Biological Sciences (BYS)

BYS 500 - CURRENT CONCEPTS IN BYS/AL A&M
Semester Hours: 3

BYS 505 - PSYCHOPHARMACOLOGY
Semester Hours: 3
Introduction to drug classification and action with emphasis on physiological and psychological interactions. Same as PY 505.

BYS 508 - FOOD ANALYSIS/A&M
Semester Hours: 4

BYS 510 - RADIATION BIOLOGY/A&M
Semester Hours: 3
Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Characteristics of radioisotopes, detection and counting techniques and instrumentation, tracer techniques, health and safety system.

BYS 519 - GENE STRUCTURE & FUNCTION
Semester Hours: 3
Advanced studies of macromolecular structure and biological function of proteins and nucleic acids involved in the passage of genetic information and cellular response. Structural significance of viruses and molecular evolution included.

BYS 523 - PRINCIPLES OF VIROLOGY/A&M
Semester Hours: 3
Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Principles of viral infectivity, multiplication, and chemical constitution; laboratory techniques for their isolation, cultivation, identification, and enumeration.

BYS 524 - MYCOLOGY/A&M
Semester Hours: 4
Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Lines of phycomycetes using representative species; various series of actinomycetes; representative pathogenic (crop and vegetative pathogens) and nonpathogenic heterobasidiomycetidae organisms; order and families of homobasidiomycetidae. Ontogenetics, cellular, and structural study applied to all divisions, classes, series, orders and families.

BYS 524L - MYCOLOGY LAB/A&M
Semester Hour: 1

BYS 526 - MICROBIAL ECOLOGY
Semester Hours: 4
Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Relationship of soil and aquatic microorganisms and their importance in ammonification, nitrification, and other biological processes.

BYS 528 - PHYSIOLOGY OF REPRODUCTION/A&M
Semester Hours: 4

BYS 529 - STATISTICS/AL A&M
Semester Hours: 4

BYS 530 - APP. OF GEOSTATISTICS/AL A&M
Semester Hours: 3

BYS 532 - MEDICAL PHYSIOLOGY
Semester Hours: 4
Detailed study of physiology, covering membrane transport, muscle, nerve, heart, lung, gastrointestinal and renal function. Emphasis will be on homeostasis, genetic disease and pharmacological therapy.

BYS 532L - LABORATORY
Semester Hours: 0
BYS 533 - ADVANCED PHYSIOLOGY I/A&M
Semester Hours: 3

Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Nerve and muscle cell function, fluid and electrolyte environment of body tissues, blood, heart, circulatory, and nervous systems.

BYS 534 - MEDICAL PHYSIOLOGY II
Semester Hours: 3

Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Continuation of mammalian physiology with consideration of kidney function, respiratory, digestive, reproductive, and endocrine systems.

BYS 535 - ADVANCED MICROBIOLOGY
Semester Hours: 3

Aspects of microbial behavior, development, morphogenesis or physiology.

BYS 537 - PSYCHOBIOLOGY STRESS & ILLNESS
Semester Hours: 3

Overview of physiological stress responses and their influence on health, behavior, and illness. Same as PY 536.

BYS 538 - NEUROANATOMY/A&M
Semester Hours: 3

BYS 542 - NUTRITIONAL PHYSIOLOGY
Semester Hours: 3

Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Advanced laboratory dealing with modern techniques of molecular biology and biochemistry.

BYS 543 - MOLECULAR BIOLOGY OF THE CELL
Semester Hours: 3

Advanced study of cell structure and function of macromolecules (lipids, proteins, carbohydrates and nucleotides). In depth literature readings on subcellular organelles, metabolic pathways, cell cycle, cancer, and cell differentiation.

BYS 547 - BIOCHEMISTRY I
Semester Hours: 3

Structural chemistry and function of biomolecules, mechanisms of biochemical reactions, and enzyme kinetics. Same as: CH 561.

BYS 548 - BIOCHEMISTRY II
Semester Hours: 3

Energy transduction, metabolism, biosynthesis of macromolecular precursors, storage, transmission, and expression of genetic information. Same as CH 562. Prerequisites: BYS 547 or CH 561.

BYS 555 - ENVIRONMENTAL PLANNING/URP@A&M
Semester Hours: 3

BYS 556 - ADV MOLECULAR TECHNIQUES
Semester Hours: 3

Laboratory techniques in molecular biology including current methodology in genomics, proteomics and RNA analysis. Prerequisites: BYS 519 with concurrency.

BYS 560 - ENVIRONMENTAL BIOLOGY/A&M
Semester Hours: 3

Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Principles of interaction between living systems and their resources. Current problems in management of natural resources including new approaches in management of pest populations.

