



THE UNIVERSITY OF  
SOUTHERN MISSISSIPPI

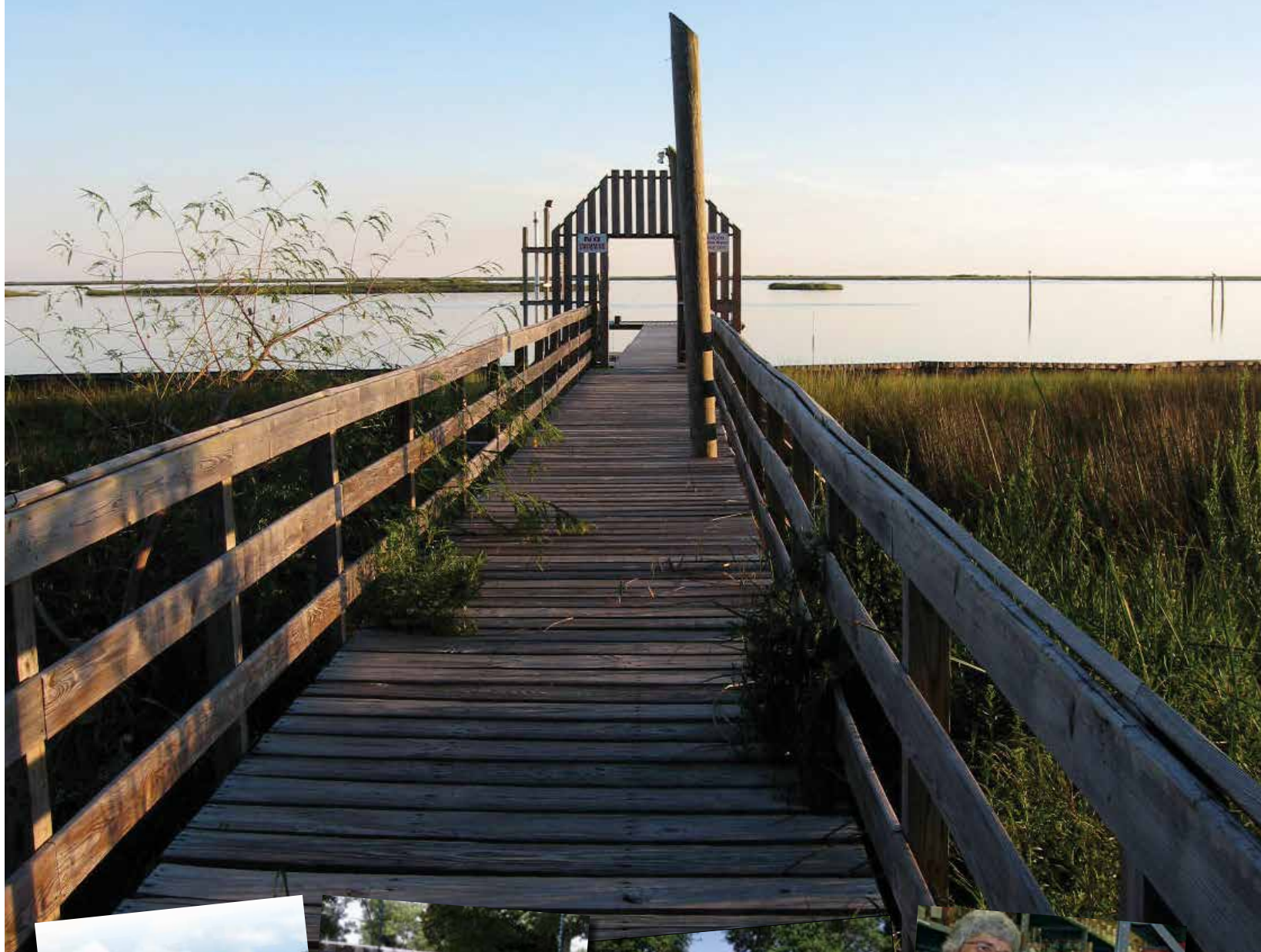
GULF COAST RESEARCH LABORATORY



# Summer Field Program 2015



The University of Southern Mississippi's Gulf Coast Research Laboratory (GCRL) was established in Ocean Springs, Mississippi in 1947 and is home to the Summer Field Program. The Summer Field Program is designed to allow undergraduate and graduate students an opportunity to learn about coastal environments in an intensive field and lab based setting. On site amenities include research vessels, dormitory, dining hall, research labs, library and a specimen museum. Make your plans today to attend the 2015 Summer Field Program and gain an experience of a lifetime!





