DEPARTMENT OF BIOLOGY

Department Head: Dr. Lori Hensley

242 Martin Hall

The Department of Biology offers a diverse spectrum of undergraduate courses in the biological sciences that enable a student to develop an understanding and appreciation of life, from molecular to ecological, and to develop the strong academic background necessary for pursuing graduate study or a career in biology or the health professions. The department recognizes the importance of both content and process in science education and thus offers the opportunity to develop communication skills and engage in undergraduate research in the biological sciences.

The Bachelor of Arts and the Bachelor of Science degrees with a major in Biology require an overall minimum of 120 hours with a minimum of 36 hours of 300/400 level courses. At least 12 hours of the 300/400 level courses must be taken in residence at JSU. Students must earn a “C” or better in biology coursework and maintain a 2.00 GPA overall and in the courses taken on campus. Once the student has met the requirements for the major, the hours remaining to complete the 120 hours overall will be classified as electives.

The Bachelor of Science degree with a major in Biology is for those who intend to pursue careers in:

- health professions (medicine, dentistry, optometry, physical therapy, pharmacy, veterinary medicine, physician assistant, etc.)
- graduate programs (MS, PhD), biological education, biomedical sciences, biotechnology, conservation biology, environmental biology, organismal biology, marine biology, industrial professions (lab managers, consulting, etc.)
- governmental professions (research scientist, NOAA, NMFS, etc.)

After completing a common core of biology courses, the Biology major may choose a concentration from the listing below. Students pursuing a BS degree in Biology are not required to have a minor in another academic discipline.

- Cellular and Molecular Biology
- Ecology and Environmental Biology
- Marine Biology
- Organismal Biology
- Pre-Health Professional Biology

Advising—Students who plan to earn the BS degree in Biology should consult with the Department of Biology for advisement early in their plan of study and every semester thereafter. To complete the Biology degree program, the students majoring in Biology must plan carefully, since science laboratories can cause scheduling conflicts. An advisor can alert students to potential problems and assist in minimizing such conflicts. It is recommended that the Biology major complete the biology core of genetics, cell biology, ecology, and research in biology early in the course of study. Careful planning will facilitate the opportunity for undergraduate research.

Additional departmental, program, advising, and career information is available at www.jsu.edu/biology (http://www.jsu.edu/biology/).

Department of Biology

Biology

BY 101 Introductory Biology I (3)
Corequisite(s): BY 103.
An introduction to the concepts of biology, including cellular structure and function, bioenergetics, patterns and mechanisms of inheritance, the processes of evolution, and ecology. For majors and non-majors.

BY 102 Introductory Biology II (3)
Prerequisite(s): BY 101; Corequisite
An introduction to biodiversity, from bacteria through plants and animals, with an emphasis on their structure, function, and ecological interactions. For majors and non-majors.

BY 103 Introductory Biology Lab I (1)
Corequisite(s): BY 101.
One two-hour laboratory per week. This course reinforces lecture materials and must be taken concurrently with BY 101.

BY 104 Introductory Biology Lab II (1)
Prerequisite(s): BY 103.
Corequisite(s): BY 102.
One two-hour laboratory per week. This course reinforces lecture material and must be taken concurrently with BY 102.

BY 105 Honors Introductory Biology I (3)
Prerequisite(s): Admission to the Honors Program or approval of instructor.
Corequisite(s): BY 107.
Substitutes for BY 101. An advanced introduction to the concepts of biology, including chemistry as related to biology, cell structure and function, energy pathways, cellular reproduction, genetics, genetic techniques, evolution and ecology. For majors and non-majors.

BY 106 Honors Introductory Biology II (3)
Prerequisite(s): Successful completion of BY 105 or approval of instructor.
Corequisite(s): BY 108.
Substitutes for BY 102. An advanced introduction to diversity in the living world. Emphasis is on structure, function, and ecological interactions of living organisms beginning with bacteria and viruses and progressing through plants and animals. For majors and non-majors.
BY 107 Honors Introductory Biology Lab I (1)
Prerequisite(s): Admission to the Honors Program or approval of instructor.
Corequisite(s): BY 105.
(1). Substitutes for BY 103. One two-hour laboratory per week. This course reinforces lecture materials with hands-on creative laboratory exercises and must be taken concurrently with BY 101H.

