Prerequisites: PSY 101; PSY 300. Offered: Fall.*

**PSY 440 • Sensation and Perception 4 Credits**

A study of how the brain receives and interprets information from the environment. The biological operation of each of the senses is covered, as well as how the action of sense organs is translated into meaningful perceptions.

*Prerequisites: PSY 101 and Mathematics M-tag course. Corequisites: Concurrent registration in PSY 441 is required. Offered: Spring.*

**PSY 441 • Sensation and Perception Lab 1 Credit**

Laboratory experience accompanying PSY 440.

*Corequisites: Concurrent registration in PSY 440 is required. Offered: Spring.*

**PSY 493 • Psychology Internship 2 Credits**

A professionally supervised, applied learning experience in the work world. Includes a seminar component in which students meet regularly with the psychology faculty. Facilitates students' processing of their internship experiences and offers a forum to discuss internship-related issues and career exploration.

*Prerequisites: Major in psychology; Senior standing; Minimum 2.25 GPA in psychology courses. Offered: Fall, Summer.*

**PSY 498 • Research 2-4 Credits**

Students work with a psychology faculty member on an empirical research project. Emphasis on the use of research methodology, techniques, and psychological theory. The work may be spread over two semesters.

*Prerequisites: PSY 230M; Major in psychology; Invitation of supervising faculty member. Offered: Fall, Spring. Special Notes: This course is graded on an S/U basis.*

**PSY 499 • Senior Seminar 2 Credits**

Considers the nature of psychological inquiry and the integration of psychology and their Christian faith. Students reflect on and articulate their vocation in life as well as in their career specifically. The implications of a Christian worldview for understanding psychology and vocation.

*Prerequisites: Major in psychology and Senior standing. Offered: Fall, Spring.*

**REL 202 • Introduction to Religious Studies 4 Credits**

An introduction to the world's religious traditions and the history and methods of religious studies as a discipline. Using primary and secondary sources, focus is on affirmations regarding ultimate reality as it relates to the meaning and purpose of human existence within various religious and cultural contexts.

*Prerequisites: GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: Fall or Spring.*

**REL 212U • History of Islam 4 Credits**

Islam from its inception and development to Islam as it is practiced today. Interaction with members of the Islamic community in Minnesota in an attempt to understand Islam from the personal experiences of Muslims. Contemporary issues and controversies are examined through the lens of the Muslim experience throughout history.

*Prerequisites: GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: Spring. Special Notes: This course carries cross-credit in history.*

**REL 328G • Muslim Women in History 4 Credits**

Global survey of the lives of Muslim women from the 7th century to the present. Examination of how Muslim women's lives have historically been shaped by their social context, with particular attention to religious interpretation and expression, culture, ethnicity, and geographic location.

*Prerequisites: [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Occasionally. Special Notes: This course carries cross-credit in history.*

**SLP 200 • Anatomy and Physiology of the Speech and Swallowing Mechanisms 4 Credits**

Examination of the nervous, respiratory, phonatory, resonatory, articulatory, and swallowing systems associated with speech production and swallowing using models, lab activities, and a virtual cadaver anatomy lab. Analysis of case reports in applied/clinical anatomy based on structural, physiological, and pathological aspects of communication and swallowing disorders across the lifespan.

*Prerequisites: BIO 104/BIO 104D or BIO 214. Offered: Spring.*

**SLP 201 • Introduction to Audiology 4 Credits**

Discussion of the anatomy and physiology of hearing focuses on how sound travels through the ear and reaches the auditory cortex for final interpretation. Describe how various hearing disorders impact a person's quality of life. Includes auditory disorders, hearing screening, diagnostic assessment, differential diagnosis, and hearing loss rehabilitation.

*Prerequisites: BIO 104/BIO 104D or BIO 214. Offered: Spring.*

**SLP 202 • Introduction to Phonetics 2 Credits**

Exploration of the International Phonetic Alphabet (IPA) system that is used for transcribing the spoken speech sounds of the world's languages using specific symbols; transcribing typical and disordered speech samples based on intentional listening. Transcription and analysis of the speech while recognizing dialectical, cultural, and linguistic variations in verbal communication.

*Offered: Fall.*

**SLP 204 • Introduction to Communication Disorders 4 Credits**

Description of various communication differences/disorders affecting the pediatric, adult, and geriatric populations. Identification of communication disorders based on their etiology, signs, and symptoms, demonstration of basic knowledge of assessment, intervention methods, and management options. Includes guided observation of clinical sessions and writing of standardized observation reports.

