Marine Science Summer 2021
Undergraduate and Graduate Courses at Dauphin Island Sea Lab
The Marine Environmental Science Consortium of Alabama
www.DISL.edu
DISL Campus Contact Information

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<th>Email</th>
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</tr>
</tbody>
</table>

University Programs faculty and staff are excited to present the course schedule for the 2021 UP Summer at the Dauphin Island Sea Lab.

We have faced many challenges in 2020 including the COVID-19 pandemic and Hurricane Sally.

I wanted to let you know that the facilities necessary for the summer program will be ready for in person learning to begin on the designated dates for each term.

However, we ask that you are patient with the possibility of continued construction on campus while you are taking classes. The construction will not impact your classes.

There is a chance that some courses will be offered completely online. These courses include, but are not limited to Biotic Response to Sea Level Rise, Environmental Applications of GIS, Hurricanes of the Gulf Coast.

We remain hopeful that the COVID-19 pandemic will subside, and normal operations can resume for the 2021 UP summer. Please take into consideration that changing conditions may alter class offerings.

These decisions will be finalized in early April 2021 and clearly communicated to you.

Dr. Lee Smee
University Programs Chair
### Summer University Programs Course Schedule

#### May Session: May 10-May 21 - 2 weeks

- **Biology & Conservation of Marine Turtles** *(2UG/G)*
  - Lecture: M/T/W (9A–12P); Lab: M/T (1P–4P)
  - Dr. Wibbels

- **Dolphins and Whales** *(2UG)*
  - Lecture: M/T/W (9A–12P)
  - Dr. Lewis

- **Ecology of the Florida Everglades** *(2UG/G)*
  - Lecture: M/T/W (9A–12P)
  - Dr. Walton

- **Shark and Ray Biology** *(2UG/G)*
  - Lecture: M/T/W (9A–12P)
  - Dr. Drymon

- **Shellfish Aquaculture of the GOM** *(2UG/G)*
  - Lecture: M/T/W (9A–12P)
  - Dr. Walton

### Special May Session: March 1-May 22

- **Coral Reef Biology and Ecology** *(4UG/G)*
  - Lecture: M/T (9A–11:30A)
  - Lab: M (1P–4P)
  - Dr. Headley

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**Only one course per session. Additional fees apply (fees nonrefundable unless course is canceled). All courses are subject to change. Listed schedule times are approximate and are left to the discretion of the instructor. All courses must be approved by your advisor. For sessions 1 & 2 you may enroll in (1) 4-hr and (1) 2-hr course; or (2) 2-hr courses. (2) 4-hr courses may be taken at the discretion of your advisor.**

#### 1st Session: May 24-June 25 - 5 weeks

<table>
<thead>
<tr>
<th>A Courses</th>
<th>4-hour courses</th>
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</table>
| Lecture: M/T/W (9A–12P); Lab: M/T (1P–4P) | Marine Behavioral Ecology *(4UG/G)*
| | Gier |
| Marine Biology *(4UG/G)*
| Marine Botany *(4UG/G)*
| Marine Mammals *(4UG/G)*
| plankton Biology *(4UG/G)* |
| Lecture: TH/F (9A–11:30A); Lab: TH (1P–4P) | Coastal Birds *(1UG/G)*
| | Woodrey |
| Environmental Applications of GIS *(1UG/G)*
| Hurricane of the Gulf Coast *(1UG/G)* |
| Lecture: W (1P–4P), TH/F (9A–12P); Lab: TH/F (1P–4P) | Coastal Wetlands Ecology *(4UG/G)*
| | Stanton |
| Intro to Oceanography *(4UG/G)*
| Marine Geology *(4UG/G)*
| Marine Vertebrate Zoology *(4UG/G)* |
| Lecture: M/T (9A–11:30A); Lab: M (1P–4P) | Marine Restoration Ecology *(2UG/G)*
| | Stanton |
| Marine Technical Methods *(2UG/G)* |

#### 2nd Session: June 28-July 30 - 5 weeks

<table>
<thead>
<tr>
<th>B Courses</th>
<th>4-hour courses</th>
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</table>
| Lecture: M/T/W (9A–12P); Lab: M/T (1P–4P) | Marine Biology *(4UG/G)*
| | Sprinkle |
| Marine Conservation Biology *(4UG/G)*
| Marine Invertebrate Zoology *(4UG/G)* |
| Lecture: TH/F (9A–11:30A); Lab: TH (1P–4P) | Marine Mammal Health *(2UG/G)*
| | Bloodgood |
| Biotic Response to Sea Level Change *(2UG/G)*
| Lecture: W (1P–4P), TH/F (9A–12P); Lab: TH/F (1P–4P) | Marine Biology *(4UG/G)*
| | Sprinkle |
| Marine Geology *(4UG/G)*
| Marine Vertebrate Zoology *(4UG/G)* |
| Lecture: M/T (9A–11:30A); Lab: M (1P–4P) | Marine Vertebrate Zoology *(4UG/G)*
| | Minnioni |
| Marine Mammals *(4UG/G)*
| Marine Behavioral Ecology *(4UG/G)* |
| Lecture: W (1P–4P), TH/F (9A–12P); Lab: TH/F (1P–4P) | Marine Aquaculture *(2UG/G)*
| | Stoeckel |
| Shark and Ray Biology *(2UG/G)*
| Special Session July 19-August 6 | Special May Session: March 1-May 22

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<thead>
<tr>
<th>EX Course</th>
<th>Lecture: M-Sat. (9A–5P)</th>
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</table>
| Intro. To Neurobiology *(3Adv UG)*
| Prerequisites - introductory course in biology. **Only one course per session. Additional fees apply (fees nonrefundable unless course is canceled).**
| Students may need to arrive at 7:30am for field trips, and/or work evenings and weekends to meet course needs. **Students may need to arrive at 7:30am for field trips, and/or work evenings and weekends to meet course needs.**