BY 108 Honors Intro Biology Lab II (1)
Prerequisite(s): Admission to the Honors Program or approval of instructor.
Corequisite(s): BY 106.
Substitutes for BY 104. One two-hour laboratory per week. This course reinforces lecture materials with hands-on creative laboratory exercises and must be taken concurrently with BY 106.

BY 263 Human Anatomy and Physiology I (4)
Prerequisite(s): BY 101, 103.
Lecture and laboratory. The first of a two-course sequence of human anatomy and physiology, with an emphasis on the skeletal, muscular, respiratory and circulatory systems. For students in health-related majors; no credit allowed toward Biology major or minor.

BY 264 Human Anatomy and Physiology II (4)
Prerequisite(s): BY 263.
Lecture and laboratory. The second of a two-course sequence of human anatomy and physiology, with an emphasis on the digestive, urinary, reproductive and endocrine systems. For students in health-related majors; no credit allowed towards Biology major or minor.

BY 283 Health Microbiology (4)
Prerequisite(s): BY 101, 103.
Lecture and laboratory. The study of viruses, bacteria, protozoa and fungi that cause diseases in humans. For students in health-related majors; no credit for Biology major or minor.

BY 301 Field Zoology (3)
Prerequisite(s): BY 101, 102, 103, 104.
Lecture, laboratory, and field study. Collecting and identifying animals and noting ecological conditions. (Group II)

BY 302 Field Botany (3)
Prerequisite(s): BY 101, 102, 103, 104.
Lecture, laboratory, and field study. The laboratory work will involve the collection and identification of native plants of Alabama. (Group II)

BY 303 Biological Conservation (3)
Prerequisite(s): BY 101, 102, 103, 104.
A contemporary and historical study of biological conservation in America. Topics include national and global biodiversity, threats to biodiversity, conservation ethics and economics, habitat loss and degradation, habitat fragmentation, overexploitation, invasive species, conservation genetics, and conservation policy. Also addressed are the management of species and population dynamics, ecosystem conservation, restoration of degraded ecosystems, and sustainable development.

BY 320 Comparative Vertebrate Anatomy (4)
Prerequisite(s): BY 101, BY 102, BY 103, BY 104.
Lecture and laboratory. The comparative study of vertebrate organ systems supplemented in laboratory with the dissection of selected vertebrates. (Group II)

BY 322 Genetics (4)
Prerequisite(s): BY 101, 102, 103, 104.
Lecture and laboratory. Important facts, laws, theories, and methods used in the study of genetics.

BY 323 Microbiology (4)
Prerequisite(s): BY 101, BY 102, BY 103, BY 104.
Lecture and laboratory. General microbiology, including methods of culture and identification of some of the most common types of microorganisms. (Group II)

BY 327 Directed Studies in Biology (1)
Prerequisite(s): BY 322 or 332 or 373.
Recommended: BY 370. May be duplicated for credit for a total of three (3) semester hours, but only 1 hour may be applied to the major. A laboratory, field or library research investigation dealing with an aspect of the biological sciences. Biology sponsor required for topic approval and supervision. Grades: Pass/Fail.

BY 331 Principles of Animal Nutrition (3)
Prerequisite(s): BY 101, 102, 103, and 104.
The classification and function of nutrients, deficiency symptoms, digestive processes, characterization of feedstuffs, and formulation of diets for domestic animals.

BY 332 Ecology (4)
Prerequisite(s): BY 101, 102, 103, 104.
Corequisite(s): MS 112 or higher.
Prerequisite or Lecture, laboratory, and field study. The association and distribution of organisms in relation to the major environmental factors.