# Mini-Session MAY 11-22, 2015

## BARRIER ISLAND ECOLOGY

This field course will familiarize students with concepts of coastal ecology with emphasis on the diversity of plant and animal communities unique to the northern Gulf of Mexico barrier island ecosystem. Field excursions to barrier islands off Mississippi and Florida coasts will be conducted during this course and cover topics such as: marsh and barrier island vegetation, aquatic and terrestrial invertebrates, mammals, birds and reptiles, brackish pond and lagoon communities, submerged seagrass communities, intertidal and shallow subtidal communities, and geologic processes of island dynamics. Prerequisites: Three semesters of science or permission of instructor. Dr. Arthur Karels. Barrier Island Ecology; COA 448/448L. Three semester hours credit (1/2).

## COASTAL HERPETOLOGY

The coastal plain of the Southeast boasts an outstanding diversity of amphibians and reptiles, making the region an excellent place to study these often reclusive and elusive creatures. This course provides students with an introduction to herpetology through lectures, discussions of original research papers, and a class project. Topics covered include the ecology, evolution, life history, diversity, behavior, and conservation of amphibians and reptiles. There will also be field excursions highlighting the methods and techniques for capturing and studying amphibians and reptiles. Prepare to get wet and muddy while exploring the marshes, pine woods, bayous, and other habitats as we search for and learn about the amphibians and reptiles of the northern Gulf Coast. Prerequisites: Two semesters of biology or permission of instructor. Dr. Matthew Chatfield. Field Exercises in Coastal Herpetology; COA 412/512. Three semester hours credit.

## COASTAL ORNITHOLOGY

This course explores the highly diverse avian habitats found along the Mississippi Gulf Coast focusing on the study of avian ecology. Class activities include a significant emphasis on the use of both sight and sound as means of field identification. Students will explore barrier island nesting grounds, boat the pristine Pascagoula River area, and explore local marshes and other unique coastal habitats. Students will be introduced to a variety of ornithology field techniques including bird-banding, call-broadcast surveys, and monitoring methodologies. Prerequisites: Two semesters of biology or permission of instructor (ecology recommended but not required). Dr. Mark Woodrey. Coastal Ornithology; COA 411/511. Three semester hours credit.

## DOLPHIN AND WHALE BEHAVIOR

Students will learn tools and techniques used in the systematic observation and documentation of delphinid behavior in the wild. Course includes both classroom lecture and field studies focused primarily on dolphins of the Mississippi Sound. Prerequisites: Two semesters of biology or permission of instructor. Jeffrey Siegel/ Dr. Jeffery Lotz. Cetacean Behavior; COA 444. Three semester hours credit.

## MARINE BOTANY

Students will be introduced to the wide range of marine and tidal-influenced habitats along the Mississippi coast. The course will include a survey of the algae, sea grasses, ferns, and seed plants that grow submersed or floating in the oceans and estuaries, as well as those associated with beaches, sand dunes, salt and brackish marshes, and maritime forests. The emphasis will be on classification, morphology, life cycles, ecology, and economic importance of the species. Visits to the Pascagoula River, Deer Island, and Horn Island will be conducted to compare habitats and species. Discussions will also include the importance of these plants in maintaining the integrity of marine and coastal habitats and animal communities, and the on-going threats to their preservation. Prerequisites: General biology and general botany or permission of instructor. Dr. Ronald Jones. Marine Botany; COA 436/536, 436L/536L. Three semester hours credit (2/1).







HERMES

GULF COAST RESEARCH LABORATORY

# First Term (May 26 – June 23, 2015)

## MARINE BIOLOGY

An ecological approach is taken to understand the biology of marine systems with emphasis on local organisms; their habitats, life cycles and survival strategies. Prerequisites: Two semesters of biology or permission of instructor. Dr. Walter Conley. Marine Sciences II: Marine Biology; COA 301, 301L. Five semester hours undergraduate credit (3/2).