### Course Descriptions

#### Directed Studies

This introductory course will provide an overview of the biology and conservation of marine turtles. Topics covered include the identification, distribution, nesting behavior, migratory behavior, feeding ecology, population biology and genetics, developmental habitats, temperature-dependent sex determination, paleontology and conservation of marine turtles. Students will obtain a detailed knowledge of sea turtle biology; gain an understanding of why many sea turtle species have become endangered; and how proper management has allowed some populations to recover. The course will culminate with an overnight, multi-day field trip to sea turtle nesting beaches and foraging grounds in the southeastern U.S. The class will also visit sea turtle research and rehabilitation facilities. The overnight field trip will provide students with the opportunity to observe loggerhead, green, and leatherback turtles in their natural habitats.

*Special fees apply and will be determined based on enrollment (approximately $625.00). A trip deposit (1/2) will be due on March 06, 2021, with the remaining portion due on April 29, 2021. The fee is nonrefundable unless the class is canceled. Prerequisites - introductory course in biology.

#### Directed Research

This class will be an introduction to the biology of cetaceans (toothed and baleen whales). Topics covered will include evolution, taxonomy, anatomy, physiology, genetics, behavior, and conservation related to species within this Order. Lab exercises will introduce current methods used in cetacean research. **Students may need to arrive at 7:30am for field trips, and/or work evenings and weekends to meet course needs.** Some courses may have snorkeling and other water activities.

- **Biology and Conservation of Marine Turtles (2UG)**
  - Dr. Wibbels

- **Dolphins and Whales (2UG)**
  - Dr. Lewis

- **Ecology of the Florida Everglades (2UG)**
  - Dr. Walton

- **Shark and Ray Biology (2UG)**
  - Dr. Drymon

- **Coral Reef Biology and Ecology (4UG)**
  - Dr. Headley

For sessions 1 & 2 you may enroll in (1) 4-hr and (1) 2-hr course; or (2) 2-hr courses. (2) 4-hr courses may be taken at the discretion of your advisor.
**Course Descriptions**

**May Term- May 10 - 21**  
may enroll in one course only this session

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Dr. Stanton</th>
<th>Dr. Walton</th>
<th>Dr. Drymon</th>
<th>Dr. Hoadley</th>
<th>Dr. Gier</th>
<th>Dr. Sprinkle</th>
<th>Dr. Henning</th>
<th>Dr. Drymon</th>
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<tbody>
<tr>
<td>Ecology of the Everglades (2cr UG/G)</td>
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| This course examines the natural history and ecology of the world’s rarest and most endangered wilderness area. The course will consist of a week of lectures and discussions focusing on the history, geology, hydrology, and biota of this system, and then a week of field exploration to examine the Everglades and associated systems. The field component will consist of excursions and tent camping in several Florida State Parks. As such, participants should bring appropriate gear and be prepared to actively and cheerfully participate.

*Special fees apply and will be determined by the number of participants in the course (approximately $757.00). A trip deposit (1/2) is due on March 08, 2021, with the remaining portion due on April 29, 2021. The fee is nonrefundable unless the class is canceled. Email questions to lstanton@uwa.edu.

<table>
<thead>
<tr>
<th>Prerequisites</th>
<th>- undergraduate biology, zoology or botany.</th>
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<tr>
<td>Shark and Ray Biology (2cr UG/G)</td>
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</table>
| This course will provide an introduction to the biology of sharks and rays, with special emphasis on regional shark fauna and field techniques. Topics to be covered include chondrichthyan origin, systematics, sensory biology, locomotion, food consumption, osmoregulation, reproductive biology, life history, ecology, fisheries and conservation. Lectures will be supplemented with discussions of papers from the primary literature to familiarize students with current research. In addition, longline and gillnet sampling will provide students with firsthand knowledge of field techniques and local shark identification. Prerequisites - one course in general/organismal biology (or equivalent).

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<tr>
<th>Shellfish Aquaculture of the Gulf of Mexico (2cr UG/G)</th>
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| This course will provide students with an overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, both for public stock enhancement and private production. Students will gain a broader understanding of the scale and methods of oyster aquaculture, including cultching, on-bottom and off-bottom methods, as well as clam aquaculture, with field trips to operations in Louisiana, Mississippi, Alabama and Florida. Students will get an overview of shellfish hatchery production and techniques. This course is also designed to assist students with problem solving and communication skills.

*Special fees apply and will be determined based on student enrollment in the course (approximately $385.00). A trip deposit (1/2) is due on March 08, 2021 with the remaining portion due on April 29, 2021. Fee is nonrefundable unless the class is canceled. Email questions to khoadley@disl.edu.

| Prerequisites | - one course in general/organismal biology (or equivalent). |

**Shark and Ray Biology**

**Shellfish Aquaculture of the Gulf of Mexico**

*Students may need to arrive at 7:30am for field trips, and/or work evenings and weekends to meet course needs (working in the lab, on projects, or participating in field exercises and/or overnight field trips). Some courses may have snorkeling and other water activities.

**Special May Term - March 1-May 22**  
may enroll in one course only this session

<table>
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<tr>
<th>Course Description</th>
<th>Dr. Hoadley</th>
<th>Dr. Gier</th>
<th>Dr. Sprinkle</th>
<th>Dr. Henning</th>
<th>Dr. Drymon</th>
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<tr>
<td>Coral Reef Biology and Ecology (4cr UG/G)</td>
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| This course will explore the ecology and evolution of coral reef communities, with a view to understanding what is happening on reefs today. This 4 credit course will begin with online course lectures beginning on March 1st, followed by a two-week trip to the Florida Keys. The online portion of the course will be self paced (with some online discussions) and cover energy flow across reefs, biogeochemical cycling important for continual reef development, microbial Interactions that govern the flow of carbon and nitrogen through coral reefs, and current threats from climate change. The online portion must be completed by May 1st. Students will then spend May 7th - 22nd in the Florida Keys, carrying out short experimental projects and exploring various coral reef and mangrove systems.

