



GCRL Summer Field Program 2012

Summer Mini-Session (May 14-25, 2012)

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 Mississippi Sound barrier island ecosystem. Students will travel to the Mississippi's Gulf Coast barrier islands 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 semester's science or permission of instructor. Dr. Jerry McLelland. Barrier Island Ecology; COA 448/448L. Three semester hours credit (1/2). Course field fee is \$400.00.

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 will provide students with an introduction to herpetology through lectures and associated readings, discussions of original research papers, and a class project. Topics covered will include the ecology, evolution, life history, diversity,

behavior, and conservation of amphibians and reptiles. There will also be many field excursions highlighting the methods and techniques for capturing and studying amphibians and reptiles. Be prepared to get wet and muddy since we will be 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 semester's biology or permission of instructor. Dr. Matthew Chatfield. Special Topics: Coastal Herpetology; COA 490/590. Three semester hours credit. Course field fee is \$100.00.

COASTAL ORNITHOLOGY

This course explores the highly diverse avian habitats found along the Mississippi Gulf Coast with a focus on the study of avian ecology in the field. Class activities will include a significant emphasis on the use of both sight and sound as means of field identification. During this course students will explore barrier island nesting grounds, boat the pristine Pascagoula River area, and explore local marshes and other unique coastal habitats. Students will also be introduced to a variety of ornithology field techniques including bird-banding, call-broadcast surveys, and monitoring methodologies. Prerequisites: Two semester's biology or permission of instructor (Ecology recommended but not required). Dr. Mark Woodrey. Coastal Ornithology; COA 411/511. Three semester hours credit. Course field fee is \$100.00.

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 semester's biology or permission of instructor. Jeffrey Siegel. Cetacean

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 2012 Summer Field Program and gain an experience of a lifetime!

Behavior; COA 444. Three semester hours credit. Course field fee is \$400.00.


ENVIRONMENTAL PHOTOGRAPHY

This course is designed to develop an awareness of our environment, and convey this understanding through the medium of photographic image. This class includes studies of the structure and function of ecosystems (emphasizing aquatic environments), and examines selected environmental concerns through daily field trips. Further, students in this course will emphasize nature at the seldom observed macroscopic level for a fuller understanding of inter-relationships in the environment. Although no formal coursework is prerequisite, it is expected that students enrolled in this class will have a basic awareness of environmental issues. This course is designed to appeal to students across disciplines. Dr. James Wetzel. Special Topics: Environmental Photography; COA 490/590. Three semester hours credit. Course field fee is \$100.00.

MARINE TOXICOLOGY

This course will introduce students to the concepts of aquatic toxicology. Lectures will cover history and basic concepts of toxicology with a focus on aquatic issues, modern molecular techniques commonly used in modern toxicology applications, an overview of common xenobiotics, and experimental design. Laboratories will focus on performing basic toxicological skills, including exposure setup and monitoring, endpoint selection, and basic molecular techniques (nucleic acid isolation, cDNA synthesis, qPCR, and protein analysis). Prerequisites: One semester biology or permission of instructor. Dr. Robert Griffith. Special Topics: Marine Toxicology; COA 490/590. Three semester hours credit. Please note that there is NOT a field fee associated with this course.

First Term (May 29 – June 26, 2012)



MARINE AQUACULTURE

An introduction to principles and technologies applied to the culture of commercially important marine organisms. History, economic importance, basic components of marine aquaculture systems, a survey of species and systems, principles of water quality for culturing facilities, and diseases of marine organisms as they relate to marine aquaculture are presented. Aquabusiness concepts are also examined. For graduate credit, students must undertake a research component and complete related laboratory work. Prerequisites: Two semester's biology or permission of instructor. Dr. Jeffrey Lotz, Dr. Reginald Blylock and Dr. Eric Saillant. Marine Aquaculture; COA 424/524.

MARINE BIOLOGY

424L/524L. Six semester hours credit (3/3). Course field fee is \$100.00.

An ecological approach to understanding the biology of marine systems with emphasis on local organisms; their habitats, life cycles and survival strategies. Prerequisites: Two semester's biology or permission of instructor. Dr. James Wetzel. Marine Sciences II: Marine Biology; COA 301, 301L. Five semester hours undergraduate credit (3/2). Course field fee is \$400.00.

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 semester's science or permission of instructor. Dr. Chet Rakocinski. COA 446/546, 446L/546L. Five semester hours credit (3/2). Course field fee is \$400.00.

MARINE INVERTEBRATE ZOOLOGY

A concentrated study of the marine and estuarine invertebrates from Mississippi

MARINE BIOLOGY

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 semester's biology or permission of instructor. Dr. Richard Heard. COA 428/528, 428L/528L. Six semester hours credit (3/3). Course field fee is \$400.00.

PARASITES OF MARINE ANIMALS

Parasites of Marine Animals introduces students to some animal parasites (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 semester's biology or permission of instructor. Dr. Stephen Curran. Parasites of Marine Animals, COA 453/553, 453L/553L. Six semester hours credit (3/3). Course field fee is \$400.00.

Second Term (June 27 – July 27, 2012)

ALL RIVERS FLOW TO THE SEA: SURVEY OF AQUATIC ECOSYSTEMS

The purpose of this course is to study the physical, chemical, and biological characteristics of freshwater, estuarine, and marine habitats. Field trips will be conducted to freshwater river, lake, estuarine, bay and open gulf habitats to study and collect the biota, as well as measure water chemistry, temperature, and other physical characteristics. Students will conduct laboratory studies on the adaptations of estuarine organisms to survive in habitats where there are diurnal changes in salinity. Prerequisites: Two semesters biology and one semester chemistry or permission of instructor. Dr. Stan Eisen. Special Topics: Survey of Aquatic Ecosystems, COA 490/590. Five semester hours credit. Course field fee is \$100.00.

