



**Roger Williams University
Fall 2008
BIO 220: Marine Vertebrate Zoology**

Instructor: Dr. David L. Taylor

Office: MNS 240

Phone: 254-3759

Email: dtaylor@rwu.edu

Office hours: Monday & Wednesday, 1:00 PM – 3:00 PM, or by appointment

Course Description and Objectives: *Marine Vertebrate Zoology* provides a comparative examination of the evolution, morphology, physiology, and natural history of fishes, birds, reptiles, and mammals that inhabit this unique environment. Correspondingly, an underlying theme of the course is the behavioral and functional adaptations of marine vertebrates that allow these animals to survive in marine habitats. Upon completing the course, students will first understand the ecology and evolution of marine vertebrates, and second, recognize the challenges imposed on these animals and the means by which diverse groups have adapted to a marine existence. Finally, students are required to complete a research project that includes a final paper and oral presentation at the end of the semester (see below). The objective of this form of examination is to enhance written and communication skills, and further require students to synthesize and integrate the knowledge gained through their coursework.

Course Information: Number 13386, Section 01, Credits 4.0

Lecture Time and Location: MWF, 8:00 AM – 8:50 AM, MNS 212

Laboratory Time and Location: *Marine Vertebrate Zoology* has a required laboratory component (BIO 220L), of which there are three sections. Sections 1-3 of lab meet Thursdays 8:00 AM – 10:50 AM, 11:00 AM – 1:50 PM, and 2:00 – 4:50 PM, respectively, in MNS 107. The laboratory portion of the course accounts for 30% of the final grade.

Lecture Text (Recommended):

Waller, G., ed. (1996) *SeaLife: A Complete Guide to the Marine Environment*. Smithsonian Institution Press, Washington, D.C.

Additional Text (Not required):

- Barton, M. (2007) Bond's Biology of Fishes, 3rd Edition. Thomson Brooks/Cole.
- Berta, A., Sumich, J.L. Sumich, and K.M. Kovacs (2006) Marine Mammals: Evolution Biology, 2nd Edition. Academic Press.
- Campbell, N.A., and J.B. Reece (2005) Biology, 7th Edition. Benjamin Cummings.
- Castro, P., and M.E. Huber (2005) Marine Biology, 5th Edition. McGraw Hill.
- Fontaine, P.-H. (1998) Whales of the North Atlantic: Biology and Ecology. Éditions MultiMondes.
- Helfman, G.S., B.B. Collette, and D.E. Facey (2003) The Diversity of Fishes, 5th Edition. Blackwell Publishing Company.
- Keith, E.O. (2001) Survey of Marine Animals. Kendall/Hunt Publishing Company.
- Knisely, K. (2005) A Student Handbook for Writing in Biology, 2nd Edition. W.H. Freeman & Co.
- Moyle, P.B., and J.J. Cech (2003) Fishes: An Introduction to Ichthyology, 5th Edition. Prentice Hall.
- Nelson, B. (1979) Seabirds: Their Biology and Ecology. A & W Publishers, Inc.
- Reynolds III, J.E., and D.K. Odell (1991) Manatees and Dugongs. Facts on File, Inc.
- Reynolds III, J.E., and S.A. Rommel (1999) Biology of Marine Mammals. Smithsonian Institution Press.
- Schreiber, E.A., and J. Burger (2002) Biology of Marine Birds. CRC Press.

Lecture Website: A website has been designed for this course using "Blackboard" software. The Blackboard site is accessed through *myRWU*, and a "Log In ID" and "Password" are required to enter the system. Contact the Blackboard administrator, Bonnie Hatch, at bbtech@rwu.edu for access problems.

Exams: Students are evaluated by three lecture exams (100 pts each) and one final exam (200 pts). The first exam (EXAM 1) includes material from the start of class. Subsequent exams (EXAMS 2-3) are non-cumulative, and thus, include only the material covered since the previous exam. The final exam is cumulative. However, the final exam emphasizes material covered since EXAM 3. The remaining part of the final exam is composed of material from EXAMS 1-3.

