

BIOLOGICAL SCIENCE (BSC)

- BSC 501 Ichthyology** **4 Credit hours**
Anatomy, physiology, ecology, zoogeography, economic importance and classification of major groups and representative local species of fishes. 2 lec-2 lab and field.
Grade Mode: Normal Grading Mode
- BSC 504 Cellular Physiology** **4 Credit hours**
The physio-chemical nature of intracellular processes in plant and animal cells with emphasis on the functional significance of microscopic and submicroscopic structure and organization. 3 lec-3 lab.
Grade Mode: Normal Grading Mode
- BSC 505 Economic Botany** **3 Credit hours**
Plants used by man for food, ornamental purposes, building materials, textiles and other industrial purposes: economic importance of conservation. No laboratory.
Grade Mode: Normal Grading Mode
- BSC 506 Herpetology** **4 Credit hours**
A survey of the reptiles and amphibians of the world with special emphasis placed on forms resident to West Virginia aspects of zoogeography, anatomy, taxonomy, and behavior. 2 lec-2 lab.
Grade Mode: Normal Grading Mode
- BSC 508 Ornithology** **4 Credit hours**
An introduction to avian biology: Identification, distribution, migration and breeding activities of birds. 2 lec-4 lab.
Grade Mode: Normal Grading Mode
- BSC 509 Mammalogy** **4 Credit hours**
A study of the structural features, evolution and classification of the mammals; other topics will include ecology, zoogeography, behavior, reproductive strategies, physiological adaptations to extreme environments and economic aspects. 2 lec-2 lab.
Grade Mode: Normal Grading Mode
- BSC 510 Remote Sensing/GIS Appl** **4 Credit hours**
A study of the physical systems for collecting remotely sensed data. Statistical/spatial analysis and modeling using image processing/geographic information/spatial computer software systems with earth resources applications.
Grade Mode: Normal Grading Mode
- BSC 511 Dgtl Image Proc/GIS Model** **4 Credit hours**
A study of image processing/geographic information/spatial analysis systems, concurrent and parallel image processing 3-D modeling scenarios utilizing geophysical data for computer simulation modeling.
Grade Mode: Normal Grading Mode
- BSC 513 Prin of Organic Evolution** **3 Credit hours**
The facts and possible mechanisms underlying the unity and diversity of life with emphasis on Neo-Darwinian concepts of the role of species in evolutionary phenomena.
Grade Mode: Normal Grading Mode
- BSC 516 Plant Taxonomy** **4 Credit hours**
Identification and classification of seed plants and ferns of eastern United States. Readings in history and principles of taxonomy, rules of nomenclature and related topics. 2 lec-4 lab.
Grade Mode: Normal Grading Mode
- BSC 517 Biostatistics** **3 Credit hours**
Statistical skills for biological/biomedical research, with emphasis on applications. Experimental design/survey sampling, estimation/hypothesis testing procedures, regression, ANOVA, multiple comparisons. Implementation using statistical software such as SAS, BMDP. Permission (consistent with MTH 518 description)
Grade Mode: Normal Grading Mode
- BSC 520 Plant Physiology** **4 Credit hours**
Experimental study of plant life processes to include applicable biophysical and biochemical principles. 2 lec-4 lab.
Grade Mode: Normal Grading Mode
- BSC 521 Phycology** **4 Credit hours**
Taxonomy and morphology of algae. Techniques used in the study of algae with emphasis upon application of ecological principles to current water quality problems. 2 lec-4 lab.
Grade Mode: Normal Grading Mode
- BSC 522 Animal Physiology** **4 Credit hours**
Physiological principles operating in cells, organs, and systems of animals, with a focus on vertebrate, including human, function.
Grade Mode: Normal Grading Mode
- BSC 524 Animal Parasitology** **4 Credit hours**
Morphology, life histories, classification, and host relationships of common parasites. 2 lec-4 lab.
Grade Mode: Normal Grading Mode
- BSC 525 Systematics** **3 Credit hours**
Biosystematics is a unifying discipline that combines taxonomy (collecting, describing, and naming organisms), phylogenetics (evolutionary relationships among species), and classification (organization of taxa into groups which ultimately reflect evolutionary relationship).
Grade Mode: Normal Grading Mode
- BSC 528 Neuroscience** **3 Credit hours**
The fundamentals of cellular and systems neuroscience, with application towards understanding current research and biomedical problems.
Grade Mode: Normal Grading Mode
- BSC 530 Plant Ecology** **4 Credit hours**
The study of plants and their interactions with their environment at different levels of ecological organization: individuals, populations, communities, and ecosystems. Emphasis on quantitative analysis of ecological data.
Grade Mode: Normal Grading Mode
- BSC 531 Limnology** **4 Credit hours**
The study of inland waters; ecological factors affecting lake and stream productivity and various aquatic communities. 2 lec-4 lab.
Grade Mode: Normal Grading Mode
- BSC 538 Emerging Infectious Diseases** **3 Credit hours**
Introduces students to infectious diseases that are either newly emergent or have returned to prominence within the last decade.
Grade Mode: Normal Grading Mode
- BSC 543 Microbial Genetics** **3 Credit hours**
Microbial Genetics covers the essential functions of DNA replication and gene expression in prokaryotic cells. The course includes molecular genetics of bacteria and phages, bioinformatics and discussion of laboratory techniques.
Grade Mode: Normal Grading Mode