There is no assigned textbook and most readings will be research articles and posted prior to the lecture.

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<thead>
<tr>
<th>Prerequisites</th>
<th>- 2 semesters of general biology or equivalent required, general ecology course recommended.</th>
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<tr>
<td>1st Session - 4 Courses</td>
<td>May 24- June 25</td>
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<tr>
<td>may enroll in (1)4-hr &amp; (1)2-hr course; or (2)2-hr courses</td>
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<tr>
<th>Marine Behavioral Ecology (4cr UG/G)</th>
<th>Dr. Gier</th>
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</table>
| The course 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. Students will learn principles of behavioral ecology as they relate to marine animals, become familiar with techniques for observing animal behavior and conducting behavioral experiments, and be introduced to methods for collecting and analyzing behavioral data. Snorkeling gear will be needed. Prerequisites - introductory course that covers zoology (either vertebrate or invertebrate).

<table>
<thead>
<tr>
<th>Marine Biology (4cr UG)</th>
<th>Dr. Sprinkle</th>
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<tr>
<td>A general survey of marine plants, invertebrates and vertebrates, the communities they form and the physical and chemical factors that influence them. Field trips include marsh, seagrass, and dune habitats. Sampling from research vessels and laboratory exercises will serve to introduce students to the diversity of marine habitats and organisms. Organisms will be identified using dichotomous keys. There will be overnight field trips. Snorkeling gear will be needed. Prerequisites - general biology.</td>
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<tr>
<td>Marine Botany (4cr UG/G)</td>
<td>Dr. Henning</td>
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<tr>
<td>A general survey of marine algae (microscopic and macroscopic), as well as salt marsh vegetation, mangroves, seagrasses and maritime forest communities. Lectures will emphasize identification, distribution, structure, ecology and physiology. Overnight field and laboratory work is involved, and may include wading and snorkeling. Snorkeling gear will be needed. Prerequisites - general biology.</td>
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Register online  
www.disl.edu/univ-prog/undergrad
Course Descriptions

1st Session - A4 Courses  May 24– June 25  (2cr UG) Dr. Lewis
Marine Mammals  This course will cover the evolutionary history, taxonomy/classification, anatomy, physiology, behavior and conservation/management issues of marine mammals (cetaceans, pinnipeds, mustelids, sirenians and the polar bear). In addition, research methods used to study marine mammals will be taught (including field and lab techniques). Prerequisites – general biology.

1st Session - A2 Courses  May 24– June 25  (4cr UG) Dr. Woodrey
Coastal Birds of Alabama  This course highlights the diverse coastal birdlife of northern Gulf of Mexico. With a focus on the study of avian ecology in the field, this class will include a significant emphasis on the use of both sight and sound as means of field identification. A variety of habitats will be explored, including barrier island nesting grounds, open water plankton known to be pushed ashore in June. We will examine the microbial loop, harmful algal blooms (HABs), invasive forms of plankton and mechanisms underlying explosive plankton blooms, including ‘Jelly World’ phenomena and anthropogenic influences. Students will identify and quantitate organisms using classic microscopy, filtration and counting techniques, as well as modern molecular and imaging methods. We will have one nearshore boat trip during the day, one offshore trip at night, and a minimum of three shore trips to examine plankton in different shore-side habitats. Students will keep a daily journal, will give a ten-minute presentation on his/her favorite plankter and conduct a research project on that organism. The student will then present his/her research project to the class. Graduate students will be expected to do the same the work as undergraduates and also 1) lead one lecture for the class and 2) lead a scholarly journal club session on current literature.

1st Session - B4 Courses  May 24– June 25  (2cr UG/G) Dr. Terwey
Hurricanes of the Gulf Coast  This is an introductory survey course on hurricanes with emphasis on hurricanes in the Gulf of Mexico. Topics include: 1) the hurricane problem along the Gulf Coast and a review of some of the infamous Gulf Coast hurricanes of the last 150 years; 2) Atlantic/Caribbean/Gulf hurricane climatology; 3) the effects of El Niño and multi-decadal changes in the Atlantic circulation on hurricane frequency; 4) favorable/unfavorable environments for hurricane development and intensification; 5) hurricane features and structure; 6) hurricane movement and steering mechanisms; 7) coastal and inland effects from landfalling Gulf Coast hurricanes; and 8) Gulf hurricane forecasting (where will the storm go and how strong will it be at landfall). A half-day boat trip along much of the length of Dauphin Island is planned (weather permitting) during the last week of class to inspect the impact of recent hurricanes on this barrier island. Prerequisites - none. Offered online.

1st Session - B4 Courses  May 24– June 25  (4cr UG/G) Dr. Stanton
Coastal Wetlands Ecology  This course will focus on coastal and nearshore wetland areas, with an emphasis on the biogeochemical processes that occur within, and issues that threaten and protect these important resources. Wetlands not only provide critical habitat for many aquatic and semi-aquatic species, they are also important for primary productivity, transformation of nutrients, pollutant removal, as well as providing protection from storm surges and floodwaters. Insight into wetland ecology requires understanding of the unique interactions between biology, chemistry and hydrology. Prerequisites - General biology and botany or zoology.