Make-Up Exams: To be eligible to take a make-up exam you *MUST* contact me *prior to* the regularly scheduled exam time/date or provide valid University excuse (documentation). A grade of zero will be recorded if the student does not strictly follow this procedure.

Extra Credit: There are no extra credit assignments.

Research Project (Topic and references, Outline, Paper, & Presentation): Students are required to complete a term paper that includes a topic and reference assignment (20 pts; due Monday, September 22), an annotated outline (30 pts; due Friday, November 7), a final paper (50 pts; due Monday, November 24), and an oral presentation given at the end of the semester (50 pts; Presentations scheduled Wednesday and

Friday, December 3 and 5, respectively). Students will work together in small groups and will be assigned a marine vertebrate class (e.g., chondrichthyes, osteichthyes, reptilia, aves, mammalia), from which the group will write a report on a single species (of their choice). The research project should be a detailed analysis of a topic covered during the semester. Specific details of the term paper will be provided throughout the semester and posted on the class website.

Seminar Synopses: Students are to attend two of the Science and Mathematics Seminars and write a brief synopsis of each presentation (2-3 pages). The synopsis should include a thorough account of the speaker's presentation, significance of the topic(s) covered, and the student's personal evaluation of the speaker (*positives and negatives*). Each assignment is graded out of 20 point and are due November 3 (1st synopsis) and December 5 (2nd synopsis). Students may turn in assignments before the posted due date. A listing of speakers and topics of the seminars is found at <http://departments.rwu.edu/biology/seminars.html>. Seminars are held in MNS 200 and begin at 4:00 PM (typically Wednesday), unless noted otherwise.

Professor Meeting: Students are to schedule at least one meeting with the professor before Thanksgiving Recess (Wednesday, November 26). Meetings lasting approximately 30 minutes may involve discussions about the class or any other number of topics. The objective of each meeting is to increase the communication between student and professor. By understanding student interests and ambitions, I, as professor, will be better prepared to design a curriculum that benefits both student and teacher. Students participating in one professor meeting receive 10 points added to their final grade. Students who do not attend a meeting receive a zero for this assignment.

Lecture Attendance: Attendance will not be recorded throughout the semester for lecture, but I *strongly suggest* students come to class (see *Roger Williams University 2008-2009 Undergraduate Catalog*, p. 59). There is a tremendous amount of material covered in the course, and a student's overall success in learning the material depends on their attendance. Daily quizzes may be administered if attendance drops below suitable levels as deemed by the professor.

Deadlines and Penalties: Assignments discussed above are due by 5:00 PM of the identified deadline.

Assignments may be submitted in hard copy or electronic format via email attachments. Failure to turn in assignments by the scheduled deadline will result in a deduction of one letter grade per 24 hours. A grade of zero will be recorded for assignments not turned in within 5 days of the scheduled deadline.

Academic Standards: Students enrolled in *Marine Vertebrate Zoology* are expected to abide to the "Academic Integrity Undergraduate Pledge". The definitions and penalties for violations of academic integrity apply to this course. (see *Roger Williams University 2008-2009 Undergraduate Catalog*, p. 57-59). Moreover, students agree that by taking this course all required papers may be subject to submission for textual

similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of Turnitin.com service is subject to Terms and Conditions of Use posted on the Turnitin.com site.

Disabilities: If a student has a disability that qualifies under the Americans with Disabilities Act and requires accommodations, he/she should contact the Office of Academic Development, located in the University Library, for information on appropriate policies and procedures.

Student Health Statement: Some procedures and materials utilized in the laboratory may pose a health risk to certain individuals. If you suspect that your involvement in laboratory may compromise your health, consult Health Services before participating in any laboratory activities.