*Offered: Spring.*

**SLP 300 • Neuroanatomy and Neurophysiology for Communication and Swallowing 4 Credits**

Exploration of the neuroanatomical and neurophysiological underpinnings of speech, language, and cognitive-communication disorders; a discussion of how the central, peripheral, and autonomic nervous systems control speech, hearing, language, cognition, and swallowing. Explanation of the development of the nervous system across the lifespan along with the neural mechanisms of aging. Application of neuroscience in neuroplasticity and rehabilitation processes.

*Prerequisites: SLP 200. Offered: Fall.*

**SLP 301 • Speech Science 4 Credits**

An in-depth study of acoustic theories of speech production and acoustic analysis of typical and atypical speech to identify atypical acoustical speech parameters in unintelligible utterances. Includes the application of speech perception and production theories/models to understand the nature and severity of communication disorders.

*Prerequisites: SLP 200 and SLP 202. Offered: Spring.*

**SLP 400 • Language Development and Disorders in Children 4 Credits**

Language development in infants, toddlers, and children; causes and characteristics of language disorders in children from birth through early adulthood. Addresses the social determinants of health, ethical, cultural, and socioeconomic issues that influence language development, diagnosis and treatment of disorders, and prevention of language disorders in educational and medical settings.

*Prerequisites: SLP 204. Offered: Fall.*

**SLP 401 • Speech Sound Development and Disorders in Children 4 Credits**

Typical and atypical phoneme acquisition in children. Application of phonetics and phonology to understand the nature, etiologies, standardized and non-standardized assessments, differential diagnosis, intervention, and evidence-based management of speech sound disorders, while considering cultural and linguistic issues in service delivery in various settings.

*Prerequisites: SLP 202 and SLP 204. Offered: Spring.*

**SLP 402 • Aural Rehabilitation 4 Credits**

Exploration of hearing disorders and central auditory processing disorders. Habilitative audiology and the range of communication options, including American Sign Language and cued speech, hearing aids, cochlear implants, speech reading, and auditory training. Aural rehabilitation options and strategies from a person-centered perspective will be included for effective clinical practice.

*Prerequisites: SLP 201. Offered: Fall.*

**SLP 406 • Acquired Cognitive, Communication, and Swallowing Disorders 4 Credits**

Simulated and real-world professional experiences in assessing, treating, and managing neurogenic language, cognitive-communication, and swallowing disorders. Reflections on clinical knowledge and case-based critical thinking skills within the context of students' experiences, faith, values, and beliefs. Incorporates patient-based learning, speech pathology services in various clinical settings, and interprofessional team care.

*Prerequisites: SLP 204 and SLP 300. Offered: Spring.*

**SLP 408 • Reading, Writing, and Spelling Disorders in School-Age Children 4 Credits**

Provides a foundational knowledge of language and literacy skills essential for children's social, functional, and academic progress in educational settings. Describes literacy development/differences/disorders in preschool and school-age children using various standardized and non-standardized tools while preparing clinical reports for literacy assessment and intervention.

*Prerequisites:* SLP 202 and SLP 204. *Offered:* Fall.

**SLP 410 • Introduction to Clinical Methods 4 Credits**

An in-depth experience of guided observation of the diagnostic and therapeutic management of speech and language disorders across the lifespan with a focus on assessment, client-clinician interactions, therapy-specific skills, and case management. Interprofessional practices in allied health, professional interactions, and techniques to implement outcome-based interprofessional activities through simulations/community-based experiences.

*Prerequisites:* SLP 204; SLP 400; SLP 401. *Offered:* Fall.

**SLP 425 • Clinical Practicum for Speech-Language Pathology 4 Credits**

Introduces behavioral assessment tools, instrumental evaluation, appraisal and diagnosis of speech and language disorders, and treatment of clients with culturally and linguistically diverse backgrounds; information about clinical/professional practice involving transition to practical environment and counseling/educational services to clients/families/caregivers regarding communication and swallowing disorders across the lifespan.

*Prerequisites:* SLP 400; SLP 401; SLP 408; SLP 410. *Offered:* Fall, Spring.

**SOC 101 • Introduction to Sociology 4 Credits**

Major concepts, theories, methodologies, findings, controversies, and history of sociology. Contributions of sociology to Christian life and thought.

*Offered:* Spring.

**SOC 255 • Introduction to American Culture 2 Credits**

Exploration of various diversity issues within the United States, particularly as they impact personal experience, identity, relationships, and opportunity. Examination of personal values, assumptions, and perspectives as they relate to diversity and strategies for approaching diverse or conflicted settings with a biblical, peacemaking stance.

*Offered:* Occasionally.

**SOW 180 • Human Behavior and the Social Environment 4 Credits**

Analyzes individuals, families, and groups utilizing systems theory, learning theories, and psychosocial frameworks. Appraises important lifespan milestones and the influence of social environment on human development. Applies information and theories consistent with social work values, cultural diversity and the promotion of social justice.

