

Please TURN OFF AND STOW all electronic devices (cell phones, pagers, PDAs, etc.) before entering the classroom! Thank you very much.

Marine Invertebrate Zoology (BSC 421 & 421L; COA 428 & 428L): Summer 2005

- Instructor:** Dr. Patricia M. Biesiot (patricia.biesiot@usm.edu)
The University of Southern Mississippi, 118 College Drive #5018, Department of Biological Sciences, Hattiesburg, MS 39406-0001
- Office hours:** Because this is an intensive course and the instructor does not have assigned office space, she cannot hold traditional office hours. She will meet with students by appointment and she is available during all daily breaks, including the lunch break.
- TA:** Jana Thoma (jana.thoma@usm.edu)
The University of Southern Mississippi, Department of Coastal Sciences, 703 East Beach Drive, Ocean Springs, MS 39564-7000
- Text:** Brusca, R.C. and G.J. Brusca. 2003. Invertebrates, 2nd edition. Sinauer Associates, Inc., Sunderland, MA, 936 pp.
- Optional:** Edward E. Ruppert and Richard S. Fox. 1988. Seashore Animals of the Southeast. University of South Carolina Press, Columbia, SC, 429 pp.
- Other:** Copies of additional readings / articles will be provided to students

Teaching Statement

Dr. Patricia M. Biesiot

The basis of my teaching philosophy is the conviction that each student can learn, understand, and enjoy the subject matter presented in any biological sciences course. I believe that teachers and students are collaborators in the learning process, each contributing different elements to the partnership.

It is my responsibility as a teacher to present the course content in an organized manner and in an environment conducive to learning. I try to explain the material using a variety of methods intended to engage students with diverse academic backgrounds and different learning styles. I foster a learning environment that promotes student participation via discussion and questions and I challenge students to develop their critical thinking skills. I employ a variety of learning experiences over the duration of the course and do not rely solely on in-class exams to evaluate learning. I have high but realistic and clearly defined expectations of students and I encourage them to do their best. I am fair in my assessment of student learning.

For their part, students are expected to be proactive learners and to assume personal responsibility for their own intellectual growth. Students are expected to read the material before attending class, to be attentive and engaged in class, to take good notes, to ask questions, and to study in order to learn the course content. Students should also participate in peer teaching/learning, which benefits all those involved.

Course Outcomes/Learning Objectives

After successful completion of Marine Invertebrate Zoology, students will

- have an understanding of and appreciation for the diversity of marine invertebrates
- recognize and be able to classify marine invertebrates by their morphological characteristics
- understand body structure and function and the natural history (life cycles, life styles) of marine invertebrates
- have a basic understanding of the evolutionary relationships within and among invertebrate phyla
- appreciate the economic and ecological importance of marine invertebrates
- be able to impress family, friends and colleagues with their knowledge about marine invertebrates commonly encountered during visits to the beach

Course Syllabus for Marine Invertebrate Zoology

- The syllabus contains a suggested schedule of events for the course.
- The schedule may change suddenly because of weather or other unforeseen circumstances which may require cancellation or postponement of field trips.
- It is very unlikely, but possible, that the days for graded components would change.
- Please be prepared and flexible.