## MARINE ECOLOGY

A study of marine organisms and their relationships to the environment, including such topics as primary production, populations and communities, biogeochemical cycles, trophic ecology, larval ecology, and human influences. Laboratory involves weekly quantitative studies implemented as class projects. Prerequisites: Four semesters of science or permission of instructor. Dr. Chet Rakocinski. Marine Ecology; COA 446/546, 446L/546L. Five semester hours credit (3/2).

## MARINE FISHERIES MANAGEMENT

The Marine Fisheries Management course will introduce students to a variety of fishery sampling techniques and analytical methods focusing on the fishery stocks of the Mississippi Gulf Coast and offshore in the Gulf of Mexico. This course is designed for upper-level undergraduate and graduate students. Students will learn classic and current concepts in fisheries science and become familiar with the challenges that marine fisheries scientists face given uncertainty and a variable environment. Prerequisites: Two semesters of biology or permission of instructor. Dr. Robert Leaf. Special Topics: Marine Fisheries Management; COA 490, 590. Five semester hours credit.

## MARINE EMBRYOLOGY

Marine Embryology is a specialty area within the marine sciences that involves methods in field collecting, spawning, in vitro fertilization, and laboratory manipulation of gametes and embryos of the major invertebrate and vertebrate groups found in marine habitats. Lectures encompass the broader field of Developmental Biology, and so include such contemporary applications as cloning, tissue regeneration, cell lineage, and organogenesis. Prerequisites: One year of college level biology or permission of instructor. Dr. James Wetzel. Special Topics: Marine Embryology; COA 490/590. Five semester hours credit.

## MARINE INVERTEBRATE ZOOLOGY

A concentrated study of the marine and estuarine invertebrates from the Mississippi Sound and contiguous continental shelf of the

northeastern Gulf of Mexico. Emphasis is on structure, classification, phylogenetic relationships, larval development and functional processes. Prerequisites: Two semesters of biology or permission of instructor. Dr. Richard Heard. Marine Invertebrate Zoology; COA 428/528, 428L/528L. Six semester hours credit (3/3).

## OCEANOGRAPHY

This course provides a multidisciplinary foundation in oceanography, specifically the terminology, principles, processes, relationships, and phenomena pertaining to three of its sub-disciplines: physical, geological, and chemical oceanography. The importance of the interaction of biotic and abiotic processes in the ocean will be addressed through exploration of timely issues in ocean science. Prerequisites: College algebra; one semester chemistry; one semester biology or permission of instructor. Dr. Jessica Kastler. Marine Science I: Oceanography; COA 300, 300L. Five semester hours undergraduate credit (3/2).

## SHARK BIOLOGY

This specialized course will provide students with an overview of elasmobranch (sharks, skates, and rays) biology, ecology, and taxonomy. Lectures will cover such topics as evolution, anatomy and physiology, sensory systems, behavior, and ecology. Students will be introduced to the diversity of elasmobranchs and will learn how to identify species. Emphasis will be given to the species common to the Gulf of Mexico. Laboratory work will consist of several inshore and offshore collecting trips as well as dissections. Prerequisites: Three semesters of biology, including marine biology or permission of instructor. Jill Hendon. Elasmobranch Biology; COA 422/522, 422L/522L. Five semester hours credit (3/2).

## RESEARCH STUDY PROGRAM

Available in both 1st and 2nd terms

This Research Study Program allows upper level undergraduate students an opportunity to gain valuable experience in designing a research project, sampling, analyzing data, and presenting research findings. Research options encompass a broad spectrum of disciplines in coastal sciences that include: Marine Aquaculture, Marine Biodiversity, Marine Biomedicine, Marine Ecology, Marine Education, Marine Fisheries, Marine Pathology, and Marine Toxicology. This course could easily form the basis of a Senior or Honors Project. Prerequisites: Four semesters of biology or permission of instructor. Special Topics: Research; COA 492. One to six hours credit is available and is assigned by the instructor.