*Offered:* Spring.

**SOW 210Z • Introduction to Social Work 4 Credits**

Understanding of social work mission, core values, history, and field of practice overview. Recognition of the dimensions of diversity, cultures, and structures that may oppress and marginalize people groups. Communication and collaboration with diverse individuals with community-based, cross-cultural service learning. Consideration of social work as career choice.

*Prerequisites:* Sophomore standing and Major in social work or Minor in social welfare studies or Consent of instructor. *Offered:* Fall, January even # years.

**SOW 240 • Socioeconomic & Justice Issues in Market Economies 2 Credits**

Critical evaluation of how market economies operate, their broad socioeconomic consequences, and their impact on the lives of socially disadvantaged people. Evaluation of global and local processes and mechanisms. Analysis of theories and approaches to social justice that advocate and promote social and economic justice, and human rights.

*Offered:* Spring, odd # years.

**SOW 304 • Social Work Practice with Organizations and Communities 2 Credits**

How cultural structures and values affect privilege and power. Identifies practices that ensure that rights and responsibilities are distributed equitably. Analyzes strength-based assets and community empowerment. Applying self-awareness and self-regulation, relationship building and inter-professional collaboration, multidisciplinary theoretical frameworks and intervention strategies based on assessment, research, values, and preferences of clients.

*Prerequisites:* SOW 210Z; SOW 180 or PSY 203 (may be taken concurrently); Major in social work; Candidacy status in the social work program. Offered: Spring.

**SOW 312 • History of Social Change Through Policy 4 Credits**

Interrelationship of social problems, social welfare policies, and service delivery. Examines social and political movements that have shaped social activism. Evaluates significant turning points and their legacies in order to appreciate the linkages and contexts that interconnect social welfare reform efforts. Identifies strengths and weaknesses of the American welfare state.

*Prerequisites:* SOW 210Z; SOW 180; POS 100 (may be taken concurrently, or with instructor approval). Offered: Spring.

**SOW 313 • Social Work Practice with Individuals 4 Credits**

Introduction to generalist social work theory and practice with individuals and families. Application of professional development, critical thinking, effective communication, Human Behavior and the Social Environment (HBSE), ethical and evidence-based practice. Development of knowledge and skills of social work practice: engagement, assessment, planning, intervention, evaluation, and termination.

*Prerequisites:* SOW 210Z; SOW 180 or PSY 203 (may be taken concurrently); Major in social work; Candidacy status in the social work program. Offered: Fall.

**SOW 320 • Experience in Anti-Racism, Diversity, Equity, and Inclusion in Social Work Practice I 2 Credits**

Integration of anti-racism, anti-oppressive, and justice-informed theories and practice in social work experience. Understanding of how one's own cultural identity impacts engagement and assessment with individuals, groups, families, organizations, and communities. Application of interpersonal skills within a multi-service community-based agency setting. Students participate in 75 hours of community-based learning.

*Prerequisites:* SOW 210Z; SOW 180 or PSY 203 (may be taken concurrently). Offered: Fall.

**SOW 325 • Experience in Anti-Racism, Diversity, Equity and Inclusion in Social Work Practice II 2 Credits**

Develops advanced skills and integration of anti-racism, anti-oppressive and justice-informed theories and practice to social work experience. How one's cultural identity impacts engagement and assessment with individuals, groups, families, organizations, and communities. Application of interpersonal skills within a multi-service community-based agency setting. Includes 75 hours of community-based learning.

*Prerequisites:* SOW 210Z; SOW 180 or PSY 203 (may be taken concurrently) and SOW 320. Offered: Spring.

**SOW 327G • Identity, Diversity, and Social Justice 4 Credits**

Examines impact of societal conditions on individuals and communities. Evaluates communal, local, and national power structures, especially their impact on nondominant cultures and identities. Applies contemporary writings, social theory, and the voice of marginalized individuals. Analyzes systems that promote justice and equity, as well as those that exploit and marginalize.

*Prerequisites:* [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Fall.

**SOW 340 • Environmental Justice, Health Disparities, and Restoration Perspectives in Social Work 2 Credits**

Examination of policies established to address the inequitable distribution of environmental risks. Explanation of theories and history of environmental justice. Analysis of environmental justice and health disparities in racial groups and communities. Identification of strategies to reduce environmental injustices and health disparities.

*Offered:* Spring, odd # years.

**SOW 405 • Social Work Practice with Families and Groups 4 Credits**

Generalist social work theory applied to integrated practice within client systems. Emphasis on families and groups and on the planned change process. Student development of a group work project and case study review promote application of critical thinking, research-informed practice and cultural competence.