BSC 545 Microbial Ecology	3 Credit hours	BSC 610 Adv Vert Morphology	3 Credit hours
This course introduces students to the vital roles that microbes play in sustaining life on earth. Includes both theoretical and practical concepts ranging from the origin of life to biodegradation.		AVM is an intensive, laboratory-based course in vertebrate morphology. Core responsibilities include detailed dissection and comparative cranial osteology. Each student must complete an independent dissection project and term paper.	
Grade Mode: Normal Grading Mode		Grade Mode: Normal Grading Mode	
BSC 550 Molecular Biology	3 Credit hours	BSC 620 Taxonomy Vascular Plants	1-2 Credit hours
Advanced principles in molecular function emphasizing current research using recombinant DNA methodology. (PR: BSC 322 or equivalent)		Field studies in the taxonomy of higher plants. (Limited to 4 hours credit per student).	
Grade Mode: Normal Grading Mode		Co-req: BSC 622	
BSC 556 Genes and Development	3 Credit hours	Grade Mode: Normal Grading Mode	
An in depth study of the genetic mechanisms of complex organismal development including cell specification, induction and morphogenesis.		BSC 621 Taxonomy Vascular Plants	1-2 Credit hours
Grade Mode: Normal Grading Mode		Field studies in the taxonomy of higher plants. (Limited to 4 hours credit per student).	
BSC 560 Conservation Biology	3 Credit hours	Grade Mode: Normal Grading Mode	
This course focuses on the North American model of wildlife conservation (and its history), principles of biology diversity, threats to habitats and species of concern, and conservation policy. Primarily for teachers in the biological sciences, general and applied sciences. Includes fieldwork, seminars, and demonstrations related to conservation. 2 lec-4 lab.		BSC 622 Taxonomy Vascular Plants	1-2 Credit hours
Grade Mode: Normal Grading Mode		Field studies in the taxonomy of higher plants. (Limited to 4 hours credit per student).	
BSC 580 Special Topics	1-4 Credit hours	Co-req: BSC 620	
(PR: Permission)		Grade Mode: Normal Grading Mode	
Grade Mode: Normal Grading Mode		BSC 625 Advanced Physiology	4 Credit hours
BSC 581 Special Topics	1-4 Credit hours	Lecture, current literature and introduction to research in physiological systems. 3 lec-3 lab.	
(PR: Permission)		Grade Mode: Normal Grading Mode	
Grade Mode: Normal Grading Mode		BSC 631 Animal Ecology	4 Credit hours
BSC 582 Special Topics	1-4 Credit hours	A study of population and behavior ecology; community dynamics and field techniques. 2 lec-4 lab.	
(PR: Permission)		Grade Mode: Normal Grading Mode	
Grade Mode: Normal Grading Mode		BSC 640 Cell Bio & Biotechnology	3 Credit hours
BSC 583 Special Topics	1-4 Credit hours	Broad coverage of applied cell biology, biotechnology with high current interest and utility to the medical, agricultural and commercial product development. Application of DNA technologies for biotech commercialization.	
(PR: Permission)		Grade Mode: Normal Grading Mode	
Grade Mode: Normal Grading Mode		BSC 644 Quantitative Ecology	3 Credit hours
BSC 585 Independent Study	1-4 Credit hours	An introduction to statistical analyses using presence absence, mark-recapture, and count data to estimate population parameters, such as occupancy and survival.	
(PR: Permission)		Grade Mode: Normal Grading Mode	
Grade Mode: Credit/No Credit Grade Only		BSC 649 Wetland Ecology	3 Credit hours
BSC 586 Independent Study	1-4 Credit hours	Grade Mode: Normal Grading Mode	
(PR: Permission)		BSC 650 Special Problems	1-3 Credit hours
Grade Mode: Credit/No Credit Grade Only		By permission of adviser.	
BSC 587 Independent Study	1-4 Credit hours	Grade Mode: Credit/No Credit Grade Only	
(PR: Permission)		BSC 651 Special Problems	1-3 Credit hours
Grade Mode: Credit/No Credit Grade Only		By permission of adviser.	
BSC 588 Independent Study	1-4 Credit hours	Grade Mode: Credit/No Credit Grade Only	
(PR: Permission)		BSC 652 Special Problems	1-3 Credit hours
Grade Mode: Credit/No Credit Grade Only		By permission of adviser.	
BSC 601 Vertebrate Embryology	4 Credit hours	Grade Mode: Credit/No Credit Grade Only	
Vertebrate development based on frog, chick and pig embryos. 2 lec-4 lab.		BSC 660 Seminar I	2 Credit hours
Grade Mode: Normal Grading Mode		Topics relevant to preparation for a career in the life sciences including: literature mining and interpretation, scientific ethics, preparation and delivery of scientific presentations, and career development tools.	
BSC 608 Plant Growth & Development	4 Credit hours	Attributes: No Textbook Required	
Comprehensive advanced study of correlative growth in plants with emphasis on germination, dormancy, growth substances and physiological phenomena associated with phases of development.		Grade Mode: Normal Grading Mode	
Grade Mode: Normal Grading Mode			