BY 340 Discovering Genomics and Bioinformatics (3)
Prerequisite(s): BY 101.
The course provides fundamental background in bioinformatics, both theoretical (bioinformatics algorithms) and practical (databases and web-based tools used to study problems in biology), to students in computer science or in biological sciences. Introduction to the biological problems addressed in this course will be provided, as well as a formal definition of the computational problems and a deep exploration of the algorithms for solving these problems. Practical use of topics introduced in class is demonstrated by laboratory exercises and homework problems. Students are grouped for class projects such that each group contains at least one life scientist and one computer scientist. BY 340 is cross-listed with CS 340, but only one course can be counted for credit.

BY 373 Cell Biology (4)
Prerequisite(s): BY 101, 102, 103, 104.
Lecture and laboratory. The study of prokaryotic and eukaryotic cells, with an emphasis on their chemical and structural organization, bioenergetics and reproduction.

BY 397 Biology Internship (1)
Prerequisite(s): BY 101, 102, 103, 104; either BY 322, 332, or 373; and permission of instructor required.
May be duplicated for credit for a total of three (3) semester hours, but only 1 hour may be applied to the major. The student will spend a minimum of 25 hours gaining practical experience at a public or private institution or business. Grade: Pass/Fail.

BY 399 Study Tour (3)
Topics, excursions, and requirements determined by department. May be duplicated for credit; however, only three (3) credits may be applied toward any major or minor. Infrequently scheduled and subject to minimum and maximum numbers. Advance deposit required.

BY 402 Medical Microbiology (4)
Prerequisite(s): BY 323 or 283 and approval of instructor.
Study of pathogenic bacteria, viruses, fungi, and parasites of humans and some domestic animals; identification of pathogens, disease processes, and public health emphasized; lecture and laboratory.
BY 403  Immunology (3)  
Prerequisite(s): BY 373; BY 323 recommended.  
Study of immunity and how the immune system responds to specific infectious and non-infectious agents; comparative immunology of invertebrate and vertebrate animals, immunological disorders, and application of immunological techniques; lecture and laboratory. (Group I)  

BY 405  Animal Behavior (3)  
Prerequisite(s): BY 332.  
Genetic and anatomical bases of behavior; impact of behavior on the ecology of animals emphasized; lecture, discussion, demonstration and library studies.  

BY 406  Ornithology (4)  
Prerequisite(s): BY 332.  
History, classification, anatomy, physiology, ecology, and distribution of birds; laboratory emphasis on field identification and ecology; lecture, laboratory, and field studies. (Group II)  

BY 407  Mammalogy (4)  
Prerequisite(s): BY 332.  
Aspects of the biology, ecology, taxonomy, and distribution of southeastern mammals; lecture, laboratory, and field studies.  

BY 408  Public Policy and Ecosystems (4)  
Prerequisite(s): BY 332.  
Lecture, laboratory and field study. The course will address the history, evolution, and recent developments in natural resource policy and how it influences ecosystem structure and function. Topics will include fish and wildlife conservation, forest planning and management, agricultural policies, public lands (Bureau of Land Management lands, national forests, national wildlife refuges, national parks, and wilderness areas), endangered species, and policies that influence private lands. The relationship between policies and ecosystem structure and function will be addressed in class and in labs by debates and field exercises.  

BY 412  Plant Reproduction and Development (4)  
Prerequisite(s): BY 322, BY 373; CY 105, CY 106, CY 107, CY 108 recommended.  
Study of structural and functional aspects of reproductive and developmental phenomena in vascular plants; lecture and laboratory. (Group I)  

BY 413  Animal Reproduction and Development (4)  
Prerequisite(s): BY 322, BY 373; CY 105, CY 106, CY 107, CY 108 recommended.  
Study of the structural and functional aspects of reproductive and developmental phenomena in animals with emphasis on the cellular and molecular mechanisms involved; lecture and laboratory. (Group I)  

BY 415  Biometrics (3)  
Prerequisite(s): BY 322, 332, or 373 and MS 204.  
An introduction into statistics for biology majors. This course will introduce students to appropriate statistics for analyzing biological data including how to select random samples, use basic statistical packages, post-hoc statistical testing and the use of linear regression and will use real-world examples of statistics in ecological, toxicological, and physiological research; lecture and laboratory.  