*Prerequisites:* SOW 210Z; SOW 180 or PSY 203; SOW 304; SOW 313. *Offered:* Fall.

**SOW 420 • Social Work Field Instruction I 4 Credits**

Applies social work competencies to guide ethical and professional practice. Analyzes personal strengths and weaknesses. Analyzes social, economic, racial and environmental injustices and human rights issues. Analyzes policy practice in relation to human rights and injustice issues. Applies practice skills in the engagement, assessment, intervention and evaluation of client constituencies.

*Prerequisites:* SOW 210Z; SOW 180 or PSY 203; SOW 304; SOW 313; SOW 320; SOW 325; SOW 327G (may be taken concurrently). *Offered:* Fall.

**SOW 425 • Social Work Field Instruction II 4 Credits**

Demonstration of ethical and professional behavior. Engagement in Antiracist, Diversity, Equity, and Inclusion (ADEI), practice-informed research, research-informed practice, and policy practice. Advancement of human rights and social, economic, racial and environmental justice. Engagement, assessment, intervention, and evaluation with individuals, families, groups, organizations, and communities.

*Prerequisites:* SOW 210Z; SOW 180 or PSY 203; SOW 304; SOW 313; SOW 320; SOW 325; SOW 327G (may be taken concurrently); SOW 420. *Offered:* Spring.

**SOW 431 • Conversations about End of Life 1 Credit**

Development of advanced care planning (ACP) facilitation skills in the context of faith, cultural, healthcare system, and societal perspectives. A First Steps ACP Facilitator Certificate is available for students who successfully complete ACP Facilitator requirements.

*Prerequisites:* Senior standing in nursing or social work, or Consent of instructor. *Offered:* Spring. *Special Notes:* This course carries cross-credit in nursing.

**SOW 450 • Abuse, Trauma, and Mental Health in Social Work Practice 4 Credits**

Presentation of the characteristics and consequences of family violence, intimate partner abuse and child and elder abuse. Identification of theoretical frameworks for assessment and intervention with survivors. Exploration of the role of racism and oppression in addressing abuse and trauma. Application of the DSM in case plans for client vignettes.

*Prerequisites:* PSY 101; PSY 102; SOW 180 or PSY 203 (may be taken concurrently). *Offered:* Spring.

**SOW 451 • Research for Social Work Practice 4 Credits**

Analysis and evaluation of research methods for various practice contexts and purposes. Using research-based data to advance knowledge, inform practice, and evaluate program and practice effectiveness. Synthesizing scholarly research and best practice in an organized professional literature review. Creation of a research study to improve practice, policy or delivery.

*Prerequisites:* SOW 210Z; SOW 180 or PSY 203; SOW 320; SOW 325. *Offered:* Fall.

**SOW 499 • Senior Integrative Seminar 4 Credits**

Integration of generalist social work knowledge, values, and skills through ethics-based case studies and completion of practice/program evaluation research applied to field practicum setting. Critical thinking, leadership, and scholarship emphasized. Understand ethical integration of a Christian worldview into social work practice.

*Prerequisites:* SOW 420; SOW 451; Admission to the social work program. *Offered:* Spring.

**SPA 101 • Introductory Spanish I 4 Credits**

Listening, speaking, reading, and writing. Opportunities for oral and written practice encourage actual communication in Spanish.

*Prerequisites:* No more than one year of high school Spanish or Placement exam. *Offered:* Fall, Spring.

**SPA 102S • Introductory Spanish II 4 Credits**

Continuation of functional, practical understanding and communicative use of the Spanish language and cultures.

*Prerequisites:* SPA 101 or Placement exam. *Offered:* Fall, January, Spring.

**SPA 120A • Photography in Spain 4 Credits**

Technical and conceptual acquaintance with the photography medium and its vocabulary within the realm of high art. Includes camera operation, black and white film developing, print processing, and finishing.

*Offered:* Spring. *Special Notes:* This course is offered only as part of the Semester in Segovia Program.

**SPA 201S • Intermediate Spanish I 4 Credits**

Synthesis and expansion of language study in order to further develop communicative language ability. Study of the rich cultural diversity in the Spanish-speaking world.

*Prerequisites:* SPA 102S or Placement exam. *Offered:* Fall, Spring.

**SPA 202SU • Intermediate Spanish II 4 Credits**

A further development of communicative language ability through the study of the rich cultural diversity in the Spanish-speaking world. Topics include: religious practices, Hispanics in the United States, and violations of human rights. Service-learning experience required.

*Prerequisites:* SPA 201S or Placement exam; GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). *Offered:* Occasionally.