Week One

Mon, May 30	Registration, ~8:00 AM Summer school orientation, ~9:30 AM Library orientation, ~10:00 AM Course orientation, ~10:30 AM	
	Read and understand Ch. 3 Animal Architecture and the Bauplan Concept Ch. 4 Animal Development, Life Histories, and Origins Ch. 1 Introduction Ch. 2 Classification, Systematics, and Phylogeny	
Tue, May 31	Lab: 8:00 AM - 11:30 PM Lab: 1:00–2:30 PM 2:45 -4:45 PM	Field trip to Marsh Point. ID specimens; work on Specimen Notebook ID specimens; work on Specimen Notebook Start Species Report; work in Library
Wed, Jun 1	Lect: 8:00–11:45 AM Lect: 1:00–4:45 PM	Review Ch. 1-4 as needed; Ch. 15 Emergence of the Arthropods Ch. 15 –cont; Ch. 16 The Crustacea
<p>Complete the Online Plagiarism Tutorial by 7:00 PM Wednesday June 1. It is available on the USM library web page: http://www.lib.usm.edu/research/plag/plagiarismtutorial.htm Email the results of your “Knowledge of Plagiarism” pre-test AND post-test to: patricia.biesiot@usm.edu</p>		
Thu, Jun 2	Boat trip: 7:45 AM–4:00 PM	Day trip to the Chandeleur Islands
Fri, Jun 3	Lect: 8:00–10:45 AM & 1:00–2:15 PM Seminar: 11:00 AM Lab: 2:30–4:30 PM	Ch. 16 –cont; Ch. 19 The Cheliceriformes Discuss Week One readings; review for Exam 1; ID specimens; work on Specimen Notebook
Sun, Jun 5	OPTIONAL: Review for Ex. 1 @ ~8:30 PM	

Week Two

Mon, Jun 6	Exam 1 (Ch. 4, 15, 16, 19): 8:30 AM Lect: 1:00–2:15 PM Lab: 2:30–4:30 PM ~8:00 - 9:00 PM	Ch. 20 Mollusca ID specimens; work on Specimen Notebook Night Collection at GCRL pier (low tide)
Tue, Jun 7	Lect: 8:00–11:45 AM Lab: 1:00–4:45 PM	Ch. 20 –cont ID specimens; work on Specimen Notebook
Wed, Jun 8	Lect: 8:00–11:45 AM Lab: 1:00–4:45 PM	Ch. 13 Annelida ID specimens; work on Specimen Notebook
Thu, Jun 9	Lect: 8:00–11:45 AM Overnight boat trip on R/V Tommy Munro: 1:30 PM Mon – 3:00 AM Tue	Ch. 13 –cont; Ch. 14 Sipuncula & Echiura
Fri, Jun 10	Written Species Report due 1:00 PM (hard copy AND email the file to Dr. Biesiot as an attached document file) Seminar: 11:00 AM Lect: 1:00 - 2:00 PM Lab: 2:15 - 4:30 PM	Ch. 14 –con't (if needed) Discuss Week Two readings; hydrothermal vents DVD; review for Ex. 2; ID specimens
Sun, Jun 12	OPTIONAL: Review for Ex. 2 @ ~8:30 PM	

Week Three

Mon, Jun 13	Exam 2 (Ch. 20, 13, 14): 8:30 AM Lect: 1:00–2:15 AM Lab: 2:30–4:30 PM	Ch. 21 Lophophorates ID specimens; work on Specimen Notebook
Tue, Jun 14	Lect: 8:00–11:45 AM Lab: 1:00–4:45 PM	Ch. 22 Echinodermata ID specimens; work on Specimen Notebook
Wed, Jun 15	Boat trip: 7:45 AM–4:00 PM Review for Practicum 1: ~8:00 PM (optional)	Day trip to Horn Island
Thu, Jun 16	Lect: 8:00–10:00 AM Lab: Practicum 1: 1:30 PM	Ch. 23 Other Deuterostomes
Fri, Jun 17	Lect: 8:00–10:45 AM Seminar: 11:00 AM Lect: 1:00–2:00 PM 2:15–4:30 PM	Ch. 8 Cnidaria; Ch. 9 Ctenophora Ch. 9 –con't Discuss Week Three readings; review for Ex. 2; ID specimens
Sun, Jun 12	OPTIONAL: Review for Ex. 3 @ ~8:30 PM	