BY 422  Biology of Cryptogams (4)  
Prerequisite(s): BY 332, BY 373.  
The study of blue-green algae, algae, slime molds, bryophytes, and lichens; lecture, laboratory, field, and library study. Extensive field and laboratory identifications. (Group II)  

BY 427  Independent Studies in Biology (1)  
Prerequisite(s): BY 370.  
(1) Laboratory or field research investigation dealing with an aspect of biological sciences; biology sponsor required for topic approval and supervision. Grade: Pass/Fail  

BY 434  Animal Systems Physiology (4)  
Prerequisite(s): BY 373; CY 105, CY 106, CY 107, CY 108; CY 231, CY 232 and one semester of physics recommended.  
Systematic survey of organ system physiology in vertebrates; systems analysis, biophysics, and bioengineering emphasized; lecture and laboratory. (Group I)  

BY 435  Landscape Ecology (4)  
Prerequisite(s): BY 322, MS 204.  
Undergraduate Prerequisite: BY 322. Graduate Lecture, laboratory, and field study. Emphasis will be on the role of spatial heterogeneity in terrestrial systems; its detection and description, analysis of pattern formation, landscape dynamics and models, human interactions with heterogeneity, and the implications of heterogeneity of populations, communities, and ecosystems. Landscape ecology provides approaches to fundamental research questions in ecology, as well as new approaches to forest and resource management that consider ecosystem processes at larger spatial and temporal scales.  

BY 438  Freshwater Biology (4)  
Prerequisite(s): BY 332.  
Analysis of the unique ecology and biology of the freshwater environment; extensive field work; research project; lecture, laboratory, and field studies.  

BY 440  Evolutionary Biology (4)  
Prerequisite(s): BY 322.  
Study of the processes and mechanisms which lead to evolutionary change in the biota; lecture, laboratory and field studies.  

BY 442  General Entomology (4)  
Prerequisite(s): BY 332.  
Lecture, laboratory, and field study of insects and other arthropods, with an emphasis on the taxonomy, morphology, physiology, and ecology of the insects. (Group II)  

BY 445  Ecotoxicology (4)  
Prerequisite(s): BY 332, BY 373. Recommended: BY 322. This course is a survey of ecotoxicology. The study of the integration of the major processes involved with transport, exposure and response of biological systems to xenobiotics, how toxicants mediate interactions between organisms and their biotic and abiotic environments and, the impact and toxic effects of pollutants on diversity, growth and metabolism of living organisms, populations, communities, and the ecosystem; lecture, laboratory and field study. (Group I)  

BY 450  Molecular Biology (4)  
Prerequisite(s): BY 322, 373 or approval of instructor.  
Study of the processes involved in the expression of biological information at the molecular level; lecture and laboratory. (Group II)  

BY 451  Plant Anatomy (4)  
Prerequisite(s): BY 373.  
Study of the comparative structural organization of the vegetative and reproductive parts of seed plants, from cells to tissues to systems; lecture and laboratory. (Group II)
BY 452 Plant Taxonomy (4)
Prerequisite(s): BY 322 or BY 332.
Survey of plant nomenclature, identification systems, description, evolution, and classification; vascular plants emphasized; lecture, library, laboratory, and field studies. (Group I)

BY 453 Dendrology (4)
Prerequisites: BY 332. Lecture, laboratory, and field study. The identification, taxonomy, ecological characteristics, distribution, and economic importance of trees native to North America and ornamentals. (Group II)

BY 454 Tropical Biology (3)
Prerequisite(s): BY 101, 102, 103, 104, and approval of instructor.
An extensive field trip to study the flora and fauna of tropical regions. A written and oral report are required.

BY 455 Plant Ecology (4)
Prerequisite(s): BY 322 or 332.
Major plant communities of the southeastern U.S. and their relationships with major abiotic features; autecological field studies of plant species and populations included; lecture, laboratory, library and field studies.