Intro to Oceanography  (4cr UG/G) Dr. Krause
This hands-on course provides students an opportunity to learn about the physics, chemistry, geology, and biology of the ocean. Students will apply this knowledge first hand by implementing sample collection strategies on board a research vessel during cruises on Mobile Bay and the Gulf of Mexico. Through class discussion of recent oceanographic discoveries and core concepts, and learning user-friendly ocean data visualization software, this course will enable students to then interpret oceanographic data collected during their cruises and to create clear and concise presentations. Typical data collected includes: hydrography (temperature, pH, salinity, inorganic nutrients, light intensity) and biological (phytoplankton, zooplankton) variables that are collectively processed and visualized. Students should have a laptop equipped with word processing and spreadsheet software. Prerequisites – basic science major.

Marine Geology  (4cr UG/G) Dr. Elliot
A study of the geology of the ocean basins, with special emphasis on the continental shelves, their sediments and the sedimentary processes at work there with emphasis on the northeast Gulf of Mexico. Field trips will be taken to study beach processes and sediments in Mobile Bay and offshore. Students will be introduced to the following: technical writing; conducting a research project; working as a team member; data management; concepts of marine geology; critical thinking; principles of science (hypothesis testing). Participation in overnight field trips is a part of this course. Prerequisites – introductory geology recommended.
A general survey of marine plants, invertebrates and vertebrates, the communities they form and the physical and chemical factors that influence them. Field trips include marsh, seagrass, and dune habitats. Sampling from research vessels and laboratory exercises will serve to introduce students to the diversity of marine habitats and organisms. Organisms will be identified using dichotomous keys. There will be overnight field trips. Snorkeling gear will be needed. **Prerequisites** - general biology.

### Marine Conservation Biology (4cr UG/G)

Dr. Robertson

This advanced course is open to juniors, seniors and graduate students. This course will explore the major threats to marine biodiversity as well as the pros and cons of the potential solutions to these threats. Students will participate in class discussions on current topics in marine conservation biology and will critically evaluate marine conservation primary literature as well as the viewpoints of the various entities involved in marine conservation issues. In addition, students will participate in field trips that support topics covered in lectures and will demonstrate the application of current principles in marine conservation. **Prerequisites** - an introductory class in either marine or general ecology.

### Marine Invertebrate Zoology (4cr UG/G)

Dr. Carmichael

This course surveys the morphology, natural history and evolutionary relationships of the marine invertebrates. The course includes lectures, laboratory exercises and extended field trips. Participation in overnight field trips is a part of this course. Snorkeling gear will be needed. **Prerequisites** - introductory biology or zoology.

### Intro to Oceanography (4cr UG/G)

Dr. Krause

This hands-on course provides students an opportunity to learn about the physics, chemistry, geology, and biology of the ocean. Students will apply this knowledge first hand by implementing sample collection strategies on board a research vessel during cruises on Mobile Bay and the Gulf of Mexico. Through class discussion of recent oceanographic discoveries and core concepts, and learning user-friendly ocean data visualization software, this course will enable students to then interpret oceanographic data collected during their cruises and to create clear and concise presentations. Typical data collected on board the research vessel will include hydrographic (temperature, pH, salinity, inorganic nutrients, light intensity) and biological (phytoplankton, zooplankton) variables that are collectively processed and visualized. Students should have a laptop equipped with word processing and spreadsheet software. **Prerequisites** - basic science major.
**Course Descriptions**

### 2nd Session - C2 Courses

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credit Hours</th>
<th>Instructor</th>
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<tbody>
<tr>
<td><strong>Biotic Response to Sea Level Change</strong></td>
<td>(2cr UG/G)</td>
<td>Dr. Wofford</td>
</tr>
<tr>
<td><strong>Marine Mammal Health</strong></td>
<td>(2cr UG/G)</td>
<td>Dr. Bloodgood</td>
</tr>
<tr>
<td><strong>Marine Biology</strong></td>
<td>(4cr UG)</td>
<td>Dr. Sprinkle</td>
</tr>
<tr>
<td><strong>Marine Ecology</strong></td>
<td>(2cr UG/G)</td>
<td>Dr. Dorgan</td>
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### 2nd Session - D2 Courses

<table>
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<tr>
<th>Course Description</th>
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<tbody>
<tr>
<td><strong>Marine Geology</strong></td>
<td>(4cr UG/G)</td>
<td>Dr. Minzoni</td>
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<tr>
<td><strong>Marine Vertebrate Zoology</strong></td>
<td>(4cr UG/G)</td>
<td>Dr. Baker</td>
</tr>
<tr>
<td><strong>Marine Aquaculture</strong></td>
<td>(2cr UG/G)</td>
<td>Dr. Stoeckel</td>
</tr>
</tbody>
</table>

**Prerequisites**
- general/organismal biology (or equivalent).

**Course Requirements**
- Students may need to arrive at 7:30am for field trips, and/or work evenings and weekends to meet course needs (working in the lab, on projects, or participating in field exercises and/or overnight field trips).
- Some courses may have snorkeling and other water activities.

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**Marine Mammal Health**
- This course will provide an overview of marine mammal stranding response, health assessments, forensic pathology, and common diseases of marine mammals, with a focus on species found in the Gulf of Mexico. The course requires participation in marine mammal necropsy, which includes hands-on (or virtual, depending on COVID-19 requirements) dissection of carcasses and internal organs, blood, and can have foul smells. Potential risk of zoonotic disease, you may not want to participate in necropsies if you are pregnant or immunocompromised. Personal protective equipment will be available and is required. An optional fieldtrip to an aquarium will provide the opportunity to see marine mammal medical examinations, and participation in live and dead marine mammal stranding response will be available on a volunteer basis as opportunities present throughout the course. Prerequisites - 3rd or 4th year undergraduate completion of Dolphins and Whales or Marine Mammals course; graduate student; or consent of the instructor.