Week Four

Mon, Jun 20	Exam 3 (Ch. 21–23, 8, 9): 8:30 AM Lect: 1:00 - 2:15 PM Lab: 2:30–4:45 PM	Ch. 10 Platyhelminthes ID specimens; work on Specimen Notebook
Tue, Jun 21	Lect: 8:00–11:45 AM Lab: 1:00–4:45 PM	Ch. 11 Nemertea; Ch. 12 Blastocoelomates & Others Skiff trip up Davis Bayou; ID specimens; work on Specimen Notebook
Wed, Jun 22	Boat trip: 7:45 AM–4:00 PM	Day trip to Horn Island
Thu, Jun 23	Lect: 8:00–11:45 AM Lab: 1:00–4:45 PM	Ch. 12 –cont ID specimens; work on Specimen Notebook
Fri, Jun 24	Optional 2nd draft of Species Report due 8:00 AM (hard copy AND email the report as an attached document file) Lect: 8:00–10:45 AM Seminar: 11:00 AM Lab: 1:00–4:30 PM	Ch. 6 Porifera; Ch. 7 Four Phyla Oral Species Reports; Meiofauna video
Sun, Jun 26	OPTIONAL: Review for Practicum 2 @ ~8:30 PM	

Week Five

Mon, Jun 27	Lect: 8:00–10:00 AM Practicum 2: 1:00 PM OPTIONAL: Review for Exam 4 @ ~8:00 PM	If necessary. Specimen Notebook due at time of practicum
Tues, Jun 28	Exam 4 (Ch. 10-12, 6, 7): 9:30 AM	

Class Policies for Marine Invertebrate Zoology (BSC 421&421L; COA 428&428L)

1. **Marine Invertebrate Zoology** is a 6-hour course intended for advanced undergraduate students. The prerequisite is General Zoology.

NOTE: The phyla will not be discussed in phylogenetic order, as is done traditionally in most invertebrate zoology courses. Instead, the “major phyla” will be discussed first, followed by the “minor phyla.” Since students will be immersed in the subject matter immediately, this should facilitate identification of the species encountered in the field

2. **Attendance:** is required at all scheduled events including lecture, lab, collecting trips, recitation, seminar, etc. Evening review sessions are optional. Students must arrive on time and return promptly from breaks.

Excused absences should be discussed in advance and in any case must be approved by the instructor. Each unexcused absence will result in a penalty of -40 points from the total cumulative points (see below).

3. **Safety:** Students must follow all laboratory and field trip safety precautions, including use of eye protection, protective clothing, and sun screen, as appropriate.
4. **Electronic devices:** cell phones, pagers, and personal digital assistants must be turned off and put away (out of sight); they may not be used in the classroom at any time.

5. **Graded course components:**

- **Written exams:** (4 exams) X (100 points) = 400 points. (Each exam also has 10 bonus points.)

Exams will cover material from lecture, the textbook, and additional readings. These exams are not comprehensive. Questions will include essay questions of various length (short answer, one paragraph, and 1-2 pages) and some definitions. Students must use an examination book ("blue book").

- **Practical exams:** (2 practica) X (100 points) = 200 points. (Each exam also has 10 bonus points.)

Questions will include taxonomic identification of invertebrates collected during the class, preserved specimens provided for demonstration, and “unknowns” which students may not have seen before. Questions will also address the diversity of habitats and life styles: pelagic, benthic, or planktonic; epifauna or infauna; hard or soft substrate; free living or symbiotic.

- **Species report:** 100 points total, to include:

[(2-3 pages written report) X (50 points) = 50 points] +

[(10-minute oral report) X (50 points) = 50 points].

Each student will write a typed 2-3 pages double-spaced report, with a Literature Cited section, about the biology of an invertebrate common to the northern Gulf of Mexico. After feedback about the written report, an optional second draft may be submitted; if so, the final grade will be the mean of the two drafts. Students will also present their papers orally to the class. More details about the content and format of the Species Report are given in a separate handout.

- **Specimen notebook:** (1 grading period) X (100 points) = 100 points.

Students will maintain a notebook with details about all the specimens collected during the course and field notes about each collection site. More details are given in a separate handout.

- **Pop quizzes:** may be given during recitation; scores on these quizzes are considered bonus points.

