

Evolution (BI310) Spring, 2016
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Required Text: Evolution by D. Futuyma [3rd edition, 2013]
Website for textbook: www.sinauer.com

<u>Week</u>	<u>Dates:</u>	<u>Topics:</u>
1		Ch. 1: Evolutionary Biology
2		Ch. 2: The Tree of Life
3		Ch. 3: Patterns of Evolution
4		Ch. 4: Evolution in the Fossil Record
5		Ch. 5: A History of Life on Earth
6		Ch. 6: The Geography of Evolution
7		Ch. 8: The Origin of Genetic Variation
8		Ch. 9: Variation
9		Ch. 10: Genetic Drift
10		Spring Break: March 23-28
11		Ch. 11 Natural Selection and Adaptation
12		Ch. 12: The Genetical Theory of Natural Selection
13		Ch. 13: Phenotypic Evolution
14		Ch. 17: Species
15		Ch. 18: Speciation
16		Ch. 15: Sex and Reproductive Success
17		Final Exam

Grades will be determined by 5 exams, each weighted equally in calculating your grade. If you pass the first 3 exams with a grade of C or better, you may substitute one or two critiques of an evolution paper for Exam 4, Exam 5 (or both if you do two papers).

Grading Scale:	90-100 = A
	80-89 = B
	60-79 = C
	40-59 = D
	<40 = F

Attendance Policy: Attendance is not required, but I highly recommend it! Remember this is very complex material (especially if you have not yet taken genetics)!

UOG Disabilities Policy Statement

The University of Guam (UOG) is committed to achieving equal opportunity and full participation of persons with disabilities by providing for non-discriminatory access to its services and facilities through the ADA Office. The Mission of the ADA Office is to ensure non-discriminatory access to all benefits, privileges, opportunities and obligations to students with disabilities and to ensure a process for full compliance by UOG with the ADA of 1990, as amended, and Section 504 of the Rehabilitation Act of 1973, as amended, taking into account the economic climate and multi-cultural diversity of the institution.

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact your instructor and the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide your instructor with documentation concerning your need for accommodation(s) from the EEO/ADA & Title IX Office. If you have not registered with the EEO/ADA & Title IX Office, you should do so immediately to coordinate your accommodation request. The ADA Office provides reasonable accommodation for students in accordance with the UOG Policy and Procedure for students and applicants with a disability. The ADA Office can be contacted at telephone number (671) 735-2244 or Telephone Device for the Deaf (TDD) number (671) 735-2243. You must directly request for all ADA services four (4) to eight (8) weeks in advance. The ADA policy can be found on the UOG website.

Tobacco-free/Smoke-free campus

UOG is a tobacco-free campus. Thank you for not using tobacco products on campus, and for helping make UOG a healthy learning and living environment.

BI 310

Student Learning Outcomes (SLOs)

Course SLOs	Program SLOs (PLOs)	University SLOs (ILOs)	Assessment Method
1. Define the differences between the theory of evolution by natural selection and alternative explanations.	PLO 1 (a, b, c, & d) PLO 3 PLO 5 PLO 7	ILO 1 ILO 2 ILO 3 ILO 5	Exams, problem-solving
2. Calculate the divergence times of species using a molecular clock.	PLO 1a PLO 1b PLO 2 PLO 3 PLO 5 PLO 6	ILO 1 ILO 2	Exams, problem-solving
3. Differentiate between the concepts of environmental modification, adaptation, and pre-adaptation.	PLO 1	ILO 1 ILO 3	Exams, problem-solving
4. Construct a phylogeny using the methods of phylogenetic systematics.	PLO 1a PLO 1b PLO 3 PLO 5 PLO 6	ILO 1 ILO 2	Exams, problem-solving
5. Calculate the relative influences of individual genetic differences and environmental influences on the phenotypes in a population sample.	PLO 1a PLO 1b PLO 1d	ILO 1 ILO 3	Exams, problem-solving
6. Write a critique of a brief scientific paper, e.g., from <i>Nature</i> e.g., Are the methods appropriate for the hypothesis or research question? Do the data support the hypothesis? What are the key and hidden assumptions, conflicting viewpoints?	PLO 1 PLO 3 PLO 5 PLO 6 PLO 7	ILO 1 ILO 2 ILO 3 ILO 5	Exams, paper