BY 458 Herpetology (4)
Prerequisite(s): BY 332.
Recommended: BY 320. Taxonomy, ecology, physiology, and external anatomy of amphibians and reptiles; conservation and field methodology emphasized; lecture, laboratory and field studies. (Group II)

BY 460 Ichthyology (4)
Prerequisite(s): BY 332.
An overview of the evolution, ecology, behavior, physiology, and conservations of fishes. Preparation and presentation of an original library or lab/field research project required. Lecture, laboratory, and field study. (Group II)

BY 473 Advanced Cell Biology (4)
Prerequisite(s): 373.
Recommended: BY 322, CY 231, CY 232, CY 362, CY 363. A study of molecular aspects of cell structures and their functions using both descriptive and biochemical approaches. Lecture and laboratory. (Group I)

BY 475 Economic Botany (4)
Prerequisites for Undergraduate: BY 101, 102, 103, and 104. Prerequisites for Graduate: BY 322 or 332. Collection identification, culture and preservation of plants for illustration and utilization in the classroom and laboratory; two class periods and one laboratory period per week.

BY 476 Invertebrate Zoology (4)
Prerequisite(s): BY 332.
Systematics, ecology, physiology, and phylogenetic relationships of invertebrate animals; lecture, laboratory, and field studies. (Group II)

BY 477 Cell and Tissue Culture (4)
Prerequisite(s): BY 101, 102, 103, 104, 373, CY 105-108.
Recommended: BY 322, 412, 431 and CY 231. Cell and Tissue Culture is an advanced biology course dealing with in vitro manipulation of cells, organs, and tissues; both solid and suspension culture and their application to biotechnology. Lecture and laboratory. (Group I)

BY 478 Endocrinology (3)
Prerequisite(s): BY 373 and CY 231.
General introduction to vertebrate endocrine systems and the variety of chemical messengers involved in the regulation of physiological processes. Topics will include discussions of the history and methodologies of endocrinology, hormone synthesis, physiological effects of hormones, and the mechanisms of actions for various hormones. (Group I)

BY 479 Plant Physiology (4)
Prerequisite(s): BY 373; BY 451 recommended.
Mineral nutrition, water relations, photosynthesis, metabolism and transport in vascular plants; lecture and laboratory. (Group I)

BY 480 Advanced Topics in Biology I (1)
Prerequisite(s): BY 322 or 332 or 373.
Lecture and discussion; topics to be posted in the Biology Department.

BY 481 Advanced Topics in Biology II (1)
Prerequisite(s): BY 322 or 332 or 373.
Lecture and discussion; topics to be posted in the Biology Department.

BY 488 Laboratory Practicum I (2)
Prerequisite(s): BY 322, 332, 373 and approval of instructor.
Lecture and laboratories. The design, organization, and implementation of laboratory exercises, the use of appropriate equipment and instructional materials, and laboratory safety and supervision. Offered fall term only.

BY 489 Laboratory Practicum II (1)
Prerequisite(s): BY 322 or 332 or 373, and approval of instructor.
The organization and implementation of laboratories including the use of appropriate equipment and instructional materials. (Grade of Pass/Fail only).

BY 496 Senior Seminar (1)
Prerequisite(s): BY 370 and Senior Standing.
The capstone course in biology includes a written report, an oral presentation in a symposium format, satisfactory completion of a comprehensive exam for the major, and participation in departmental assessment. Required for Biology major.

Marine Biology

MBY 309 Marine Biology (4)
Prerequisite(s): BY 101, 102, 103, 104.
A general survey of the invertebrates, vertebrates, and marine plants as communities with emphasis on local examples of these principal groups. Students will have an opportunity to examine marshland, estuarine, beach, dune, inlet and neritic habitats, and niches. Lecture, laboratory, and field work will be included

MBY 411 Marine Ecology (4)
Prerequisites for Undergraduate: BY 101, 102, 103, 104, one year of general chemistry, and one semester of general physics. Prerequisites for Graduate: Graduate standing in biology; marine invertebrate zoology or marine biology (one semester of physics recommended). Bioenergetics, community structure, population dynamics, predation, competition, and speciation in marine ecosystems will be studied; lecture and laboratory work will be included, although considerable time will be spent in field work; individual species will be studied as they relate to ecological principles which they exemplify, thus providing both a taxonomic and ecologic background.
MBY 412 Coastal Ornthology (4)
Prerequisites for Undergraduate: BY 101, 102, 103, and 104. Prerequisite for Graduate: Graduate standing in biology. Study of coastal and pelagic birds with emphasis on ecology, taxonomy, and distribution; identification, population dynamics, and behavior of coastal birds; lecture, laboratory, and overnight trips to offshore islands.