# Second Term (June 25 - July 24, 2015)

## MARINE AQUACULTURE

An introduction to principles, technologies and practices of marine aquaculture as they apply to seafood production and marine stock enhancement. The course includes a survey of cultured species, water quality, culture systems, best husbandry practices, and the biological bases of aquaculture including reproduction, nutrition, genetics and diseases of marine organisms. Additionally topics related to the history, socio-economics, and environmental context of marine aquaculture are considered. For graduate credit, students must undertake a research component and complete related laboratory work. Prerequisites: Two semesters of biology or permission of instructor. Dr. Jeffrey Lotz, Dr. Reginald Blaylock and Dr. Eric Saillant. Marine Aquaculture; COA 424/524, 424L/524L. Six semester hours credit (3/3).

## MARINE BIOLOGY

An ecological approach is taken to understand the biology of marine systems with emphasis on local organisms; their habitats, life cycles and survival strategies. Prerequisites: Two semesters of biology or permission of instructor. Elizabeth Jones. Marine Sciences II: Marine Biology; COA 301, 301L. Five semester hours undergraduate credit (3/2).

## MARINE ICHTHYOLOGY

Marine Ichthyology is an intensive marine biological field course requiring strenuous physical activity in the ocean, including during adverse conditions (inclement weather, rough water). This course engages students to seek out and identify marine fishes of estuaries, lagoons, grassbeds, nearshore waters, and pelagic waters of the Gulf of Mexico (including field operations in MS, AL, FL, LA, and TX). Students experience a variety of land-based (beaches, barrier island lagoons, estuaries, nearshore coastal waters) and ship-board (off barrier islands of Horn Island and Ship Island as well as in pelagic/oceanic localities ranging from 10-200 km offshore) collection techniques that include seining, cast netting, spearing, hook and line fishing, trawling, trolling, dip netting, and fish traps. Students must work effectively alone and in teams and participate in multi-day field expeditions to complete the course objectives. Class hours are long and include some weekend activities. Successful students gain an appreciation for taxonomic identities of fishes and the synergism between abiotic and biotic factors that drive marine fish distribution and faunal diversity in Northern Gulf of Mexico. Prerequisites: Two semesters of biology and permission of instructor. Additional information will be requested

upon receiving your completed application. Dr. Ash Bullard. Marine Ichthyology; FISH 5725/6725 (AU); COA 421/521, 421L/521L (USM + affiliates). Six semester hours credit (3/3).

## MARINE MAMMALS

An overview of the biology of marine mammals (cetaceans, pinnipeds, sirenians, sea otters, and the polar bear) including their classification, evolutionary history, anatomy, physiology, behavior, conservation and management. Prerequisites: Three semesters of biology. Instructor to be announced. Marine Mammals; COA 443/543, 443L/543L. Five semester hours credit (3/2).

## PARASITES of MARINE ANIMALS

Parasites of Marine Animals introduce students to some animal parasites (viruses, protozoans, helminths, some obscure worm-like groups, and crustaceans) present in the estuarine environment of the northern Gulf of Mexico. The course is intended to give an appreciation for the diversity of parasites and will emphasize their interrelationships, taxonomy, life histories, ecology, and importance in aquaculture. Students will learn techniques for collecting and preparing specimens as well as how to identify parasites from major groups to the generic level. The course is intended for undergraduate biology majors and graduate students and is a laboratory and field oriented course. Prerequisites: Two semesters of biology or permission of instructor. Dr. Stephen Curran. Parasites of Marine Animals; COA 453/553, 453L/553L. Six semester hours credit (3/3).

## SHARK & STINGRAY PHYSIOLOGY

This course is complementary to Shark Biology (COA 422/422L) and will provide an in-depth exploration of elasmobranch physiology using the Atlantic stingray as a model organism in the laboratory. Lectures will cover unique aspects of elasmobranch (sharks, skates and stingrays) physiology and specialized adaptations to the challenges of life in diverse aquatic habitats. The laboratory component will include field collections and wetlab experiments that examine the osmoregulatory capabilities of the Atlantic stingray, including an analysis of gene expression and plasma biochemistry. Prerequisites: Three semesters of biology, including marine biology, or permission of instructor. Dr. Andrew Evans. Special Topics: Elasmobranch Physiology; COA 490/590. Five semester hours credit.







## Learning

The Gulf Coast Research Laboratory (GCRL) Summer Field Program focuses on studies of plants and animals in their natural habitats and physical and chemical processes in local marine and coastal environments. Most classes are field-oriented with trips on one or more of the GCRL oceanographic and fisheries research vessels: 97-foot R/V *Tommy Munro*, 55-foot R/V *Tom McIlwain*, and 38-foot R/V *Hermes*.