In addition to the information related to cheating and plagiarism in the UOG Student Handbook, the following definitions developed by California State University-Long Beach shall apply to this course:

http://web.csulb.edu/divisions/aa/catalog/current/academic_information/cheating_plagiarism.html#plagiarism

Definition of Plagiarism

Plagiarism is defined as the act of using the ideas or work of another person or persons as if they were one's own, without giving credit to the source. Such an act is not plagiarism if it is ascertained that the ideas were arrived at through independent reasoning or logic or where the thought or idea is common knowledge.

Acknowledge of an original author or source must be made through appropriate references, i.e., quotation marks, footnotes, or commentary. Examples of plagiarism include, but are not limited to, the following: the submission of a work, either in part or in whole, completed by another; failure to give credit for ideas, statements, facts or conclusions which rightfully belong to another; in written work, failure to use quotation marks when quoting directly from another, whether it be a paragraph, a sentence, or even a part thereof; or close and lengthy paraphrasing of another's writing or programming. A student who is in doubt about the extent of acceptable paraphrasing should consult the instructor. Students are cautioned that, in conducting their research, they should prepare their notes by (a) either quoting material exactly (using quotation marks) at the time they take notes from a source; or (b) departing completely from the language used in the source, putting the material into their own words. In this way, when the material is used in the paper or project, the student can avoid plagiarism resulting from verbatim use of notes. Both quoted and paraphrased materials must be given proper citations.

Definition of Cheating

Cheating is defined as the act of obtaining or attempting to obtain or aiding another to obtain academic credit for work by the use of any dishonest, deceptive or fraudulent means. Examples of cheating during an examination would include, but not be limited to the following: copying, either in part or in whole, from another test or examination; discussion of answers or ideas relating to the answers on an examination or test unless such discussion is specifically authorized by the instructor; giving or receiving copies of an exam without the permission of the instructor; using or displaying notes; "cheat sheets," or other information or devices inappropriate to the prescribed test conditions, as when the test of competence includes a test of unassisted recall of information, skill, or procedure; allowing someone other than the officially enrolled student to represent the same. Also included are plagiarism as defined and altering or interfering with the grading procedures. It is often appropriate for students to study together or to work in teams on projects. However, such students should be careful to avoid use of unauthorized assistance, and to avoid any implication of cheating, by such means as sitting apart from one another in examinations, presenting the work in a manner which clearly indicates the effort of each individual, or such other method as is appropriate to the particular course.

BI 321: Scientific Arguments Syllabus, Fañomnagan 2016

Instructors

Dr. Frank Camacho—

BI 321-02, SC 221, Tu/Th 8:00–9:20
office: SC Room 232, 735-2835
email: fcamacho@uguam.uog.edu

Dr. Kate Moots—

BI 321-01, SC 200, Tu/Th 8:00–9:20
office: SC 231, 735-2795
email: dr.moots@yahoo.com

Office hours

Feel free to drop in to one of our offices during office hours or make an appointment for our mutual convenience.

Dr. Frank Camacho: M & W 9:00–11:00 AM, and 2:00–3:00 PM (in Room SC 232)

Dr. Kate Moots: Tu & Th 9:30–11:30 AM, and W 10:30–12:30 PM (in Room SC 231)

Catalog course description

Writing and analyzing scientific arguments for effectively presenting scientific work and career aspirations and for getting accepted to graduate school. Prerequisites: BI 157 and BI 158, and BI 320 or permission of instructor. Students are expected to be enrolled in upper division biology/chemistry courses.

Rationale for offering the course

An important skill in the sciences is the ability to critically evaluate scientific evidence and to effectively communicate an idea or position based upon those results. This course will provide the opportunity to develop those skills through reading, presenting, and evaluating the merits of various scientific articles. Through this course, you will improve your critical thinking and communications skills and become a more critical consumer of science.

Intended student learning goals

The following table lists the Student Learning Outcomes or goals for this course.