MBY 415 Marine Botany (4)
Prerequisites for Undergraduate: BY 101, 102, 103, and 104. Prerequisite for Graduate: Graduate standing in biology. General study of coastal and marine flora with emphasis on taxonomy, morphology, physiology, ecology, and distribution; community structure in various ecosystems will be studied; students will have an opportunity to examine pelagic, marshland, estuarine, beach, sand dune, and inlet niches.

MBY 416 Introduction to Oceanography (4)
Prerequisite(s): One year of general biology or one year of general zoology and one year of general botany; one year of general chemistry; one semester of physics; and one semester of college algebra.
An introduction to biological, chemical, geological, and physical aspects of the sea.

MBY 420 Coral Reef Ecology (4)
Examines the ecology and evolution of coral reef communities, seagrass beds, and mangrove swamps with exploration of such issues as the degradation of reef-building corals by macroalgae, hurricanes, coral bleaching, diseases of corals and sea urchins, over-fishing and pollution. Students will participate in lectures and field exercises in the vicinity of Dauphin Island, and will take a one-week field trip to Andros Island, Bahamas.

MBY 421 Special Topics: Marine Conservation Biology (4)
Intended to develop a student’s understanding of conservation biology by building upon the foundations of ecology; lectures and field exercises; requires students to develop a topical term paper and give a presentation.

MBY 423 Marsh Ecology (4)
Prerequisite for Undergraduate: Advanced undergraduate standing.
Prerequisite for Graduate: Graduate standing in biology. Study of floral and faunal elements of various marine marsh communities; interaction of physical and biological factors will be emphasized; structured to provide field experience in addition to lecture material; trips will be scheduled to acquaint students with regional examples of marsh types.

MBY 427 Marine Technical Methods I (2)
Prerequisite for Undergraduate: Advanced undergraduate standing.
Prerequisite for Graduate: Graduate standing in biology. Introduction to instruments and procedures normally utilized aboard a marine research vessel; includes physical, biological, chemical, and geological parameter measurements and sample collections; basic positioning and communication procedures included.

MBY 428 Marine Technical Methods II (2)
Prerequisite for Undergraduate: Advanced undergraduate standing.
Prerequisite for Graduate: Graduate standing in biology. Introduction to the laboratory methodology associated with the usual chemical parameters of nutrient analysis; laboratory approach will be pursued; shipboard and other specific skills will be developed.

MBY 435 Coastal Zone Management (2)
Prerequisite(s): Advanced undergraduate standing.
A review of ecological features and of management policies for coastal communities with a description of relevant federal and state programs.

MBY 439 Coastal Wetlands Ecology (4)
Prerequisite(s): BY 101, 102, 103 and 104.
This course will focus on coastal and near shore wetland areas, with an emphasis on the biogeochemical processes, ecological function, and conservation. Lecture and laboratory.

MBY 443 Marine Systems Ecology (4)
Prerequisite(s): Advanced undergraduate standing in Biology or Environmental Engineering.
A Basic or Fortran programming course or experience. The study of holistic characteristics, structure, function, and performance of marine and estuarine ecological systems, including interactions with systems of man. Strongly recommended: calculus background, preferably through differential equations.

MBY 459 Shark and Ray Biology (2)
Prerequisite(s): BY 101, 102, 103 and 104.
This course provides an introduction to the biology of sharks and rays, with special emphasis on regional shark fauna and field techniques. Topics covered include, but not restricted to evolution and systematics of chondrichthyan fishes, physiology, reproduction and life history, diet, ecology, and conservation biology. Lecture and Lab experiences.

