

**Marine Science II: Marine Biology (COA 301, 301L)  
July 3rd – July 28th Gulf Coast Research Laboratory**

Jim Wetzel, Ph.D.  
Pulaski L. Bealy Smith Professor of Marine Science  
Department of Biology  
Presbyterian College  
503 S. Broad St.  
Clinton, SC 29325  
Tel. (864) 833-8412  
FAX 864-833-8993  
e-mail: [jwetzel@presby.edu](mailto:jwetzel@presby.edu)

Class Teaching Assistant: **TBD**

**About me:** My specific research areas in marine organisms concerns unusual modes of reproduction, particularly in fishes, and marine embryology of fishes and invertebrates. My primary research concerns the structure and function of the seahorse broodpouch, and the evolution of male brood brooding in seahorses and pipefishes. My alternate areas of interest in marine sciences include sensory systems in sharks (specifically the developmental ultrastructure of the *Ampullae of Lorenzini*), and in general the natural history of marine organisms in balanced ecosystems. I employ biological imaging (photomicrography and Scanning EM) of marine organisms to depict their intricate beauty and functional design in nature. It is my desire to pass on to students of all ages, this ongoing appreciation for the beauty of the ocean realm.

**Course content/Goals:** This is an introductory course in marine science designed to introduce students to the various types of habitats (beaches v. rocky shores v. coral reefs, etc.) that collectively comprise the marine environment, and the organisms that are associated with particular environments. Foremost, it is my intent to help students in this course learn, and learn to appreciate, the natural history of organisms within each unique habitat. Although this course emphasizes marine animals, some lectures and lab exercises will include both physical and chemical oceanography in order to provide for a well-rounded introductory course. As weather, time, tides, and the seasons permit, we will experiment with several aspects of the reproduction and embryology of select marine animals. Wherever possible, the lab exercises are chosen to supplement lecture materials. As part of this course, students will be encouraged to select some area of marine science of personal interest, and develop this topic more fully. Towards the end of this course, each student will ‘teach’ their area of specialization to the class, using a series of self generated images in a ‘poster session’ or PowerPoint presentation. This course carries 5 hr. academic credit.

**Text:** GCRL Marine Biology 2016 McGraw Hill

This is available in your choice of format:

e-book ISBN 9781308752464 or printed copy ISBN 9781308752570

**Supplemental field guides:**

Hoese & Moore, Fishes of the Gulf of Mexico (we will use this for fish identification).

Ruppert & Fox, Seashore Animals of the Southeast (for identification of invertebrates).

There is no lab manual – rather students will keep a personal lab/field notebook. This is the combination of a personal journal (field excursions), and lab experiment notebook. The format will be discussed during the 1<sup>st</sup> class meeting – you can include any combination of writing, observations, sketches, etc. that relate to field and open water work and lab exercises.

**Grading:** Grades will be based on two 100 point exams, two 50 point lab practicums, an in class presentation (25 points), an accompanying write up of the presentation (25 points), the lab/field notebook (25 points), and a cumulative final exam (150 points). Grades will be averaged as: 90% A, 88-89% B+, 82-87% B, 80-81% B-, 78-79% C+, 72-77% C, 70-71% C-, 68-69% D+, 62-67% D, 60-61% D-, 59% F

**Absence policy:** A maximum of three absences is allowed from lectures (although students are responsible for any missed lectures). All labs sessions must be attended. All field trips must be attended.

**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.

### **Classroom Schedule** (always subject to time, tides, weather, whim, etc.)

#### Week 1

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	<u>Assignment</u>
July 3rd Am – orientation, library tour, lab tour & general introduction Pm – aquaria set-up, basic microscopy & photomicrography	chapt. 1
July 4 <sup>th</sup> TBD	
July 5th Am – field collecting methods; specimen curation Pm - using taxonomic keys; visit to aquaculture facility	chapt. 2
July 6 <sup>th</sup> Am – field collecting; specimen curation Pm – specimen curation; biological concept related to the marine environment	assigned ?'s
July 7 <sup>th</sup> Am – <b>field trip</b> Pm – specimen curation; photomicrography; Plankton & primary productivity	chapt. 3 & 7
July 7 <sup>th</sup> – <b>boat trip (all day) R/V Franks</b>	

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Week 2

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July 10<sup>th</sup>

Am – survey of the invertebrates

PM – special topics; echinoderm embryology

chapt. 4 & 8

July 11<sup>th</sup> – Am – Kayaking Davis Bayou

Pm – Biology of the Vertebrates ( Fishes part I)

chapt. 5

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July 12<sup>th</sup>

Am – **practicum#1; depart at 10:00 for the Estaurium**

Pm – Estuaries & Coastal Policy

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July 13<sup>th</sup> – **boat trip (all day ) R/V Hermes**

July 14<sup>th</sup>

Am – exam #1; Biology of the Vertebrates (fishes part II)

chapt. 6 & 9

Pm – biology of the vertebrates part III; Gyotaku

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Week 3

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July 17<sup>th</sup>

Am - specimen curation

chapt. 10 & 11

Pm – corals and reef formation; the open sea

July 18<sup>th</sup> – All day field trip (Florida)

July 19<sup>th</sup>

Am – specimen curation; field botany

chapt. 12

Pm – specimen curation; deep sea biology

chapt. 13

July 20 – **boat trip (all day) R/V Franks**

July 21<sup>st</sup>

Am – specimen curation; open lab review

Pm – adaptive physiology; special topics: seahorses

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Week 4

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July 24<sup>th</sup>

Am – exam #2; open lab review

Pm – practicum #2; marine coinservation;

Special topic: sensory biology of marine organisms

July 25<sup>th</sup> – Trip to New Orleans (Audoban Aquarium)

July 26<sup>th</sup> – Boat Trip m- all day **R/V Franks**

July 27<sup>th</sup>

Am – student presentations

Pm – student presentations; class party

July 28<sup>th</sup>

Am – final exam \* term papers due \*\* lab notebooks due

Pm – lab/equipment cleaning as needed

\*\*\*\*\*END\*\*\*\*\*  
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