**SPA 202UZ • Intermediate Spanish II 4 Credits**

Further development of communicative language ability through the study of the rich cultural diversity in the Spanish-speaking world. Topics include: religious practices, Hispanics in the United States, and violations of human rights. Service-learning experience required.

*Prerequisites:* SPA 201S or Placement exam; GES 130 (may be taken concurrently) or GES 149 (may be taken concurrently). *Offered:* Fall, Spring. *Special Notes:* This course meets the S-tag General Education course requirement.

**SPA 261S • Spanish for Health Professionals 4 Credits**

Designed for those studying or preparing for healthcare professions. Emphasis on building culturally and linguistically competent communication skills with Spanish-speaking immigrants in healthcare settings.

*Prerequisites:* SPA 201S or Placement exam. *Offered:* Occasionally.

**SPA 303U • Historic Spain and its Cultures 4 Credits**

Study of the multi-cultural richness of Spain in its unique history, society, politics, art, film, and music. Participation in a series of field trips to places of cultural and historical interest in Segovia and to museums in Madrid.

*Prerequisites:* GES 130 or GES 149 (may be taken concurrently); SPA 330S or SPA 340U or Consent of Instructor and SPA 202UZ or SPA 261S. *Offered:* Spring. *Special Notes:* This course is only offered as part of the Semester in Segovia program.

**SPA 316 • Modern Spain: An Examination of Ethics 4 Credits**

An examination of moral and ethical questions during the Spanish Civil War, the Franco regime, and post-Franco Spain. Topics include: national unity, justice, political assassination, the responsibility of individuals in society, Basque nationalism, the role of the United States, immigration, and the role of the Catholic Church.

*Prerequisites:* SPA 342 or Concurrent enrollment in SPA 303U. *Offered:* Spring. *Special Notes:* This course is only offered as part of the Semester in Segovia program.

**SPA 317 • Advanced Communication in Spain 4 Credits**

Further development of communicative ability in Spanish, including reading, writing, listening, and conversational skills. Students write compositions, participate in discussions, have conversational exchanges with Spanish university students, give presentations, and read short essays.

*Prerequisites:* SPA 303U (may be taken concurrently) or Consent of instructor and SPA 202UZ or SPA 261S. *Offered:* Spring. *Special Notes:* This course is only offered as part of the Semester in Segovia program.

**SPA 327 • Marketing and Management in Spain 4 Credits**

Theoretical and practical concepts of marketing and management in the semi-globalized world. The significant challenges globalization presents to management and marketing, specifically in the context of Spain. Business terminology and reality in a Spanish business environment.

*Prerequisites:* SPA 202UZ or SPA 261S. *Offered:* Spring. *Special Notes:* This course is only offered as part of the Semester in Segovia program. This course carries cross-credit in business.

**SPA 330S • Advanced Conversation 4 Credits**

Contemporary topics to further develop oral proficiency skills through informal and formal conversations, group discussions, an academic presentation, and readings in select topics.

*Prerequisites:* SPA 202UZ or SPA 261S. *Offered:* Spring.

**SPA 340U • Historical Heritage in the Spanish Speaking World 4 Credits**

An examination of key historical processes in Spain, Latin America, and the Spanish-speaking communities in the United States with a focus on social, economic, political, geographic, and religious dimensions.

*Prerequisites:* SPA 202UZ, SPA 261S, or Consent of instructor. *Offered:* Fall, Occasionally spring.

**SPA 342 • Readings from Latin America and Spain 4 Credits**

Readings in novels, essays, short stories, and poetry from Latin America and Spain.

*Prerequisites:* SPA 330S or SPA 340U. *Offered:* Fall, Occasionally spring.

**SPA 350 • Contemporary Narratives in Spain 4 Credits**

Analysis of literary and nonliterary texts of women in the Spanish-speaking world representing diverse interpretations of historical, political, and cultural realities.

*Prerequisites:* SPA 330S or SPA 340U. *Offered:* Spring. *Special Notes:* This course is only offered as part of the Semester in Segovia program.

**SPA 352 • Classical Narratives in Spain 4 Credits**

Analysis of strategies in literary and historical texts from Latin America and Spain that arose in response to the censorship of diverse voices, religious intolerance, and political consolidation.

*Prerequisites:* SPA 342. *Offered:* Spring. *Special Notes:* This course is only offered as part of the Semester in Segovia program.

**SPA 361 • Introducción a la Biblia 4 Credits**

Traces the journey of God's people from Abraham and Sarah through the New Testament church, highlighting the unifying self-disclosure of God in the various cultures and types of writing of the Old and New Testaments. Introduces students to historical and thematic content as well as broad but basic exegetical principles.