Evaluation and Grading Policy:

Exam	Points
Exam 1	100
Exam 2	100
Exam 3	100
Final exam	200
Topic and references	20
Project outline	30
Project paper	50
Project presentation	50
Seminar synopses (2)	40
Professor meeting	10
Laboratory	300
TOTAL	1000

Total Points	Percentage	Final Grade
1000-925	100-93	A
924-895	92-90	A-
894-865	89-87	B+
864-825	86-83	B
824-795	82-80	B-
794-765	79-77	C+
764-725	76-73	C
724-695	72-70	C-
694-665	69-67	D+
664-625	66-63	D
624-595	62-60	D-
≤ 594	< 60	F

LECTURE SCHEDULE

Date		Topic	Chapter Readings
27-Aug	Wed	Syllabus – Introduction	-
		<i>Vertebrate Classification and Evolution</i>	-
29-Aug	Fri	Vertebrate classification and evolution	289-300
1-Sep	Mon	No class – Labor Day	-
3-Sep	Wed	Vertebrate evolution	289-300
5-Sep	Fri	Vertebrate evolution	289-300
8-Sep	Mon	Vertebrate evolution	289-300
		<i>Marine Fishes</i>	-
10-Sep	Wed	Agnathans (jawless fishes)	301-304
12-Sep	Fri	Agnathans	301-304
15-Sep	Mon	Agnathans	301-304
17-Sep	Wed	EXAM 1	-
19-Sep	Fri	Chondrichthyes (cartilaginous fishes)	305-320, 345-347
22-Sep	Mon	Chondrichthyes (<u>Paper topic due</u>)	305-320, 345-347
24-Sep	Wed	Chondrichthyes	305-320, 345-347
26-Sep	Fri	Chondrichthyes	305-320, 345-347
29-Sep	Mon	Osteichthyes (bony fishes)	321-344, 348-350
1-Oct	Wed	Osteichthyes	321-344, 348-350
3-Oct	Fri	Osteichthyes	321-344, 348-350
6-Oct	Mon	Osteichthyes	321-344, 348-350
8-Oct	Wed	Osteichthyes	321-344, 348-350
10-Oct	Fri	EXAM 2	-
		<i>Marine Reptiles (iguanas, snakes, turtles, and crocodiles)</i>	-
13-Oct	Mon	No class – Columbus Day	-
14-Oct	Mon	Reptiles	351-360
15-Oct	Wed	Reptiles	351-360
17-Oct	Fri	Reptiles	351-360
20-Oct	Mon	Reptiles	351-360
		<i>Seabirds</i>	-
22-Oct	Wed	Seabirds	361-394
24-Oct	Fri	Seabirds	361-394
27-Oct	Mon	Seabirds	361-394

29-Oct	Wed	Seabirds	361-394
31-Oct	Fri	EXAM 3	-
		<i>Cetaceans (whales, dolphins, and porpoises)</i>	-
3-Nov	Mon	Cetaceans (<u>1st Seminar synopsis due</u>)	395-412
5-Nov	Wed	Cetaceans	395-412
7-Nov	Fri	Cetaceans (<u>Project outline due</u>)	395-412
10-Nov	Mon	Cetaceans	395-412
		<i>Sirenians (manatees and dugongs)</i>	-
12-Nov	Wed	Sirenians	413-420
14-Nov	Fri	Sirenians	413-420
		<i>Pinnipeds (eared seals, walrus, and earless seals)</i>	-
17-Nov	Mon	Pinnipeds	421-430
19-Nov	Wed	Pinnipeds	421-430
21-Nov	Fri	Pinnipeds	421-430
		<i>Fissipeds (sea otters and polar bears)</i>	-
24-Nov	Mon	Fissipeds (<u>Project paper due</u>)	431-434
26/28-Nov	Wed/Fri	No class – Thanksgiving Recess	-
1-Dec	Mon	Fissipeds	431-434
3-Dec	Wed	Presentations	-
5-Dec	Fri	Presentations (<u>2nd Seminar synopsis due</u>)	-
11-Dec	Thurs	FINAL EXAM	Time: 10:00-12:00

Important Dates from the Academic Calendar, Fall Semester 2008:

- 27-Aug (Wed): All fall classes begin
- 2-Sep (Tues): Last day to add a course without instructor's permission
- 8-Sep (Mon): Last day to add a course with instructor's permission
- 15-Sep (Mon): Last day to drop a course without the W (withdrawal) grade
- 3-Oct (Fri): Warning Grades due in the Office of the Registrar
- 24-Oct (Fri): Last day to drop a course and receive the W (withdrawal) grade
- 5-Dec (Fri): Last day of classes