BSC 661 Topics in Biological Sciences 2 Credit hours

In depth group discussion of current biological issues.

Attributes: No Textbook Required

Grade Mode: Normal Grading Mode

BSC 662 Seminar II 1 Credit hour

Oral presentation of individual topics.

Pre-req: BSC 660.

Attributes: No Textbook Required

Grade Mode: Normal Grading Mode

BSC 679 Problem Report 1-4 Credit hours

Preparation and completion of a written report from experimental or field research in biological sciences. (PR: permission)

Grade Mode: Normal Grading Mode

BSC 680 Special Topics 1-4 Credit hours

Attributes: No Textbook Required

Grade Mode: Normal Grading Mode

BSC 681 Thesis 1-6 Credit hours

By permission of adviser.

Attributes: No Textbook Required

Grade Mode: Normal Grading Mode

BSC 716 Adv Cell Phys Nurse Anesthesia 2 Credit hours

Study of structure and function of human cells, including protein synthesis, metabolism and reproduction. Study of genetic disorders and anesthesia. Study of anti-cancer drugs. Analyze types and rules of various cell membrane receptors on anesthesia process.

Grade Mode: Normal Grading Mode

BSC 717 Adv Ana Phy Path Nurse 1 3 Credit hours

Anatomy, Physiology, pathophysiology and anesthetic considerations related to the respiratory and renal systems.

Grade Mode: Normal Grading Mode

BSC 718 Adv Ana Phy Path Nurse 2 3 Credit hours

Anatomy, physiology, pathophysiology and anesthetic considerations related to the cardiovascular system.

Grade Mode: Normal Grading Mode

BSC 719 Adv Ana Phy Path Nurse 3 3 Credit hours

Anatomy, physiology, pathophysiology and anesthetic considerations related to the nervous and endocrine systems.

Grade Mode: Normal Grading Mode