RESEARCH OPPORTUNITIES AT THE CITADEL

Department of Biology

The Biology Department strongly urges majors to engage in research under the direction of a Citadel faculty member. The best way to learn science is to become actively involved in doing science and the Biology Department faculty offer majors and many opportunities to become involved in their research programs. Majors can earn academic credit for research by enrolling in BIOL 30. This course can be used once as a biology elective and may be repeated one time as a general elective.

The following are brief descriptions of current faculty research areas. Feel free to contact those faculty members with whom you might be interested in working.

David Donnell (953-7873; david.donnell@citadel.edu): Genetic control of parasite-host interactions. Mechanisms by which parasites camouflage themselves from host immune system attack.

Joel Gramling (953-6459; joel.gramling@citadel.edu): Ecological dynamics (e.g., soil nutrition, climate change, fire frequency, hurricane damage) that have shaped Southeastern plant communities and may affect them in the near future.

Danny Gustafson (953-7876; danny.gustafson@citadel.edu): Basic and applied ecology research in plant population biology, restoration ecology, conservation genetics, estuary ecology, and trophic level interactions (animal-plant-soil) focusing on the endangered species Spartina alterniflora, Mahllagia artitoria, and Littorea textile.

Kristy Johnson (953-7879; kristy.johnson@citadel.edu): Mechanisms of development of antibiotic resistance in Pseudomonas aeruginosa.

Paul Nolan (953-7076; paul.nolan@citadel.edu): Interaction of visual and vocal signals in avian mate choice and competition, and the influence of disease and early life nutrition on the development of bird vocalizations.

Claudia Rocha (953-7880; claudia.rocha@citadel.edu): Mechanisms of bacterial pathogenesis and how pathogens fool the immune system.

Paul Rosenblum (953-7938; paul.rosenblum@citadel.edu): Influence of nutrition on reproductive function and regulation of nutrient use during the reproductive cycle in gizzard shad, Caranx orata. Philosophy of science and the interaction of science and theology.

John Weinstein (953-7796; john.weinstein@citadel.edu): Effects of pollutants, such as hydrocarbons and pesticides, on salt marsh animals.

Kathy Zaring (953-7077; kathy.zaring@citadel.edu): Structure and function of mitochondrial histone H3 protein; development of cardiac conduction tissue in tadpoles with left-right axis perturbation.

John Zabulas (953-7311; john.zabulas@citadel.edu): Evolution and ecology of barnacles and marine hosts such as sea turtles and whales in order to understand the evolution of these crustaceans and the biology of their hosts.

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UNDERGRADUATE BIOLOGY PROGRAMS
The Bachelor of Science in Biology major is designed to provide students with a broad background in modern biology that will prepare them for employment or further study in graduate or professional schools. All students majoring in biology are required to take the Introduction to Biology I and II sequence (BIOL 130, 131, 140, 141). Cell Biology (BIOL 205), Genetics (BIOL 308), Ecological (BIOL 406) and Senior Seminar (BIOL 411) are required for all biology majors. The Bachelor of Science in Biology/ Secondary Teaching Specialization major is designed to provide students with a broad background in modern biology that will prepare them for a teaching position in teaching either the General Biology sequence or the General Science at the secondary school level. All students majoring in biology are required to take the Introduction to Biology I and II sequence (BIOL 130, 131, 140, 141), Cell Biology (BIOL 205), Genetics (BIOL 308), Methods and Applications of Science (BIOL 430), and Senior Seminar (BIOL 411). Students must take five additional biology electives chosen from the list below and all other indicated courses.

### Biology Electives

- **Course #**
- **Title**
- **Credit Hours**

#### FRESHMAN YEAR FALL SEMESTER

- **Course #**
- **Title**
- **Credit Hours**

#### FRESHMAN YEAR SPRING SEMESTER

- **Course #**
- **Title**
- **Credit Hours**

#### SOPHOMORE YEAR FALL SEMESTER

- **Course #**
- **Title**
- **Credit Hours**

#### SOPHOMORE YEAR SPRING SEMESTER

- **Course #**
- **Title**
- **Credit Hours**

#### JUNIOR YEAR FALL SEMESTER

- **Course #**
- **Title**
- **Credit Hours**

#### JUNIOR YEAR SPRING SEMESTER

- **Course #**
- **Title**
- **Credit Hours**

#### SENIOR YEAR FALL SEMESTER

- **Course #**
- **Title**
- **Credit Hours**

#### SENIOR YEAR SPRING SEMESTER

- **Course #**
- **Title**
- **Credit Hours**

### Allied Science and Math Courses

- **Course #**
- **Title**
- **Credit Hours**

### Core Curriculum Courses

- **Orientation**
- **Mathematics**
- **English**
- **History**
- **Composition and Literature**
- **Required Physical Education**
- **First Year Seminar**
- **ROTC Courses**

### ROTC Courses

- **Course #**
- **Title**
- **Credit Hours**

### Biology Biology Courses

- **Course #**
- **Title**
- **Credit Hours**

### Cell and Molecular Biology Courses

- **Course #**
- **Title**
- **Credit Hours**

### Ecology and Field Biology Courses

- **Course #**
- **Title**
- **Credit Hours**

### Organismal Biology Courses

- **Course #**
- **Title**
- **Credit Hours**

### Pre-Medical - Pre-Dental Program

Students who are planning to enter medical school, dental school, veterinary school, or professional school in allied health should consider the B.S. Biology major. The flexibility of the major course of study permits the preprofessional student to plan his or her study of each area of specialty. A large number of electives available in the biology curriculum makes it possible for the student to develop the broad science-background necessary in the medical or dental profession.