*Prerequisites:* SPA 340U or Consent of instructor. *Offered:* Fall. *Special Notes:* Instruction is in Spanish. Students may not receive credit for SPA 361 and BIB 101 or BIB 102. This course carries cross credit in biblical and theological studies.

**SPA 481 • Internship in Spanish 1-4 Credits**

Cross-cultural experience to apply and expand Spanish communication knowledge and communication skills in an off-campus setting. Placements must be at an organization or business within the Latino community or in the Spanish-speaking world. Must be planned in advance of placement in consultation with the Languages and Cultures department.

*Prerequisites:* Major or minor in Spanish. *Offered:* By arrangement.

**SPA 499 • Senior Seminar 4 Credits**

An in-depth study and presentation of a topic related to Hispanic cultures, literatures, or the Spanish language. Service-learning experience may be required.

*Prerequisites:* Major in Spanish and Senior standing or Consent of instructor. *Offered:* Spring.

**SPD 205 • Introduction to Special Education 2 Credits**

Identification of the impact that historical and philosophical foundations, legal bases, and contemporary issues have on special education. Identification of common disability category characteristics. The impact that culture, faith, and language have on special education. Description of how the Individuals with Disabilities Education Act (IDEA) impacts special education.

*Prerequisites: EDU 200/EDU 201 and Major or minor in one of the following programs: k-6 elementary education, communication arts and literature education 5-12, mathematics education 5-12, social studies education 5-12, special education k-12 academic behavioral strategist, music education k-12, elementary and special education integrated major, special education. Offered: Fall, January.*

**SPD 209 • Introduction to Academic and Behavior Support 4 Credits**

Introduction to how special education and general education systems relate. Identifies functional behavioral assessments processes and principles of individual and school-wide systems of supports. Demonstrates how evidence-based instruction can be adapted. Explores co-teaching models. Identifies how required curricular components direct instruction. Analysis of positive instructional environments. Description of outside resources and supports.

*Prerequisites: EDU 200/EDU 201 and Major or minor in one of the following programs: k-6 elementary education, communication arts and literature education 5-12, mathematics education 5-12, social studies education 5-12, special education k-12 academic behavioral strategist, music education k-12, elementary and special education integrated major, special education. Offered: Fall, Spring.*

**SPD 222 • Teaching Reading (and Field Experience) 4 Credits**

Relationships among reading, writing, oral language, comprehension processes, and instructional strategies. English language structure, word identification strategies, and the role of vocabulary. Analyzes texts for K-12 classrooms. Assessing reading and writing needs. Instructional strategies for dyslexia. Assessing reading ability; creating lessons. Reading instruction skills/strategies. How faith connects with professional responsibilities.

*Prerequisites: Major in special education k-12 academic behavioral strategist or elementary and special education integrated major. Offered: Fall, Spring. Special Notes: Includes 30 field experience hours over 12 weeks of supervised instruction in a K-12 setting.*

**SPD 301 • Characteristics of Students with Mild-Moderate Disabilities (and Field Experience) 4 Credits**

Five disability categories of the Academic Behavioral Strategist license. Students with mild to moderate disabilities. IEP components; roles and responsibilities of IEP team members. Effective academic and behavioral interventions, accommodations, and modifications. Impact of culture and language on special education. Integrates faith and teaching. Includes 30 hours of field experience.

*Prerequisites: EDU 200/EDU 201 and Major in special education k-12 academic behavioral strategist, elementary and special education integrated major, or minor in special education. Offered: Spring.*

**SPD 310 • Norm-Referenced Assessment 4 Credits**

Description of standards and critical elements in the special education assessment process. Identification of test development principles and evaluation of standardized assessment instruments for special education decision-making. Description of responsibilities of assessment team members. Synthesis of assessment data. Application of scriptural principles to assessment in special education.

*Prerequisites: Major in special education k-12 academic behavioral strategist or elementary and special education integrated major. Corequisites: Concurrent registration in SPD 354 and SPD 370 is required. Offered: Fall, Spring.*

**SPD 318 • Foundations of Instructional Strategies for Students with Mild-Moderate Disabilities 4 Credits**

Development of an instructional sequence for students in special education. Evaluation of data for making accommodations and modifications. Identification of differentiation strategies and the relationship between teaching and learning theories and academic standards. Application of evidence-based practices. Exploration of the relationship between faith concepts and instruction in special education.

*Prerequisites:* EDU 200/EDU 201 and Major or minor in one of the following programs: k-6 elementary education, communication arts and literature education 5-12, mathematics education 5-12, social studies education 5-12, special education k-12 academic behavioral strategist, music education k-12, special education. Offered: Fall, Spring.