## Living

Room and board is available for students selecting on-campus housing, which includes internet access, laundry facilities, and three daily meals in the GCRL dining hall. GCRL is centrally located between New Orleans, Louisiana and Mobile, Alabama. Sandy beaches, water sports, fishing, golf, tennis, biking, and hiking are among the local opportunities for recreation.

## CALENDAR

The 2015 summer terms run May 11-22, May 26 - June 23, and June 25- July 24. GCRL's three-term summer program enables students to earn up to 15 semester hours of credit. A student may enroll in only one course each term. Students should not take classes at other campuses while taking field courses at GCRL.

## ADMISSIONS DEADLINE

Applications are now being accepted. For priority consideration, all application materials should be submitted by **February 27, 2015**. However, applications will continue to be accepted until **March 27, 2015**.

## QUESTIONS?

[gcrisfp@usm.edu](mailto:gcrisfp@usm.edu) • 228.818.8852

## ACADEMIC CREDIT

All courses are offered through the University of Southern Mississippi's Gulf Coast Research Laboratory in the Department of Coastal Sciences and are accredited by the Southern Association of Colleges and Schools. Upon completion, a transcript request must be submitted to transfer credit hours to home institution.

## APPLICATION REQUIREMENTS

1. \$35.00 non-refundable application fee for undergraduate students or \$50.00 for graduate students (*fees not applicable to current USM students*)
2. Official transcript
3. Copy of immunization records
4. Completed "Application for Admission" form (*found on next page*) signed by either advisor, department head, or on-campus affiliate coordinator.

### MAIL ALL FORMS TO:

## OFFICE OF STUDENT SERVICES

Department of Coastal Sciences  
Gulf Coast Research Laboratory, attn: Margaret Firth  
703 East Beach Drive • Ocean Springs, MS 39564