**Marine Biology**
- A general survey of marine plants, invertebrates and vertebrates, the communities they form and the physical and chemical factors that influence them. Field trips include marsh, seagrass, and dune habitats. Sampling from research vessels and laboratory exercises will serve to introduce students to the diversity of marine habitats and organisms. Organisms will be identified using dichotomous keys. There will be overnight field trips. Snorkeling gear will be needed. Prerequisites - general biology.

**Marine Ecology**
- This advanced course is open to juniors, seniors and graduate students. The class will study marine organisms as they interact with each other and their environment, and examine ecological theories and the experimental basis of our current knowledge. The laboratory will consist of field trips to a wide variety of marine habitats and field problems which will be examined by student teams in small groups. Habitats selected for emphasis include coral reefs, kelp forests, seagrass meadows, the rocky intertidal and deep-sea hydrothermal vents. Snorkeling gear will be needed. Prerequisites - general biology.

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**Course Descriptions**

### 2nd Session - D4 Courses

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<tbody>
<tr>
<td><strong>Marine Aquaculture</strong></td>
<td>(2cr UG/G)</td>
<td>Dr. Stoeckel</td>
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</table>

This course will introduce students to techniques in live animal culture with an emphasis on basic principles that can be applied to the culture of any organism for research, display or commercial profit. Topics discussed will include: water chemistry, filtration, production techniques, reproduction and nutrition. This course is also designed to assist students with problem solving and communication skills. Prerequisites - general biology required; ichthyology, limnology, and invertebrate zoology suggested, but not required.

**Shark and Ray Biology**
- This course will provide an introduction to the biology of sharks and rays, with special emphasis on regional shark fauna and field techniques. Topics to be covered include chondrichthyan origin, systematics, sensory biology, locomotion, food consumption, osmoregulation, reproductive biology, life history, ecology, fisheries and conservation. Lectures will be supplemented with discussions of papers from the primary literature to familiarize students with current research. In addition, longline and gillnet sampling will provide students with firsthand knowledge of field techniques and local shark identification. Prerequisites - one course in general/organismal biology (or equivalent).

**Marine Geology**
- A study of the geology of the ocean basins, with special emphasis on the continental shelves, their sediments and the sedimentary processes at work there with emphasis on the northeast Gulf of Mexico. Field trips will be taken to study beach processes and sediments in Mobile Bay and offshore. Students will be introduced to the following: technical writing; conducting research projects; working as a team member; data management; concepts of marine geology; critical thinking; principles of science (hypothesis testing). Participation in overnight field trips is a part of this course. Prerequisites - introductory geology recommended.

---

**Students may need to arrive at 7:30am for field trips, and/or work evenings and weekends to meet course needs (working in the lab, on projects, or participating in field exercises and/or overnight field trips). Some courses may have snorkeling and other water activities.**
2nd Session - EX Special Courses
July 19 - August 6

**Intro. to Neurobiology (3cr Adv.UG/G)**

Students will be introduced to the neuroanatomy and neurophysiology of marine invertebrates and vertebrates. The following aspects of neurobiology will be covered in lectures and laboratory exercises: neurons and glia; passive properties of neurons; resting potentials; action potentials; synaptic transmission; neurotransmitters and receptors; sensory transduction; muscle innervation and contraction; sensorimotor integration; and neurophysiological bases of behavior. In addition, students will use computer simulations that allow a more in-depth exploration of cellular neurobiology than is possible in standard laboratory classes. Students will be introduced to aspects of molecular biology and its applications to neuroscience. This class will include evening and Saturday sessions. The following are recommended but not required: general chemistry and general physics; or permission of the instructor. **Prerequisites** - introductory biology.

**Students may need to arrive at 7:30am for field trips, and/or work evenings and weekends to meet course needs (working in the lab, on projects, or participating in field exercises and/or overnight field trips). Some courses may have snorkeling and other water activities.**

**Albins, Mark A., Ph.D.** (Oregon State University, 2011). Research Associate, University of South Alabama. The ecology of reef-associated marine fishes, including effects of invasive species and fishing on populations and communities. malbins@disl.edu.

**Baker, Ronald, Ph.D.** (James Cook Univ., 2006). Assistant Professor, University of South Alabama, and Senior Marine Scientist, Dauphin Island Sea Lab. Coastal and estuarine fisheries ecology; nursery ground ecology; predation and food-web ecology; seascape use of fishery species. rbaker@disl.edu.

**Bloodgood, Jennifer, DVM, PhD** (Univ. of Georgia 2016). Veterinarian and Postdoctoral Researcher, DISL, Marine Mammal Research Center and Alabama Marine Mammal Stranding Network. Free-ranging wildlife health; One Health; infectious and zoonotic disease; forensic pathology; marine mammal stranding response and necropsy. jbloodgood@disl.org

**Carmichael, Ruth, Ph.D.** (Boston Univ., 2004). Senior Marine Scientist III DISL, Professor, Dept. of Marine Sciences, Univ. of South AL. Marine ecosystem and organismal responses; understanding biological and physiological responses to environmental change such as nutrient enrichment, climate change and other perturbations. Application of methods in stable isotope and population ecology. rcarmichael@disl.edu.

**Dorgan, Kelly M., Ph.D.** (Univ. of Maine, 2007). Senior Marine Scientist I DISL, Assistant Professor, Dept. of Marine Sciences, Univ. of South AL. Sediment ecology, focused primarily on organism-environment interactions; biomechanics and energetics of burrowing; biological-physical interactions; functional morphology of invertebrates. kdorgan@disl.edu.

**Drymon, J. Marcus, Ph.D.** (Univ. of South AL, 2010). Assistant Extension Professor, MSU Coastal Research and Extension Center. Research interests include marine fisheries ecology, specifically trophic interactions/foodweb dynamics of upper trophic-level predators and ecosystem based fishery management. marcus.drymon@msstate.edu.