**SPD 332 • Responsive Intervention and Assessment 4 Credits**

Appropriate assessment measures, including curriculum-based measures. Professional resources for interventions. Interpreting assessment and progress-monitoring data to inform instructional and placement decisions. Instruction and modifications incorporating research-based interventions, and based on data collected through collaboration with stakeholders. Describing student assessment results. Identifying professional special education resources.

*Prerequisites:* EDU 200/EDU 201 and Major or minor in one of the following programs: k-6 elementary education, communication arts and literature education 5-12, mathematics education 5-12, social studies education 5-12, special education k-12 academic behavioral strategist, music education k-12, elementary and special education integrated major, special education. Offered: Fall, Spring.

**SPD 342 • Introduction to Student Mental Health and Systems Comprehensive of Support 4 Credits**

Research and etiology of mental health diagnoses common among students with mild/moderate SPED needs. Impact of mental health and behavioral diagnoses, substance abuse, and suicide. Theory and application of best practice therapeutic and trauma-informed interventions. Roles of professionals within and outside the school related to mental health and school safety.

*Prerequisites:* EDU 200/EDU 201 and Major or minor in one of the following programs: k-6 elementary education, communication arts and literature education 5-12, mathematics education 5-12, social studies education 5-12, special education k-12 academic behavioral strategist, music education k-12, elementary and special education integrated major, special education. Offered: Fall.

**SPD 354 • Classroom-Based Assessment 2 Credits**

Legal, professional, and ethical standards in assessment measures and environmental factors influencing student achievement and behavior. Describing students' learning style and strengths, and analyzing behavior based on observations and assessment data. Identifying the influence of diversity, age, and gender on assessment.

*Prerequisites:* EDU 200/EDU 201 and A major in special education k-12 academic behavioral strategist or elementary and special education integrated major. *Corequisites:* SPD 310 and SPD 370. Offered: Fall, Spring.

**SPD 370 • Assessment Field Experience 1 Credit**

Identifying students' strengths and needs through assessment. Identifying the purpose of multidisciplinary teams. Developing an evaluation report, and a plan for continued professional development in the area of assessment. Explaining assessment results to family, students, and staff. Creating interventions. 30 hours/12 weeks.

*Prerequisites:* Major in special education k-12 academic behavioral strategist or elementary and special education integrated major. *Corequisites:* Concurrent registration in SPD 310 and SPD 354 is required. Offered: Fall, Spring.

**SPD 374 • Consultation and Collaboration in Programming for Students with Disabilities 4 Credits**

Focus on collaborating with stakeholders to support students with disabilities. Development and evaluation of individual education programs based on student assessment results. Consideration of technology, supplementary aids, services, and student's transitional needs. Synthesis of cultural, ethnic, and linguistic diversity. Clarification of personal beliefs and adjusting to student needs.

*Prerequisites:* EDU 200/EDU 201 and Major in special education k-12 academic behavioral strategist or elementary and special education integrated major. Offered: Fall, Spring.

**SPD 480 • Student Teaching - Academic Behavioral Strategist 6-12 Credits**

Management of timelines and responsibilities of a special education teacher/case manager. Implementation of procedures necessary to incorporate referral, assessment and evaluation, and IEP planning. Consultation with parents and professionals to provide special education services to students. Implementation of appropriate interventions. Analysis of personal and professional growth, development and efficacy.

*Prerequisites: SPD 205; SPD 209; SPD 222; SPD 301; SPD 310; SPD 318; SPD 332; SPD 342; SPD 354; SPD 370; SPD 374; 2.75 GPA; Major in special education k-12 academic behavioral strategist or elementary and special education integrated major. Offered: Fall, Spring.*

**THA 100A • Beginning Acting for Stage and Screen 4 Credits**

The art of acting. Workshop experiences to develop personal creative talents through an exploration of performance techniques including movement, improvisation, and stage acting.

*Offered: Spring.*

**THA 120A • Projects in Performance 1 Credit**

A project in backstage/technical work (e.g., set/stage building, props, lights, etc.) or performance to be pursued in conjunction with a current performing arts production. Minimum of 30 hours.

*Prerequisites: Consent of department. Offered: Fall, January, Spring. Special Notes: Maximum of 1 credit per area, per semester and 4 credits per four years.*

**THA 202A • Producing and Performing a Musical 4 Credits**

An intensive experience in the production and performance of a musical. Instruction and coaching in the unique art of musical theatre as well as direct involvement in all aspects of mounting a show according to a professional summer stock or repertory model.

*Prerequisites: Audition for and casting in the show. Offered: January, even # years.*

**THA 220 • Projects in Performance 1 Credit**

A project in backstage/technical work (e.g., set/stage building, props, lights, etc.) or performance to be pursued in conjunction with a current performing arts production. Minimum of 30 hours.

