

# Barrier Island Ecology

## 2017 Summer Field Program

### University of Southern Mississippi

### Gulf Coast Research Laboratory

Syllabus

May 22- June 2, 2017

USM/GCRL

**Instructor:** Dr. Arthur Karels  
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 228-238-6454 (cell phone)

**T.A.** Mr. Jeremy Johnson  
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**Course Description:** The northern Gulf of Mexico has a unique set of barrier islands, from Alabama to Louisiana, that are approximately 8-10 miles offshore. To the north of this chain of barrier islands is the Mississippi Sound, with its shallow brackish waters. To the south of this chain of barrier islands is the deep marine seawater of the Gulf of Mexico. This geological wonder allows for the formation of a unique ecosystem on these barrier islands. Topics covered in this class, include geology, ecology, botany, and zoology, and with a variety field research excursions highlighting methods and techniques for sampling in these unique ecosystems.

**Learning Goals:** Students will gain an understanding of the geology, ecology, botany, and zoology of barrier islands along the northern Gulf Coast, found with Alabama, Mississippi, and Louisiana waters. Students will also become familiar with sampling techniques and observing skills while exploring these islands.

**Grading:**

Undergraduate students

Lecture (1 credit)	
Quiz	20 pts
<u>Lecture Final Exam</u>	<u>100 pts</u>
Total	120 pts

Graduate students

Lecture (1 credit)	
Quiz	20 pts
Lecture Final Exam	100 pts
Review Paper	50 pts
<u>Total</u>	<u>170 pts</u>

Lab/Field (2 credits)

Field Composition Notebook	170 pts
Quiz	20 pts
Group Participation	50 pts
<u>Total</u>	<u>240 pts</u>

Lab/Field (2 credits)

Field Composition Notebook	240 pts
Quiz	20 pts
Group Participation	80 pts
<u>Total</u>	<u>340 pts</u>

**Letter grades are based upon a straight percentage breakdown:**

**A = 100-90%, B = 89-80%, C = 79-70%, D = 69-60%, F = 59% or lower**

## **Tentative Schedule:**

### *Monday - May 22*

- 8:00 - Orientation – Caylor auditorium
  - 9:30 - Visit Gunter library [Hurricane Balls exhibit – [Joyce Shaw]
  - 10:00 - Scope of Course - Introduction and definitions [Karels]
  - 11:00 - Abiotic Factors and Ecological Principles [Karels]
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- 1:00 - Geology and sedimentology [Karels/Otvos]
- 3:00 - Barrier island evolution and geomorphology [Karels/Otvos]

### *Tuesday - May 23*

- 8:00 - **Field trip to Dauphin Island, AL** [Bus or Vans]  
Island geology and evolution [Otvos/Karels]

### *Wednesday - May 24*

- 8:00 - Nearshore Communities: Subtidal, Intertidal and Supratidal Zones [Karels/McLelland]
  - 9:30 - Sand Beach Communities [Karels/McLelland]
  - 11:00 - Salt Marsh and Inland Pond Communities [Karels/McLelland]
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- 1:00 - Ant communities of Horn Island versus the mainland [Karels/Lockley]
- 2:00 - Nearshore seagrass communities [Karels/Caldwell]
- 3:00 - Seagrass and marsh restoration [Karels/Caldwell]
- 4:00 - Barrier Island dunes and maritime forest communities [Karels/Caldwell]

### *Thursday - May 25*

- 8:00 - **Field trip to Horn Island** [R/V Jim Franks]  
Dune and forest communities [Caldwell/Karels]  
Inland pond communities [Karels]  
High energy beach communities [Karels]  
[Alternate: **Ship Island or Dauphin Island, AL** – Audubon Nature Trail]

### *Friday - May 26*

- 7:00 - **Field trip to Santa Rosa Island, Florida** – Ft. Pickens area  
Island geology and evolution [Otvos/Karels]  
Seagrass communities and salt marsh zonation [Caldwell/Karels]  
High energy beach communities [Karels]  
Visit to GINS headquarters – Naval Live Oak exhibit

*Monday - May 29*

- 8:00 - Midterm
  - 8:30 - Marine Fish of the Mississippi Sound and Barrier Islands [Karels]
  - 10:00 - Sharks of the Mississippi Sound and Gulf of Mexico [Higgs/Karels]
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- 1:00 - Coastal Birds of Mississippi [Karels]
- 2:30 - Barrier Island Amphibians and Reptiles [Karels/Mohrman]
- 4:00 - Barrier Island Parasite Systems [Dr. Steve Curran or Dr Michael Andres]

*Tuesday - May 30*

- 8:00 - **Field trip to Chandeleur Island** [R/V Jim Franks]  
Seagrass communities, nearshore and intertidal benthic communities, supratidal biotic communities, island lagoon communities [Karels/McLelland]  
[Alternate: **Ship Island or Dauphin Island, AL** – public beaches]

*Wednesday - May 31*

- 8:00 - **Field trip to Cat Island** [R/V Jim Franks]—Day trip on Cat Island—packed lunch  
Plant communities, beach communities, and intertidal communities, and bird activity [Karels]
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- 1:00 - **Field trip to Cat Island** [R/V Jim Franks]—Day trip on Cat Island—packed lunch  
Plant communities, beach communities, intertidal communities, and bird activity [Karels]

*Thursday – June 1*

- 8:00 - **Field trip to Deer Island** [GCRL boat—Miss Peetsey B]  
Marsh Restoration [Karels/Caldwell]  
Bird observations [Karels/Woodrey]
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- 1:00 - **Road trip to GINS office, Ocean Springs** - History and management of the Gulf Islands National Seashore [Hopkins - GINS]
- 3:00 - Anthropogenic effects and current issues [Karels]

*Friday – June 2*

- 9:00 - Final Exam and Field Notebook due

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**Unless noted, all meetings will be held in the new Field Studies building**

## **Disability Accommodations**

If a student has a disability that qualifies under the Americans with Disabilities Act (ADA) and requires accommodations, he/she should contact the Office for Disability Accommodations (ODA) for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact ODA if they are not certain whether a medical condition/disability qualifies.

### **Address:**

The University of Southern Mississippi  
Office for Disability Accommodations  
118 College Drive # 8586  
Hattiesburg, MS 39406-0001

**Voice Telephone:** 601.266.5024 or 228.214.3232

**Fax:** 601.266.6035

Individuals with hearing impairments can contact ODA using the **Mississippi Relay Service** at 1.800.582.2233 (TTY) or emailing ODA at [oda@usm.edu](mailto:oda@usm.edu).

## **Academic Integrity**

All students at the University of Southern Mississippi are expected to demonstrate the highest levels of academic integrity in all that they do. Forms of academic dishonesty include (but are not limited to):

1. Cheating (including copying from others' work)
2. Plagiarism (representing another person's words or ideas as your own; failure to properly cite the source of your information, argument, or concepts)
3. Falsification of documents
4. Disclosure of test or other assignment content to another student
5. Submission of the same paper or other assignment to more than one class without the explicit approval of all faculty members' involved
6. Unauthorized academic collaboration with others
7. Conspiracy to engage in academic misconduct

Engaging in any of these behaviors or supporting others who do so will result in academic penalties and/or other sanctions. If a faculty member determines that a student has violated our Academic Integrity Policy, sanctions ranging from resubmission of work to course failure may occur, including the possibility of receiving a grade of "XF" for the course, which will be on the student's transcript with the notation "Failure due to academic misconduct." For more details, please see the University's [Academic Integrity Policy](#). Note that repeated acts of academic misconduct will lead to expulsion from the University.