**Elliott, Emily A. (Timmons), Ph.D.** (Univ. of North Carolina at Chapel Hill, 2017). Postdoctoral Researcher/ Adjunct Faculty, Univ. of Alabama. Coastal geology and geomorphology, paleo- and geochronology, sedimentology and paleotempestology, focusing on understanding the climatic drivers of coastal change. emily.elliott@ua.edu
**DISL Summer Program Faculty/Research Interest**

**Fleming, Jonathan P., Ph.D.** (Mississippi State University, 2012) Assistant Professor, Department of Geography and Sociology, Howard College of Arts and Sciences, Samford University. Current research topics include identifying mechanisms and patterns of species invasions, aquatic and wetland plants, and spatial ecology projects using applied GIS to understand contemporary environmental change. jfleming@samford.edu

**Gier, Paul J., Ph.D.** (Univ. of Oklahoma, 1997). Professor of Biology, Huntingdon College, Montgomery, AL. Zoology, ecology, and evolution. Conservation biology of insects, sexual selection and the evolution of vertebrate mating systems. pgier@hawks.huntingdon.edu

**Henning, Jeremiah A. Ph.D.** (University of Tennessee, 2017). Assistant Professor, University of South Alabama. Coastal plant community ecology, biodiversity-ecosystem function linkages, mycorrhizal fungi, plant-microbe interactions, global change ecology. henning@southalabama.edu

**Hoadley, Kenneth, Ph.D.** (University of Delaware, 2016) Senior Marine Scientist DISL, Assist. Professor, Dept. of Biological Sciences, University of Alabama. Current research topics include coral reef biology and marine algal photobiology and primary production. khoadley@disl.edu

**Keyser, Kent, Ph.D.** (SUNY Stony Brook, 1980). Professor, Dept. of Vision Sciences, Assistant Vice President for Research, Univ. of AL B’ham. Communication between neurons: neurotransmitters, neurotransmitter receptors in the retina and brain. kkkeyser@auburn.edu

**Krause, Jeffrey, Ph.D.** (Oregon St. Univ., 2008). Senior Marine Scientist DISL, Assistant Professor, Dept. of Marine Sciences, University of South AL. Marine diatom and cyanobacteria ecology and understanding the coupling between the marine biogeochemical cycle of silicon with those for carbon and nitrogen. ikrause@disl.edu

**Lewis, Jennifer, Ph.D.** (Fla. Int. Univ., 2010). Director, Tropical Dolphin Research Foundation. Animal movement and the benefits of group formation; foraging ecology; behavioral ecology of tropical dolphin species; marine ecological conservation with focus on non-lethal effects of vessel traffic on marine species. jlewi006@fiu.edu

**Minzoni, Rebecca Totten, Ph.D.** (Rice University, 2015) Asst. Professor, Dept. of Geological Sciences, and Director of Evolutionary Studies, College of Arts & Sciences, University of Alabama. Current research topics include past and present oceanographic and climatic influences on the stability of Antarctic ice shelves; floods, storms, and sea-level impacts in the northern Gulf of Mexico; and marine diatoms and foraminifera as recorders of changing ocean environments. rminzoni@ua.edu

**Moss, Anthony G., Ph.D.** (Boston Univ., 1986). Associate Professor of Biological Sciences, Marine Biology Program Coordinator, Auburn Univ. Ctenophores and jellyfish, salps, marine microbial biology, cilia & flagella. mossant@auburn.edu

**Sprinkle, Amy, Ph.D.** (Univ. of Del., 2009). Marine Science Instructor, Univ. South AL. Oceanography, chemical & biological oceanography, marine biology, biological sciences, terrestrial and aquatic ecology, and trophic dynamics. sprinkles@auburn.edu

**Walton, William, Ph.D.** (Univ. of Maryland, 2003). Associate Professor, Auburn Univ., School of Fisheries, Aquaculture and Aquatic Sciences, Marine Ext. Specialist, AL. Cooperative Extension System. Marine invertebrate fisheries, restoration and aquaculture. billwalton@auburn.edu

**Walworth, Ben, Ph.D.** (University of Delaware, 2014) Assistant Professor, Dept. of Ocean Sciences, Virginia Institute of Marine Science. Specialize in the biology of Antarctic marine invertebrates. bwalworth@vims.edu

**Woodrey, Mark, Ph.D.** (Univ. of Southern Miss., 1995). Avian Ecologist/Coastal Ecologist at MS State Univ., Research Coordinator at Grand Bay National Estuarine Research Reserve. Marsh bird ecology and conservation; monitoring programs for biological resources; tidal marsh ecology; ecological effects of sea level rise on coastal ecosystems. mwoodrey@ra.msstate.edu

*These faculty are not instructing undergraduate courses this year.
Course Registration

Submission deadline for priority registration: February 12, 2021

DISL will accept registrations until the first day of class; however, courses will fill early and students should try to submit their registrations online before the priority registration date.

Step #1 Complete the DISL Summer Online Registration Form:

ONLINE:
• Visit https://www.disl.edu/univ-prog/undergrad for instructions for logging into our student portal. www.disl.populiweb.com
• Once your student account is created on disl.populiweb.com, upload/submit a digital image, photo or scan of your signed advisor’s sheet (last page of this bulletin).
• Complete online registration with course choices.
• You will be billed the $75.00 pre-registration fee via your online student account disl.populiweb.com.