## RESIDENT FACULTY – Department of Coastal Sciences

**PATRICK BIBER, Ph.D.**  
Marine Botany, Associate Professor

**REGINALD B. BLAYLOCK, Ph.D.**  
Fish Diseases and Aquaculture, Associate  
Research Professor

**KEVIN S. DILLON, Ph.D.**  
Chemical Oceanography, Associate Professor

**ANDREW N. EVANS, Ph.D.**  
Aquatic Molecular Physiologist, Assistant Professor

**ROBERT GRIFFITT, Ph.D.**  
Toxicology, Assistant Professor

**JAY GRIMES, Ph.D.**  
Marine Microbial Ecology, Professor

**RICHARD W. HEARD JR., Ph.D.**  
Invertebrate Zoology and Ecology, Professor

**FRANK J. HERNANDEZ, Ph.D.**  
Fisheries Oceanography and Ecology,  
Assistant Professor

**ROBERT T. LEAF, Ph.D.**  
Fish Population Dynamics, Assistant Professor

**JEFFREY M. LOTZ, Ph.D.**  
Diseases of Marine Organisms, Professor and Chair  
Department of Coastal Sciences

**ERVIN OTVOS, Ph.D.**, Geology, Professor Emeritus

**ROBIN M. OVERSTREET, Ph.D.**  
Marine Parasitology and Pathobiology,  
Professor Emeritus

**MARK S. PETERSON, Ph.D.**  
Fisheries Ecology, Professor

**ERIC N. POWELL, Ph.D.**  
Population Dynamics Modeling  
GCRL Director and Professor

**CHET RAKOCINSKI, Ph.D.**  
Benthic Ecology, Professor

**ERIC SAILLANT, Ph.D.**  
Aquaculture and Conservation, Assistant Professor

**WEI WU, Ph.D.**  
Landscape Ecology, Assistant Professor

## VISITING FACULTY

**STEPHEN (ASH) BULLARD, Ph.D.**  
Auburn University, Alabama

**MATTHEW CHATFIELD, Ph.D.**  
Unity College, Maine

**WALTER CONLEY, Ph.D.**  
The State University of New York – Potsdam

**STEPHEN S. CURRAN, Ph.D.**, USM - GCRL

**JILL HENDON, M.S.**, USM - GCRL

**ELIZABETH JONES, M.S.**  
USM-GCRL

**RON JONES, Ph.D.**, Eastern Kentucky University

**ARTHUR KARELS, Ph.D.**, USM - GCRL

**JESSICA KASTLER, Ph.D.**, USM - GCRL

**JEFFREY SIEGEL, M.S.**  
Mississippi Gulf Coast Community College

**JAMES T. WETZEL, Ph.D.**  
Presbyterian College, South Carolina

**MARK WOODREY, Ph.D.**  
Mississippi State University





**APPLICATION FOR ADMISSION**  
**Academic Program**  
**The University of Southern Mississippi**  
**DEPARTMENT OF COASTAL SCIENCES, Summer Field Program**  
**GULF COAST RESEARCH LABORATORY**  
**703 East Beach Drive**  
**Ocean Springs, Mississippi 39564**

Please print all information very clearly. Thank you  
 (Read instructions before completing)

Legal Name \_\_\_\_\_ Soc. Sec. No. \_\_\_\_\_  
 (Last) (First) (Middle / Maiden)

Current Mailing Address \_\_\_\_\_  
 (Street) (City) (County) (State) (Zip)

Permanent Mailing Address \_\_\_\_\_  
 (Street) (City) (County) (State) (Zip)

Phones: \_\_\_\_\_ E-mail Address \_\_\_\_\_  
 (Current, Area Code & Number) (Home, Area Code & Number)

Male  Female  Birth Date \_\_\_\_\_

Ethnic Group: Black / Non-Hispanic  American Indian / Alaskan Native  Asian / Pacific Islander   
 Hispanic  White / Non-Hispanic  Race / Ethnicity Unknown

U.S. Citizen: Yes  No  Immigrant: Yes  No  Country \_\_\_\_\_

Mississippi Resident: Yes  No  Date Residency Began\* \_\_\_\_\_  
*\*If under 21 years of age, must claim residence of parent(s) or legal guardian(s). If 21 years of age or older, must meet State of Mississippi residency law as stated in current Southern Miss Bulletin.*

Have you previously or are currently enrolled at USM or GCRL?  Yes  No USM ID#: \_\_\_\_\_

Have you ever been convicted of a felony, or do you currently have felony charges pending against you?  Yes  No

Have you ever been dismissed from a secondary or postsecondary institution of higher learning for disciplinary reasons?  Yes  No

Academic institution where presently enrolled and to which credits will be transferred:

Institution \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Major Department \_\_\_\_\_ Subject Area \_\_\_\_\_

Academic standing next semester: Sophomore  Junior  Senior  Graduate

Are you registering for Graduate Credit? Yes  No   
 (Students within 9 credits of completing undergraduate degree can take courses for graduate credit)

HIGHEST ACADEMIC DEGREE COMPLETED

Degree, date \_\_\_\_\_ Major \_\_\_\_\_ Institution \_\_\_\_\_

WILL YOU BE A DORMITORY RESIDENT? Yes  No  Roommate \_\_\_\_\_

I hereby affirm that to the best of my knowledge all information furnished on this form is complete and accurate. I understand that withholding information requested and giving false information may make me ineligible for admission and enrollment. I agree that any records of my academic performance may be furnished to any high schools or institutions of higher learning that I have attended, unless I file a notice that they not be sent. I am eligible to return to the last college that I attended.

Date \_\_\_\_\_ Applicant's Signature \_\_\_\_\_





# COURSE FEES

Due to the intensity of each course, students may enroll in one course per term. If attending multiple terms, add the total cost for each class. Room and board is optional.

All fees are subject to change without notice.