6. **Ungraded components:**

● **On-line library plagiarism tutorial:** students must complete this tutorial and submit the results of both the pre-test and the post-test to Dr. Biesiot (patricia.biesiot@usm.edu) by the specified time.
10 bonus points for completion; **-10 penalty points** for noncompliance.

● **Recitation/Discussion:** involves discussion of current and classic journal articles.

Graduate students will lead each discussion but all students are expected to read the papers and to participate in the discussion. Information contained in these papers **will be included** on written exams.

7. **Course grade:** Because material from the lecture and the lab is closely integrated, the total scores from both portions of the course will be combined to determine the final course grade; the same letter grade will be given for the lecture and the lab components.

● An exception will be made for students whose total cumulative points are within 1% of the next higher letter grade. In that situation, separate lecture and laboratory scores will be computed (mean of the four written exams and mean of the two practical exams, respectively). The student will receive the higher letter grade either in lecture or lab, depending on which has the higher mean score.

The **final course grade** is based on total cumulative points.

RECAP: The **graded components** include four written exams (400 points) + two practical exams (200 points) + one species report (100 points) + one specimen notebook (100 points).

Total points = 800.

Because graduate students have additional graded course component and because they have the potential advantage of additional related course work, there are separate curves and grading scales.

	Undergraduates	Graduate students
A	≥ 680	≥819
B	679-600	818-728
C	599-520	727-637
D	519-440	636-546
F	≤ 439	≤545

NOTE: The grading scale **does not** include bonus points (at least 70 points, see above). Minimum total possible points, including bonus points, are 440 + 220 + 100 + 100 + 10 = 870 points.

8. Biologists always use **proper taxonomic notation**. The species name (the “binomen”) is in italics or is underlined (underlining is the editorial notation for italics), the genus is capitalized, and the species epithet is in lowercase, e.g., *Homo sapiens* or Homo sapiens. In this class, species names must be underlined.

Do not underline the period or the space when the genus is abbreviated.

Correct: H. sapiens

Incorrect: H. sapiens

Write the genus in full at the first mention of a species in a narrative or at the beginning of a sentence.

Correct: Primates include H. sapiens.

Correct: Homo sapiens is a primate.

Incorrect: H. sapiens is a primate.

Because it is critical that proper taxonomic format is used with respect to species names, students will be **penalized ½ point** for each instance of incorrect format.

- ½ point for not underlining genus, or species epithet, or both

Incorrect: Homo sapiens, Homo sapiens, Homo sapiens

- ½ point for not capitalizing genus, for capitalizing species epithet, or for any combination

Incorrect: homo sapiens, Homo Sapiens, homo Sapiens

NOTE: there is a maximum penalty of -1 point for any single improperly formatted binomen.

9. Biologists are not excused from **correct spelling**. In this class, there is a “**75% spelling rule**.” At least 75% of the letters in a word must be correct in order to get credit for the answer. Of course, if a single incorrect letter gives the word a different meaning, then there is no credit for the answer.
10. Students will receive **no credit** if, for a single question, they put down **two answers** and one of them is **incorrect**.
11. **Cheating/Plagiarism**: I believe that students are typically honorable and ethical. However, if cheating or plagiarism of any type is discovered, the minimum penalty will be an F (numerical grade of 0) on the work involved. There may be more serious consequences, including an F in the course (both lecture and lab) or disciplinary suspension (see “**Academic Honesty**” in the USM Bulletin).

NOTE: The instructor requires that students submit their writings as both hard copy and as an attached email document file. All student papers are routinely checked for plagiarism and improper source attribution.

12. If a student has a disability that qualifies under the **Americans with Disabilities Act** and requires accommodations, he or she should contact the USM Office for Disability Accommodations for information on appropriate policies and procedures: Box 8586; Tel: (601) 266-5024; TTY: (601) 266-6837; FAX: (601) 266-6035. The website is: <http://www.ids.usm.edu/ODA/default.htm>

Because this class is of such short duration, it may be most effective to also notify the instructor as soon as possible.