Step #2 Confirmation of DISL Enrollment
• DISL will email a confirmation of your course enrollment at DISL after the priority registration deadline of February 12, 2021. This email will include instructions to login to your DISL Student account via disl.populiweb.com, and a link to additional documents.
• Once you login to your student account on DISL.Populiweb.com, you will be able to view a listing of your courses and the status of your enrollment (registered or wait)
• Your DISL bill is payable online (amount due upon arrival at DISL for fees, room and board). DISL fees may be paid on a session-by-session basis if arranged beforehand with the DISL Bursar, Ms. Daphne Wood (dwood@disl.edu).

Step #3 Enrollment at Your Home Campus
• You MUST also register at your home campus and pay your home campus tuition (not applicable for Birmingham Southern Students).
• You must submit proof of home campus tuition paid and a schedule of courses registered for at your home campus to the UP Registrar. This can be done via email to the registrar or online via disl.populiweb.com.

NOTE: In cases where your home institution does not permit you to register for classes before DISL classes begin and you fail to register when campus registration begins, you will be obligated to pay DISL directly for the cost of registration and tuition.

Frequently Asked Questions

Do I have to enroll at both my home school and at the DISL for my summer course?
Yes, in order to receive academic credit for your courses you MUST register for your class at your home institution and at the DISL. Be sure to get your academic advisor’s approval for your course selections.

Will I receive two billing statements for my summer courses at DISL?
Yes, your home institution will invoice your tuition. The DISL will invoice academic and facility fees as well as your room and board if you decide to live on the DISL campus.

Can out-of-state students enroll in DISL Summer UP courses?
Yes, however, your home school will need to enter an agreement with the DISL for academic credits to transfer. Please contact the UP Registrar Regina Kollegger for more info.

Do I have to be enrolled in a college to take DISL Summer UP courses?
No, you do not need to be enrolled in college to take our courses. You may audit our courses for a fee, but will not receive academic credit for your enrollment.

Do you offer financial aid?
DISL does not offer a financial aid program. You will need to coordinate your financial aid through your home institution. The DISL does offer student work-study and scholarship opportunities, please see page 27 for more information.

Are there housing options on Dauphin Island other than DISL campus living?
Sometimes there are houses available for rent on Dauphin Island, however, you will need to search and coordinate these options on your own.
Scholarship and Work Study Opportunities

The Dauphin Island Sea Lab offers scholarships and work study positions for summer school students to defer educational related costs. **Deadline to submit applications online is Friday, March 12, 2021.**

### Scholarships

The Rita George and George Crozier Scholarships provide 12 weeks of room and board for students enrolled in DISL summer courses.

DISL Foundation Scholarships waive academic fees for summer school.

The Mike deGruy Coral Reef Scholarship will cover course fees for students enrolled in Coral Reef Biology & Ecology.

To apply visit www.disl.edu/univ-prog/undergrad and select “Scholarship”. Students may apply for all scholarships simultaneously using a common application.

A complete scholarship application must be completed online and will include:
- A submission form outlining honors, awards, and extracurricular activities
- Transcripts from all colleges or universities attended (unofficial transcripts accepted)
- Three letters of recommendation from individuals that can evaluate academic potential
- A one-page essay of career goals with regards to marine science

### Work Study

Students are needed to work as dorm monitors and library aides. Both graduate and undergraduate students are eligible to apply. For job descriptions, requirements for employment, and applications visit www.disl.edu/univ-prog/undergrad and select “Work Study”.

### Dorm Monitors

Dorm monitors receive $125 per week plus a private dormitory room and a meal plan. Dorm monitors serve at the direction of the UP Registrar and UP Chair. The major responsibilities of the Dorm Monitor/RA include: assigning dorm rooms, promoting community; developing relationships; helping to establish and maintain a healthy residential environment conducive to academic and personal growth; assisting with disciplinary procedure as necessary; implementing University and Housing policies; and assisting with individual student needs, transporting students to the airport, events and other duties as assigned.

### Library Aides

Library aides are compensated $8.00 per hr and work 10 hours per week to staff the library and computer lab after hours. They perform clerical tasks as needed and assist students with computer use.

A complete work study application must be completed online and will include:
- A submission form
- Transcripts (unofficial accepted)
- Three letters of recommendation, excluding relatives

Recommendation letters and other application materials can be used for all scholarship and work study applications, students do not need to send separate recommendation letters or complete multiple applications.
MESC Institutions and DISL Campus Liaison Officers

*Alabama A & M University
Dr. Malinda Wilson Swoope
Dept. of Chemistry, Physics, and Math
4900 Meridan Street/PO Box 322
Normal, AL 35762
Ph: (256) 372-4803/Fax: (256)372-8288
Malinda.Swoope@aamu.edu

*Alabama State University
Dr. B.K. Robertson
Dept. of Biological Sciences
915 S. Jackson Street
Montgomery, AL 36104
Ph: (334) 229-4423/Fax: (334)229-1007
brobertson@alsu.edu

Auburn University
Dr. Anthony G. Moss
Dept. of Biological Sciences
331 Funchess Hall
Auburn, AL 36849
Ph: (334) 844-9257/Fax: (334) 844-9234
mossant@auburn.edu

Auburn University at Montgomery
Dr. John Aho
Dept. of Biology/PO Box 244923
Montgomery, AL 36124
Ph: (334) 444-2787/Fax: (334)444-3826
jaho@auam.edu

Birmingham Southern College
Dr. Andrew Gannon
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PO Box 549022
Birmingham, AL 35254
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agannon@bsc.edu

Hunterdon College
Dr. Paul Gier
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1500 E. Fairview Ave.
Montgomery, AL 36106
Ph: (334) 833-4510/Fax: (334)833-4486
pgier@hunterdon.edu

Jacksonville State University
Dr. George Cline
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700 Pelham Rd., N.
Jacksonville, AL 36265-1602
Ph: (256) 782-5798/Fax: (256)782-5587
gcline@jsu.edu

