BIO 475. Advanced Cell Biology (3, 0). 3 credits.
This seminar-style course covers topics in advanced cell and molecular biology. Class format will be discussions from assigned review articles, followed by student-led presentations of assigned primary literature. Students write a research grant proposal and give an oral presentation of their proposal in class. Prerequisite: BIO 224.

BIO 477. The Genetics of Cancer (3, 0). 3 credits.
Exploration of the genetic and epigenetic factors that drive the evolution of cancer cells, taking into account both inherited and environmental contributions to this process. The cellular mechanisms debilitated or subverted during cancer development will be studied, and student teams will demonstrate their understanding of the material through the diagnosis, genetic characterization and treatment of a hypothetical cancer patient. Prerequisite: BIO 224.

BIO 480. Advanced Molecular Biology (3, 4). 4 credits.
Cellular constituents and genetics are emphasized at the molecular level. Credit may not be earned in both BIO 480 and BIO 560. Prerequisite: BIO 224, and CHEM 241 or CHEM 342.

BIO 481. Genomics (3, 3). 4 credits.
An advanced biology course designed for students to learn about the structure and function of genomes, to develop facility in web-based tools and resources, and to appreciate the power and limitations of current resources and knowledge. Focus is on the biological questions that genomics can help to answer. Laboratory exercises will be sequencing and analyzing genomic DNA. Prerequisite: BIO 224.

BIO 482. Human Histology (3, 3). 4 credits.
Microscopic structure of cells, tissues and major organ systems of the body. Basic anatomical and physiological function is presented to emphasize the histological significance of the examined organ systems. Prerequisite: BIO 270, BIO 290 or equivalent.

BIO 483. Bioinformatics (3, 3). 4 credits.
Focuses on building databases and computer programs to manage and analyze biological sequence data, and secondary on theoretical aspects. The overall objective is to learn current information about the intersection of information science and biology, to develop facility in the many web-based tools and resources for further studies and research in genomics/bioinformatics, and to appreciate the power and limitations of current resources and knowledge. Prerequisite: BIO 224.

BIO 486. Systemsatics of Vascular Plants (2, 4). 4 credits.
Study of systematic theory and an overview of the classification and evolution of higher plants with particular attention to flowering plant families. Techniques for plant identification and collection and for construction of phylogenies will be taught in lab. Prerequisite: BIO 124 or permission of the instructor.

The interactions of organisms with their physical environment. Concepts from fluid and solid mechanics are applied to biological form and function. Prerequisite: BIO 114 or permission of the instructor.

BIO 492. Mentored Biology Course Assistant (0, 4). 1 credit.
Students are trained for and participate in teaching undergraduate biology laboratories. Students must contact and make arrangements with the supervising instructor in the term prior to registration. May be repeated for a maximum of two credits when course content changes. Prerequisites: GPA of 2.5 or greater.

BIO 493. Pre-Veterinary Student Internship (0, 7). 2 credits.
Students are supervised by veterinarians and lab technicians in diagnostic lab activities at a regional animal health laboratory. A proposal and final presentation are required. Enroll ment is limited to 1-2 individuals per term and students are advised to contact the Pre-Veterinary coordinator to be well prepared. Prerequisite: Completion of BIO 224, GPA of 2.5 or higher and permission of the instructor.

BIO 494. Internship in Biology (0, 4-8). 1-2 credits.
Students participate in research or applied biology outside of this university. Students must contact and obtain approval of a supervising instructor at the off-campus location and with the department internship coordinator in the term prior to registration. A proposal must be approved prior to registration and a final paper or presentation will be completed. Prerequisites: Biology or biotechnology major with a minimum of eight biology credit hours and a GPA of 2.5 or greater.

BIO 495. Biotechniques (0, 4). 1 credit.
Students are trained in research theory and techniques. Students must contact and make arrangements with a supervising instructor in the term prior to registration. May be repeated for a maximum of two credits when course content changes. Prerequisite: GPA of 2.5 or greater.

BIO 496. Research Literature (0, 4). 1 credit.
Students pursue literature research in a selected area of biology. Students must contact and make arrangements with a supervising instructor in the term prior to registration. May be repeated for a maximum of 2 credits when course content changes. Prerequisite: GPA of 2.5 or greater.

BIO 497. Biological Research (0, 4-8). 1-2 credits.
Students pursue a lab or field research project in a selected area of biology. Students must contact and make arrangements with a supervising instructor in the term prior to registration and complete a 2-3 page proposal no later than five weeks after the start of the course. Course may be repeated. Prerequisite: GPA of 2.5 or greater.

BIO 499. Senior Project (0, 8). 2 credits.
Three semester courses taken as Parts A, B and C; 2 credits each. Expectations, requirements and prerequisites are defined in the department senior project policy. Students must contact and make arrangements with a supervising instructor in the term prior to registration.

Biotechnology

College of Science and Mathematics and College of Integrated Science and Technology

BIO 290. Introduction to Biotechnology. 3 credits.
An introduction to biotechnology. Topics will include research opportunities, careers and current topics in biotechnology. Not available for biology major or minor credit.

Business Analytics

College of Business

BSAN 391. Quantitative Business Modeling. 3 credits.
This course addresses a wide range of complex business problems through quantitative modeling and appropriate computer applications, especially spreadsheets. Approaches include optimization and sensitivity analysis, multi-objective decision making and risk analysis. Prerequisites: COB 291 or equivalent with a grade of “B-” or higher and junior or senior standing.

BSAN/CIS 392. Descriptive and Predictive Analytic Methods. 3 credits.
This course integrates advanced analytical methods from statistics and management science for enhanced understanding of business performance and improved predictive capabilities. The emphasis is on applying computer applications for statistical modeling and analysis of data from a variety of business processes to support managerial decision-making. Prerequisites: COB 291 or equivalent with a grade of “B-” or higher and junior or senior standing.

BSAN/CIS 393. Predictive Analytics and Data Mining. 3 credits.
This course focuses on quantitative techniques and computer applications that allow the extraction of useful, previously unrecognized information from large data sets for predictive purposes. By effectively sifting through databases such as those generated by many businesses, data mining allows the analyst to recognize potentially important patterns and to target business opportunities. Prerequisites: COB 291 or equivalent with a grade of “B-” or higher and junior or senior standing.

BSAN/CIS 490. Special Studies in Computer Information Systems or Business Analytics. 1-3 credits.
An advanced course in information and/or business analytics designed to give qualified students an opportunity to complete independent study under faculty supervision. Prerequisites: Senior standing, recommendation of the instructor and written approval of the department head prior to registration.

BSAN 498. Special Topics in Business Analytics. 3 credits.
An advanced course designed to allow exploration of current topics in business analytics. Course content will vary. See adviser for current content. Prerequisite: Permission of the instructor.

Business Law

College of Business

BLAW 314. Real Estate Law. 3 credits.
A study of the principles of law-governing interests in real estate including acquisition, encumbrance, transfer, rights and obligations of parties, and state and federal regulations thereof. Prerequisites: COB 218 and junior standing.

BLAW 470. Financial Products: Regulation and Protection. 3 credits.
An inquiry into the legal environment of the financial marketplace. Topics explored include the role of regulatory agencies, the design of contracts...