Mission Statement
The College of Arts and Sciences provides an excellent liberal arts education that is informed by Christian faith and prepares students for life, careers, and service.

Goals
• **Excellence driven**: The College of Arts and Sciences is committed to excellence in every aspect of the academy, including teaching, scholarship, and service.
• **Christ-centered**: The College of Arts and Sciences seeks to foster spiritual growth and the development of a vital Christian worldview in both faculty and students.
• **People-focused**: The College of Arts and Sciences consists of faculty and staff committed to modeling the concept of servant leadership.
• **Future-directed**: The College of Arts and Sciences seeks to nurture lifelong learning skills, empowering students and faculty to impact their local and global communities.

Courses
The following courses are designed to provide a one-year graduate-level post-baccalaureate experience for students interested in improving their preparation for health-related professional programs.
**Course Descriptions: Biology (BIO)**

505. Applied Anatomy & Physiology I (3) F  
Prerequisites: BIO 221 and 222 or permission of instructor.  
An intensive examination of the human body that addresses the normal complex physiological processes of the cell, fluids and electrolytes, acid-base balance, temperature regulation, vascular hemodynamics, mobilization of fluids through the body and lymphatic system, musculoskeletal systems and function of the myocardium. The acquired information will provide the student with a body of knowledge to critically evaluate co-existing conditions of the surgical patient.

507. Applied Anatomy & Physiology II (3) S  
Prerequisites: BIO 221 and 222 or permission of instructor.  
A continuation of 505 focusing on the normal complex physiological processes of blood components and coagulation and the respiratory, renal, endocrine, digestive and nervous system.

508. Preparation for Pre-professional Biologists (1) F  
This course is designed to develop critical professional skills in students interested in a career in the biological sciences, with special emphasis on gaining acceptance into professional programs such as medicine, dentistry, and pharmacy. The course will focus on guiding students through the application process, including improving essay writing and interviewing. In addition, it will stress the significance of networking and shadowing in professional and social development, help the students find the best fit for their professional education or career goals, and educate them on alternative career paths in the biological sciences.

510. Advanced Human Gross Anatomy (3) F  
Prerequisites: BIO 221 & 222 or BIO 505 & 507 or permission of instructor.  
This course will incorporate the dissection of cadavers and viewing of anatomical models in understanding the nervous, endocrine, cardiovascular, respiratory, digestive, and urinary systems of the human body. Additional emphasis is placed on the needs of professional health care personnel.

512/512L Comparative Vertebrate Anatomy (3) and Comparative Vertebrate Anatomy Lab (1) S  
Study of the similarities of anatomy and early development of vertebrates, complemented by dissection of representative adults. Three hours lecture and optional 3 hours laboratory/week.

514. Immune Response to Infectious Disease (3) F  
This course reviews the organisms associated with infections in humans with application directed towards those most commonly encountered in the United States. This will be integrated with a study of the immune system, how the body responds to various types of infections, and relevant clinical treatment methods.

515/515L. Genetics (3) and Genetics Lab (1) S  
A study of the principles of heredity including both classical and molecular genetics. Three hours lecture and optional 3 hours laboratory/week.

516/516L. Physiology (3) and Physiology Lab (1) S  
A study of the principles of physiology, emphasizing metabolic processes common to many organisms. Three hours lecture and optional 3 hours laboratory/week.

517/517L. Developmental Biology (3) and Developmental Biology Lab (1) F  
A study of development in organisms, including both classical, descriptive embryology and contemporary investigations of processes involved in morphogenesis and differentiation. Three hours lecture and optional 3 hours laboratory/week.

521/521L. Advanced Human Anatomy & Physiology I (3) and Advanced Human Anatomy & Physiology I Lab (1) F  
The 1st of a 2-semester sequence designed to establish a knowledge base of human anatomy and physiology. Body systems studied include the integumentary, skeletal, muscular, and nervous systems. Three hours lecture and optional 3 hours laboratory/week.

522/522L Advanced Human Anatomy and Physiology II (3) and Advanced Human Anatomy & Physiology II Lab (1) S  
Prerequisite: BIO 521.  
A continuation of BIO 521 studying body systems: endocrine, cardiovascular, respiratory, urinary, digestive, and lymphatic. Three hours lecture and optional 3 hours laboratory/week.

523/523L. Cell Biology (3) and Cell Biology Lab (1) S  
A study of biological systems at the cellular and subcellular levels emphasizing functional aspects such as protein procession and sorting, membrane systems, energy generation in mitochondria and chloroplasts, and cell signaling. Three hours lecture and optional 3 hours laboratory/week.

525/525L. Molecular Biology (3) and Molecular Biology Lab (1) F  
Basic principles of molecular biology focusing on recombinant DNA methods as applied to a variety of biological questions. Students will learn basic research laboratory skills through a wide range of methods from gel electrophoresis to subcloning. Three hours lecture and optional 3 hours laboratory/week.

539. Ecotoxicology (4) W  
A comprehensive overview of the ecological consequences of environmental pollution, the effects of toxic substances on the ecosystem as a whole and on individuals with that ecosystem, and the methodology of assessing pollutant damage. Three hours lecture and 3 hours laboratory/week.
540. Experimental Design and Biostatistics (4) F
Statistical analysis of data in a biological context. Students will be given the opportunity to identify a variety of biological problems, develop specific questions, design and conduct experiments to address these questions, formulate and test hypotheses, choose and run the appropriate statistical test, and interpret the outcomes of such test. Three hours lecture and 3 hours laboratory/week.

541. Histology (4) W
The branch of anatomy that deals with structure, composition, design and function of body tissues as it relates to the principles of physiology, biochemistry, molecular biology and medicine. Three hours lecture and 3 hours laboratory/week.

542. Medical Parasitology (4) W
Parasitology is a course that will apply information learned in a variety of Biology courses to the study of parasites and parasitic diseases. Specifically, this course will address the ecology, epidemiology and biochemistry of parasites and diseases caused by parasites. The laboratory will focus on the identification of important parasite groups and methods for host examination and diagnosis. Three hours of lecture and 3 hours laboratory/week.

585. Special Studies in Cell and Molecular Biology F, S
Variable content course designed to address cutting-edge topics in cell and molecular biology.