MARINE BIOLOGY

An ecological approach to understanding the biology of marine systems with emphasis on local organisms; their habitats, life cycles and survival

strategies. Will include specimen collection, boat trips to Horn Island, trawling, trips to local habitats and marine aquarium set up and maintenance. Prerequisites: Two semesters biology or permission of instructor. Dr. Gregory Thurmon. Marine Sciences II: Marine Biology; COA 301, 301L. Five semester hours undergraduate credit (3/2). Course field fee is \$400.00.



MARINE ICHTHYOLOGY

Marine Ichthyology is an intensive marine biology field course requiring physical activity in the ocean and engages students to seek out and identify marine fishes of estuaries, lagoons, grassbeds, nearshore waters, and pelagic waters of the Gulf of Mexico. Students experience a variety of land-based (beaches, barrier island lagoons, estuaries, nearshore coastal waters of Mississippi, Alabama, and Florida) 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. 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 semester's biology or permission of instructor. Dr. Ash Bullard. Marine Ichthyology, COA 421/521, 421L/521L. Six semester hours credit (3/3). Course field fee is \$400.00.

MARINE MAMMALS

An overview of the biology of marine mammals (cetaceans, pinnipeds, sirenians, otters, and polar bear) including their systematics, adaptive evolution, functional morphology, zoogeography, ecology, life history and reproduction, diving physiology, population dynamics, conservation, and additional topics. Prerequisites: Three semesters of biology including Marine Biology or Marine Ichthyology or permission of instructor. Dr. Peter Adam. Marine Mammals, COA 443/543, 443L/543L. Five semester hours credit (3/2). Course field fee is \$400.00.

OCEANOGRAPHY

This course provides a multidisciplinary foundation in oceanography, specifically the terminology, principles, processes, relationships, and phenomena pertaining to three of its traditional 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). Course field fee is \$400.00.

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. Special 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). Course field fee is \$400.00.

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.



Get started today!

ACADEMIC CREDIT

GCRL summer courses are offered by The University of Southern Mississippi and accredited by the Southern Association of Colleges and Schools. All courses are offered through the Department of Coastal Sciences. Credits earned in the Southern Miss GCRL Summer Field Program are transferred to students' home institutions upon course completion.

Course credit hours reflect extent of lecture and laboratory study time as shown in course descriptions. Marine Biology, Oceanography, Cetacean Behavior, and Barrier Island Ecology are for undergraduate credit only. All other courses may be taken for undergraduate or graduate credit. For graduate credit, courses include additional research and writing components.

ADMISSIONS DEADLINE

Applications for summer 2012 classes are accepted beginning the first week of January. To apply submit all paperwork and a non-refundable \$35.00 application fee (not applicable to current USM students) by May 1, 2012, to:

OFFICE OF STUDENT SERVICES

Department of Coastal Sciences
Gulf Coast Research Laboratory
Attn: Margaret Firth
703 East Beach Drive, Ocean Springs, MS 39564
228.818.8890

APPLICATION REQUIREMENTS

1. Completed "Application for Admission" form signed by either advisor, department head, or on-campus affiliate coordinator. Class schedules and application forms are available at www.usm.edu/gcrl/summer_field.
2. \$35.00 non-refundable application fee
3. Official copy of transcript
4. Completed immunization form

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

GREGORY ALAN CARTER, Ph.D.
Remote Sensing and Botany,
Research Professor

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

ROBERT GRIFFIT, Ph.D.
Toxicology, Assistant Professor

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

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

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

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

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

SUMMER FACULTY

PETER ADAM, Ph.D.
Northwest Missouri State
University

STEPHEN A. BULLARD, Ph.D.
Auburn University, Alabama

MATTHEW CHATFIELD, Ph.D.
Tulane University, Louisiana

STEPHEN S. CURRAN, Ph.D.
The University of Southern
Mississippi, GCRL

STANLEY EISEN, Ph.D.
Christian Brothers University,
Tennessee

JILL HENDON, M.S.
The University of Southern
Mississippi, GCRL

JESSICA KASTLER, Ph.D.
The University of Southern
Mississippi, GCRL

JERRY MCLELLAND, Ph.D.
The University of Southern
Mississippi, GCRL

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

GREGORY L. THURMON, Ph.D.
Central Methodist
University, Missouri

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

MARK WOODREY, Ph.D.
Mississippi State University



THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

GULF COAST RESEARCH LABORATORY

DEPARTMENT OF COASTAL SCIENCES

703 East Beach Drive • Ocean Springs, MS 39564

CALENDAR

The 2012 summer terms run May 14-25, May 29 - June 26, and June 27 - July 27. 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.

FEES

Tuition per semester hour:

Undergraduate: \$244.00 / Graduate: \$325.00

Room and Board:

Summer Mini-Session: \$480.00 / 1st and 2nd Terms: \$1160.00 per term

Tech fee:

Undergraduate: \$5.50 per credit hour / Graduate: \$7.35 per credit hour

Lab Fee: \$60 per course

Field Fees: \$100.00-\$400.00 (see course description for Field Fee)

Books, supplies, etc.: \$75.00-\$200.00 (approximate depending on course)

GOT QUESTIONS?

SAM CLARDY, Coordinator of Educational Programs

Tel. 228.818.8890

Email: Samuel.clardy@usm.edu

FOR ADMISSIONS:

MARGARET FIRTH, Undergraduate Programs Specialist

Tel. 228.818.8890

Email: Margaret.firth@usm.edu

WWW.USM.EDU/GCRL

www.usm.edu/gcrl



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 School of Ocean and Earth Sciences, 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; 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



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