BYS 562 - COMMUNITY ECOLOGY
Semester Hours: 4

Detailed consideration of ecological principles and concepts, as well as biotic and abiotic factors relevant to development of communities and ecosystems. Field trips required.
BYS 563 - POPULATION ECOLOGY  
Semester Hours: 4  
Distribution, population dynamics and behavior of populations in relation to environmental factors. Field trips required.

BYS 564 - LIMNOLOGY  
Semester Hours: 3  
Fresh-water environments and organisms exemplified by lakes, ponds, and streams in North Alabama.

BYS 567 - PLANT VIROLOGY/A&M  
Semester Hours: 3

BYS 572 - SOIL & WATER POLLUTION/A&M  
Semester Hours: 3

Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Principles of classifying, naming, and identifying vascular plants with emphasis on flowering plants. Ecologic factors influencing vegetational distribution.

BYS 576 - REMOTE SENSING ENVIRONMENT/A&M  
Semester Hours: 4

BYS 580 - NATURAL RESOURCES POLICIES/A&M  
Semester Hours: 3

BYS 584 - ECOLOGICAL PROCESSES/AL A&M  
Semester Hours: 3-4

BYS 590 - PROBLEMS IN BIOLOGICAL SCI/A&m  
Semester Hours: 3

BYS 600 - NEUROSCIENCE  
Semester Hours: 3

An advanced survey of the field of neuroscience, from basic neuroanatomy and physiology, to current topics, such as neurodegenerative disease, learning and memory, consciousness, cognitive theory and neurocomputing.

BYS 601 - BIOINFORMATICS I  
Semester Hours: 3  
Practical use in Bioinformatics and X-ray crystallography.

BYS 602 - BIOINFORMATICS II  
Semester Hours: 3  
Practical use in Bioinformatics and applied Genomics.

BYS 619 - MICROBIAL GENETICS  
Semester Hours: 3  

BYS 620 - APPLIED PHYCOLOGY/A&M  
Semester Hours: 3

BYS 622 - APPL & INDUSTRIAL MICROB/A&M  
Semester Hours: 3

Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Examine by microbiological assay sewage disposal and wastewater treatment plants. Microorganisms of industrial importance in biological production of antibiotics, vitamins, organic acids, and alcohols.

BYS 624 - IMMUNOLOGY/A&M  
Semester Hours: 4

BYS 625 - MEDICAL MYCOLOGY/A&M  
Semester Hours: 3
BYS 630 - IMMUNOLOGY
Semester Hours: 4

Innate, humoral and cell-mediated immunity. Immune deficiencies and hyper sensitivities. Autoimmunity, transplantation and tumor immunology.

BYS 631 - MEDICAL PHARMACOLOGY/A&M
Semester Hours: 3

Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Drug-receptor interaction, kinetics of drug absorption, distribution and elimination, and discussion of drugs affecting different systems. Pharmacogenetics, toxicity, mutagenesis, teratogenesis, carcinogenesis, and drug interactions. Mechanism of action of drugs, in relation to their use as therapeutic agents in medicine.

BYS 632 - CARDIOVASCULAR PHYSIOLOGY/A&M
Semester Hours: 3

BYS 633 - ENDOCRINOLOGY/A&M
Semester Hours: 3

BYS 645 - HUMAN CYTOGENETICS CL APP/A&M
Semester Hours: 3

Course offered jointly by Alabama A&M University and UAH but which is taught on the A&M campus. Review of normal human chromosome structure and normal chromosome segregation and morphology with clinical consideration.

BYS 646 - MOLECULAR GENETICS/A&M
Semester Hours: 3

BYS 649 - ADVANCED GENETICS I/A&M
Semester Hours: 3-4

BYS 663 - ADV MOLECULAR GENETICS/A&M
Semester Hours: 3

BYS 671 - INTRO TO BIOTECH/A&M
Semester Hours: 3

BYS 690 - SEMINAR
Semester Hour: 1

Student reports on current journal articles, research, or assigned readings. Graduate students should attend whether enrolled for credit or not. May be taken up to three times for credit.

BYS 691 - SPECIAL TOPICS
Semester Hours: 1-4

Directed readings and/or written reports on topics of individual student interest carried out under the supervision of an instructor. Prerequisite: permission of instructor required before registration.

BYS 692 - RESEARCH
Semester Hours: 2-4

Individual investigations of biological problems under supervision of a graduate faculty member. Permission of instructor required before registration.

BYS 699 - MASTERS THESIS
Semester Hours: 1-6

Required each semester student is working on and receiving direction on master's thesis. Minimum of six hours required for M.S. thesis students.

BYS 730 - APPLIED MULTIVARIATE ANALYSIS/A&M
Semester Hours: 3

BYS ADD - ANATOMY & PHYSIOLOGY I LAB/OAKWOOD
Semester Hours: 0