| UNDERGRADUATE |                             |                   |                             |           |         |                         |                   |                      |
|---------------|-----------------------------|-------------------|-----------------------------|-----------|---------|-------------------------|-------------------|----------------------|
|               | Course                      | # of credit hours | Tuition (\$291/credit hour) | Field Fee | Lab Fee | Room & Board (Optional) | Total Cost        |                      |
|               |                             |                   |                             |           |         |                         | with Room & Board | without Room & Board |
| Mini Session  | Barrier Island Ecology      | 3                 | \$873                       | \$500     | \$60    | \$525                   | \$1,958           | \$1,433              |
|               | Coastal Herpetology         | 3                 | \$873                       | \$200     |         | \$525                   | \$1,598           | \$1,073              |
|               | Coastal Ornithology         | 3                 | \$873                       | \$200     |         | \$525                   | \$1,598           | \$1,073              |
|               | Dolphin & Whale Behavior    | 3                 | \$873                       | \$500     |         | \$525                   | \$1,898           | \$1,373              |
|               | Marine Botany               | 3                 | \$873                       | \$300     | \$60    | \$525                   | \$1,758           | \$1,233              |
| First Term    | Marine Biology              | 5                 | \$1,455                     | \$500     | \$60    | \$1,335                 | \$3,350           | \$2,015              |
|               | Marine Ecology              | 5                 | \$1,455                     | \$500     | \$60    | \$1,335                 | \$3,350           | \$2,015              |
|               | Marine Embryology           | 5                 | \$1,455                     | \$500     |         | \$1,335                 | \$3,290           | \$1,955              |
|               | Marine Fisheries Management | 5                 | \$1,455                     | \$500     |         | \$1,335                 | \$3,290           | \$1,955              |
|               | Marine Invertebrate Zoology | 6                 | \$1,746                     | \$500     | \$60    | \$1,335                 | \$3,641           | \$2,306              |
|               | Oceanography                | 5                 | \$1,455                     | \$500     | \$60    | \$1,335                 | \$3,350           | \$2,015              |
|               | Shark Biology               | 5                 | \$1,455                     | \$500     | \$60    | \$1,335                 | \$3,350           | \$2,015              |
|               | Research Study Program      | 1-6               | \$291/credit hour           |           |         | \$1,335                 | varies            | varies               |
| Second Term   | Marine Aquaculture          | 6                 | \$1,746                     | \$200     | \$60    | \$1,335                 | \$3,341           | \$2,006              |
|               | Marine Biology              | 5                 | \$1,455                     | \$500     | \$60    | \$1,335                 | \$3,350           | \$2,015              |
|               | Marine Ichthyology          | 6                 | \$1,746                     | \$1,000   | \$60    | \$1,335                 | \$4,141           | \$2,806              |
|               | Marine Mammals              | 5                 | \$1,455                     | \$800     | \$60    | \$1,335                 | \$3,650           | \$2,315              |
|               | Parasites of Marine Animals | 6                 | \$1,746                     | \$600     | \$60    | \$1,335                 | \$3,741           | \$2,406              |
|               | Shark & Stingray Physiology | 5                 | \$1,455                     | \$200     |         | \$1,335                 | \$2,990           | \$1,655              |
|               | Research Study Program      | 1-6               | \$291/credit hour           |           |         | \$1,335                 | varies            | varies               |

| GRADUATE     |                             |                   |                             |           |         |                         |                   |                      |
|--------------|-----------------------------|-------------------|-----------------------------|-----------|---------|-------------------------|-------------------|----------------------|
|              | Course                      | # of credit hours | Tuition (\$388/credit hour) | Field Fee | Lab Fee | Room & Board (Optional) | Total Cost        |                      |
|              |                             |                   |                             |           |         |                         | with Room & Board | without Room & Board |
| Mini Session | Coastal Herpetology         | 3                 | \$1,164                     | \$200     |         | \$525                   | \$1,889           | \$1,364              |
|              | Coastal Ornithology         | 3                 | \$1,164                     | \$200     |         | \$525                   | \$1,889           | \$1,364              |
|              | Marine Botany               | 3                 | \$1,164                     | \$300     | \$60    | \$525                   | \$2,049           | \$1,524              |
| First Term   | Marine Ecology              | 5                 | \$1,940                     | \$500     | \$60    | \$1,335                 | \$3,835           | \$2,500              |
|              | Marine Embryology           | 5                 | \$1,940                     | \$500     |         | \$1,335                 | \$3,775           | \$2,440              |
|              | Marine Fisheries Management | 5                 | \$1,940                     | \$500     |         | \$1,335                 | \$3,775           | \$2,440              |
|              | Marine Invertebrate Zoology | 6                 | \$2,328                     | \$500     | \$60    | \$1,335                 | \$4,223           | \$2,888              |
|              | Shark Biology               | 5                 | \$1,940                     | \$500     | \$60    | \$1,335                 | \$3,835           | \$2,500              |
|              | Research Study Program      | 1-6               | \$388/credit hour           |           |         | \$1,335                 | varies            | varies               |
| Second Term  | Marine Aquaculture          | 6                 | \$2,328                     | \$200     | \$60    | \$1,335                 | \$3,923           | \$2,588              |
|              | Marine Ichthyology          | 6                 | \$2,328                     | \$1,000   | \$60    | \$1,335                 | \$4,723           | \$3,388              |
|              | Marine Mammals              | 5                 | \$1,940                     | \$800     | \$60    | \$1,335                 | \$4,135           | \$2,800              |
|              | Parasites of Marine Animals | 6                 | \$2,328                     | \$600     | \$60    | \$1,335                 | \$4,323           | \$2,988              |
|              | Shark & Stingray Physiology | 5                 | \$1,940                     | \$200     |         | \$1,335                 | \$3,475           | \$2,140              |
|              | Research Study Program      | 1-6               | \$388/credit hour           |           |         | \$1,335                 | varies            | varies               |