*Prerequisites: Consent of department. Offered: Fall, January, Spring. Special Notes: Maximum of 1 credit per area, per semester and 4 credits per four years.*

**THA 302 • Producing and Performing a Musical 4 Credits**

Additional experience in the production and performance of a musical. Instruction and coaching in the unique art of musical theatre as well as direct involvement in all aspects of mounting a show according to a professional summer stock or repertory model.

*Prerequisites: THA 202A and Audition for and casting in the show. Offered: January, even # years.*

**THA 320 • Projects in Performance 1 Credit**

A project in backstage/technical work (e.g., set/stage building, props, lights, etc.) or performance to be pursued in conjunction with a current performing arts production. Minimum of 30 hours.

*Prerequisites: Consent of department. Offered: Fall, January, Spring. Special Notes: Maximum of 1 credit per area, per semester and 4 credits per four years.*

**THA 420 • Projects in Performance 1 Credit**

A project in backstage/technical work (e.g., set/stage building, props, lights, etc.) or performance to be pursued in conjunction with a current performing arts production. Minimum of 30 hours.

*Prerequisites: Consent of department. Offered: Fall, January, Spring. Special Notes: Maximum of 1 credit per area, per semester and 4 credits per four years.*

**THE 201 • Christian Theology 4 Credits**

Investigates central themes of the Christian faith from a primarily systematic perspective. Topics include: Scripture, God, the person and work of Jesus Christ, salvation, and last things. Emphasis on the unity and diversity of theological beliefs within Christianity, and on the interrelationships among theological understanding, culture, and discipleship.

*Prerequisites: BIB 101 and Sophomore standing. Offered: Fall, January, Spring.*

**THE 215L • Survey of Historical Theology in Global Perspective 4 Credits**

The global historical development of Christian thought from Early Church to Reformation and into the post-Reformation era of the contemporary contexts. Includes overview of major figures and developments in diverse contexts.

*Prerequisites: BIB 101 and THE 201, or Consent of instructor; GES 130 and GES 160 (may be taken concurrently) or GES 149 (may be taken concurrently). Offered: Fall or Spring.*

**THE 240 • Topics in Theology 4 Credits**

Study of a theological area or topic. The specific topic is announced when the course is offered.

*Prerequisites: THE 201. Offered: Fall or Spring.*

**THE 256L • Christian Apologetics 4 Credits**

The intellectual viability of the Christian faith. Topics include: the nature of apologetics and apologetic method, theological and philosophical arguments for and against the existence of God, and historical and philosophical arguments for and against the central beliefs of Christianity.

*Prerequisites: GES 130: GES 160 (may be taken concurrently) or GES 145 (may be taken concurrently).*

*Offered: Fall, January, Spring.*

**THE 309 • A Biblical Theology of Poverty 4 Credits**

Responses to poverty in the Old Testament, intertestamental literature, and the New Testament in light of the socioeconomic setting of these records. Construction of a biblical perspective and implications for Christian communities in North America.

*Prerequisites: BIB 101 and GES 160 or GES 149 and Sophomore standing. Offered: Fall or Spring. Special*

*Notes: This course carries cross credit with biblical studies.*

**THE 315 • Contemporary Theological Issues 4 Credits**

Theoretical and practical engagement with the academic disciplines of theology. Considers contemporary theological issues facing the 21st century church and explores current research and writing in the fields of theology.

*Prerequisites: THE 201 or Consent of the instructor. Offered: Spring.*

**THE 326G • Christian Theology in Africa, Asia, and Latin America 4 Credits**

Introduces major theological themes and theories that have emerged in the socio-political and cultural contexts of sub-Saharan Africa, Asia, and Latin America. Offers critical and constructive dialogue with key theological themes and issues in Black, Feminist, Liberation, Dalit, and African theologies.

*Prerequisites: [GES 130; GES 160 or GES 149]; Contemporary Western Life and Thought (L) course or World Cultures (U) course. Offered: Fall.*

**THE 363 • Christian Social Ethics 4 Credits**

Christian approaches to ethical problems within today's society, such as the morality of war, poverty and welfare, homelessness, racism, and human sexuality. Roles of Christians and churches in response to these issues. Classical ethical approaches of utilitarianism, Kant, and social contract ethics.

*Prerequisites: BIB 101 and THE 201 or Consent of instructor. Offered: Fall.*

**THE 499 • Departmental Capstone 4 Credits**

Selected topics related broadly to the areas of ministry, Bible, and theology. A major research project in consultation with department faculty is followed by an oral and written presentation of its results.

*Prerequisites: Major in biblical and theological studies or missional ministries and Senior standing. Offered: Spring. Special Notes: This course carries cross credit with biblical and theological studies and missional ministries.*