MBY 460 Dolphins and Whales (2)
Prerequisite(s): BY 320 and MBY 486.
Prerequisite for Graduate: None. Designed to enable students to make rapid, accurate, and thoughtful use of a customized reference file and laboratory and field notes to respond to questions about the classification, anatomy, and ecology of marine mammals; lecture and laboratory. (Not open to students with credit in MBY 481.)

MBY 461 Marine Behavioral Ecology (4)
Prerequisite for Undergraduate: BY 332. Recommended: MS 204.
Prerequisite for Graduate: None. Examines how animal behavior is influenced by and interacts with its environment, and the ecological and evolutionary significance of these behaviors in a marine setting; lectures, laboratory, and field exercises (some overnight).

MBY 462 (3,4)
Prerequisites for Undergraduate: BY 101, 102, 103, 104 or MBY 309.
Prerequisite for Graduate: None. Study of the major groups of protists from a variety of marine habitats including their taxonomy, structure, ecology of methods of identification; lectures, laboratory, and field trips.

MBY 463 Marine Fish Diseases (3,4)
Prerequisite for Undergraduate: BY 323. Prerequisite for Graduate: None. Introduction to marine animal diseases, specifically finfish and shellfish; practical microbiological techniques for isolation and identification of diseases; lecture, laboratory, and field trips.

MBY 464 Introduction to Neurobiology (4,5)
for Undergraduate. (5). for Graduate. Prerequisite for Undergraduate: Advanced undergraduate standing. Prerequisite for Graduate: None. Introduction to the neuroanatomy and neurophysiology of marine invertebrates and vertebrates; Neuroism computer package used to help illustrate the basic principles and to allow a detailed exploration of neurophysiology and neural networks; lecture and laboratory.

MBY 465 Biology and Conservation of Marine Turtles (2)
Prerequisite(s): BY 101, 102, 103 and 104.
This course will cover the identification, distribution, nesting behavior, migratory behavior, population biology and genetics, evolution, and conservation of marine turtles. Lecture and laboratory. Overnight field trip and special fees apply.
MBY 481 Marine Mammals (4)
Prerequisite(s): BY 101, 102, 103 and 104.
This course will cover the evolutionary history, taxonomy/classification, anatomy, physiology, behavior, conservation/management issues, and research techniques related to marine mammals. Lecture and laboratory. Not open to students with credit in MBY 460.

MBY 486 Marine Vertebrate Zoology (4)
Prerequisites for Undergraduate: BY 101, 102, 103, and 104. Prerequisite for Graduate: Graduate standing in biology. Study of marine fish, reptiles, and mammals, with a comprehensive treatment of their systematics, zoogeography, and ecology; lectures will encompass subject matter on a non-regional basis; field and laboratory work will stress the vertebrate fauna of the northern Gulf of Mexico; students will have the opportunity to assemble a collection of vertebrate species.

MBY 487 Marine Invertebrate Zoology (4)
Prerequisites for Undergraduate: BY 101, 102, 103, and 104. Prerequisite for Graduate: Graduate standing in biology. Examination of the systematics, ecology, physiology, and phylogenetic relationships of locally occurring marine invertebrate taxa; lecture, laboratory, and field work required; students have an opportunity to acquire collections of local fauna.

MBY 491 Directed Research (2)
Prerequisite(s): Consent of instructor.
Students may enroll by special arrangement to do research in any of the subject areas of marine science currently being offered at the Sea Laboratory.

Professor
Al-Hamdani, Safaa H. (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#al-hamdani6)
Blair, Benjamin G. (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#blair29)
Cline, George R. (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#cline51)
Hamissou, Mijitaba (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#hamissou108)
Hensley, Lori L. (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#hensley122)
Lindblom, Timothy H. (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#lindblom169)
Murdock, Christopher (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#murdock203)
Rayburn, James R. (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#rayburn237)

Associate Professor
Sauterer, Roger (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#sauterer250)
Tolley-Jordan, Lori (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#tolley-jordan283)
Triplett, Jimmy (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#triplett286)

Assistant Professor
Burns, Michael (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#burns39)
Wofford, Sarah (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#wofford318)

Instructor
Watkins, Richard (catalog.jsu.edu/undergraduate/faculty-admin/faculty/#watkins303)