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**DEPARTMENT OF COASTAL SCIENCES**

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[www.usm.edu/gcrl/summer\\_field](http://www.usm.edu/gcrl/summer_field)



**A premier marine laboratory on the Gulf of Mexico, The University of Southern Mississippi Gulf Coast Research Laboratory is home to the Department of Coastal Sciences, the Marine Education Center, the Center for Fisheries Research and Development and the Thad Cochran Marine Aquaculture Center. GCRL and the department and centers are in the College of Science and Technology.**

## **AFFILIATES**

**MISSISSIPPI** – Alcorn State University, Lorman; Belhaven College, Jackson; Delta State University, Cleveland; Jackson State University, Jackson; Millsaps College, Jackson; Mississippi College, Clinton; Mississippi State University, Mississippi State; Mississippi University for Women, Columbus; Mississippi Valley State University, Itta Bena; Rust College, Holly Springs; The University of Mississippi, University; The University of Southern Mississippi, Hattiesburg; William Carey University, Hattiesburg; **ALABAMA** – Auburn University, Auburn; **ARKANSAS** – Arkansas Tech University, Russellville; Hendrix College, Conway; Southern Arkansas University, Magnolia; University of Arkansas at Ft. Smith; University of Arkansas at Little Rock; University of Arkansas at Monticello; University of Central Arkansas, Conway; University of the Ozarks, Clarksville; **FLORIDA** – University of Tampa; **GEORGIA** – Berry College, Rome; Shorter College, Rome; **ILLINOIS** – North Central College, Naperville; **INDIANA** – University of Evansville, Evansville; **IOWA** – Drake University, Des Moines; Iowa State University, Ames; Wartburg College, Waverly; **KENTUCKY** – Eastern Kentucky University, Richmond; Morehead State University, Morehead; **LOUISIANA** – Louisiana State University, Baton Rouge; Southeastern Louisiana University, Hammond; Xavier University of Louisiana, New Orleans; **MICHIGAN** – Central Michigan University, Mount Pleasant; **MISSOURI** – Central Methodist University, Fayette; Northwest Missouri State University, Maryville; Southeast Missouri State University, Cape Girardeau; Missouri State University, Springfield; Truman State University, Kirksville; **NEW YORK** – State University of New York, Potsdam; **OHIO** – Bowling Green State University, Bowling Green; **OKLAHOMA** – Northeastern State University, Tahlequah; Southwestern Oklahoma State University, Weatherford; **SOUTH CAROLINA** – Presbyterian College, Clinton; **TENNESSEE** – Belmont University, Nashville; Carson-Newman College, Jefferson City; Christian Brothers University, Memphis; Lambuth University, Jackson; Middle Tennessee State University, Murfreesboro; Rhodes College, Memphis; Tennessee State University, Nashville; Tennessee Technological University, Cookeville; Tennessee Wesleyan College, Athens; Trevecca-Nazarene University, Nashville; Union University, Jackson; University of Memphis, Memphis; University of Tennessee at Chattanooga; University of Tennessee at Martin; **WISCONSIN** – University of Wisconsin at Eau Claire; University of Wisconsin at Stevens Point