Judson College
Dr. Mary Anne Garner
Dept. of Chemistry
302 Bibb Street
Marion, AL 36756
Ph: (334) 683-5179/Fax: (334)683-5282
mgarner@judson.edu

Samford University
Dr. Anthony S. Overton
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Howard College of Arts and Sciences
800 Lakeshore Drive
Birmingham, AL 35229
Ph: (205)726-2944/Fax: (205)726-2479
soverton@samford.edu

Spring Hill College
Dr. Charles Chester
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Mobile, AL 36508
Ph: (251) 380-3071/Fax: (251)460-2198
chester@shc.edu

Stillman College
Dr. Moses Darpolar
School of Arts & Sciences
3601 Stillman Blvd
Tuscaloosa, AL 35401
Ph: (205) 366-8929
mdarpolar@stillman.edu

Talladega College
Dr. Andrew Coleman
Silbsy Science Hall Rm B2
627 West Battle Street
Talladega, AL 35160
Ph: (205) 761-6307/Fax: (205)761-6437
acoleman@talladega.edu

*Troy University
Dr. Stephen Landers
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Troy, AL 36082
Ph: (334) 670-3661/Fax: (334)670-3662
slanders@troy.edu

*Tuskegee University
Dr. Richard Whittington
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Tuskegee, AL 36088
Ph: (334) 724-4218/Fax: (334)724-3919
rwhittington@tuskegee.edu

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Dr. Bruce Stallsmith
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Huntsville, AL 35899
Ph: (256) 824-6992/Fax: (256)824-6305
stallsb@uah.edu

University of Mobile
Dr. Lesley Baggett
Dept. of Natural Sciences
5753 College Parkway
Mobile, AL 36618
Ph: (251) 442-2408/Fax: (251)442-2523
lbggett@umobile.edu

University of Montevallo
Dr. Jill Wicknick
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Montevallo, AL 35115
Ph: (205) 665-6458/Fax: (205)665-6477
wicknickja@montevallo.edu

University of North Alabama
Dr. Emily Kasl
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Florence, AL 35632
Ph: (256) 765-4705/Fax: (256)443-9165
ekasl@una.edu

University of South Alabama
Dr. Amy Sprinkle
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Mobile, AL 36688
Ph: (251) 460-7525/Fax: (251)414-8220
sprinkle@southalabama.edu

University of West Alabama
Dr. Lee Stanton
Dept. of Biology
Livingston, AL 35470
Ph: (205) 652-3415/Fax: (205)652-3831
lstanton@uwa.edu

*Schools with Graduate Programs
**Advisor’s Sheet 2021**

**May Session: May 10-May 21**

**A4 Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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<tr>
<td>Marine Behavioral Ecology</td>
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<td>Marine Biology</td>
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<tr>
<td>Marine Botany</td>
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<td>Marine Mammals</td>
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<td>Plankton Biology</td>
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**A2 Courses**

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<tr>
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<td>Environmental Applications of GIS</td>
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<td>Hurricanes of the Gulf Coast</td>
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**B4 Courses**

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<tr>
<td>Coastal Wetlands Ecology</td>
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<tr>
<td>Intro to Oceanography</td>
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<td>Marine Geology</td>
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<tr>
<td>Marine Vertebrate Zoology</td>
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**B2 Courses**

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<td>Marine Technical Methods</td>
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**Course Combinations**

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<td>C2 and D2</td>
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**2nd Session: June 28-July 30 - 5 weeks**

**C4 Courses**

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<th>Course</th>
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<td>Marine Biology</td>
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**C2 Courses**

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<td>Biotic Response to Sea Level Change</td>
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**D4 Courses**

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<tr>
<td>Marine Biology</td>
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<td>4 (G)</td>
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<tr>
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**D2 Courses**

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<tr>
<td>Shark and Ray Biology</td>
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<td>Marine Aquaculture</td>
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**Schedule EX Special Courses**

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<th>Course</th>
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<tbody>
<tr>
<td>Intro. to Neurobiology</td>
<td>4 (G)</td>
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</table>

It is important to list both first and second choices for courses whenever possible. When applying online this advisor sheet must be signed and uploaded to your web application. All courses are subject to change.

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**Course Combinations**

<table>
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**Total # credits (all terms)**

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<table>
<thead>
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**Facilities Map**

- **AED** Automated External Defibrillators
- **Severe Weather Shelter**

---

- 1. Administrative Offices, Registration, Classroom and Study Hall
- 3. Albatross Hall (Apartments)
- 4. Laundromat
- 5. DHP Computer Lab/Classroom 5
- 6. Endeavor Hall (Class Rooms)
- 7. Basketball, Volleyball Courts
- 8. Discovery Hall (Class Rooms/Offices)
- 9. Horizon Hall (Class Rooms/Offices)
- 10. Galathena Hall (Class/Meeting Room)
- 11. Sea Pines
- 12. Swimming Pool
- 13. Mesocosm Facility
- 14. House 10
- 15. Cafeteria
- 16. Challenger Hall (Dormitory)
- 17. Beagle Hall (Dormitory)
- 18.1-9. Faculty Housing
- 19. Storage Building
- 20. Wise Marine Science Hall
- 21. Husbandry Building
- 22. The Estuarium and Sea Lab Giftshop
- 23. Living Marsh and Boardwalk
- 24. Ladner Pavilion
- 25. A. U. Shellfish Research
- 26. Wet Lab
- 27. Shelby Fisheries Center
- 28. Marine Mammal Research Center

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**- OPEN TO THE PUBLIC**

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**Severe Weather Shelter**
From Delta to the Ocean Deep
Dauphin Island, AL
www.disl.edu

Fieldwork
Small Class Size
One-on-one instructor interaction