Course SLOs	Program SLOs (PLOs)	University SLOs (ILOs)	Assessment Method
1. Apply various “lenses” to analyze the structure of passages, i.e. critical thinking, ETS GRE rubrics for the issue and analysis essays, reasoning fallacies.	PLO 1 PLO 2 PLO 5 PLO 7	ILO 1 ILO 3 ILO 5 ILO 6	Oral presentations, and group participation
2. Logically and critically summarize scientific literature.	PLO 1 PLO 5 PLO 7	ILO 1 ILO 3 ILO 6	Written reports
3. Lead one or more discussions of the merits and weaknesses of particular scientific articles.	PLO 1 PLO 2 PLO 5	ILO 1 ILO 3 ILO 5	Oral presentations
4. Summarize your reflections on what you have learned from the scientific literature, from the discussion and analysis of that literature with your peers, and what techniques you have used to critically examine and discuss that literature.	PLO 1 PLO 2 PLO 5 PLO 7	ILO 3 ILO 6	Written reports

Biology Program Learning Outcomes

BI PR-1: Disciplinary Knowledge and Skills

A. Graduates have advanced understanding of the nationally recognized core competencies in biology. Students taking biology for GE will have a basic grasp of some of these concepts, especially those relating to the interface of science and society, and will advance their scientific literacy. Students contribute to the public good by using their knowledge and skills in internships, research and volunteering, and in responsible use of natural resources and technology.

B. Graduates use their knowledge and skills to solve problems in ecology, genetics, molecular biology, systematics, and evolution. They can apply their knowledge and skills to locally important issues such as island biogeography, conservation, and endangered species problems; they are also prepared to address broader questions such as biomedical research. They apply elements of thought and intellectual standards to problem solving and effectively judge the usefulness and accuracy of external sources of information.

C. Graduates approach scientific questions using scientific criteria and know how these criteria differ from those in other disciplines and other worldviews.

D. Graduates and GE students have metaknowledge of the diverse ways in which scientists in various disciplines think and work, and how these ways differ from and are useful to public policy making.

E. Graduates approach scientific questions using scientific criteria and know how these criteria differ from those in other disciplines and other worldviews.

F. Graduates and GE students have metaknowledge of the diverse ways in which scientists in various disciplines think and work, and how these ways differ from and are useful to public policy making.

BI PR-2: Interdisciplinary Knowledge and Skills

Graduates apply relevant concepts from chemistry and physics to biology problems; they approach problems in terms of interdisciplinary teams, where appropriate, aware of how other branches of biology and other sciences could be used to “come from the question.”

BI PR-3: Quantitative Skills

Graduates apply numerical methods in collection and analysis of biological data. They formulate testable hypotheses and create effective experimental designs using their knowledge, understanding, and practical experience of scientific instruments and statistics.

BI PR-4: Research Skills for Laboratory and Field

Graduates are competent in basic biology procedures and safety in the laboratory and field.

BI PR-5: Communication Skills

Graduates use scientific literature and diagrams as a source of information, properly cite sources and avoid plagiarism, and use computer software to create text and graphics to communicate results effectively through print and oral presentations. They take initiative in searching for relevant sources in the scientific literature and assess evidence in writing scientific proposals and reports.

BI PR-6: Digital Literacy

Graduates have experience with contributing to and using large databases in bioinformatics, environmental sciences, and biological collections and have the general knowledge and confidence to mine “big data” sources.

BI PR-7: Professionalism

Graduates follow ethical principles involved in science, ranging from integrity and honesty to authorship criteria; ownership of samples and data; appropriate manipulation of data and images; and (where appropriate) ethical issues in human subject and animal research.

UOG Institutional Learning Outcomes

ILO 1: Mastery of critical thinking and problem solving

ILO 2: Mastery of quantitative analysis

ILO 3: Effective oral and written communication

ILO 4: Understanding and appreciation of culturally diverse people, ideas and values in a democratic context

ILO 5: Responsible use of knowledge, natural resources and technology

ILO 6: An appreciation of the arts and sciences

ILO 7: An interest in personal development and lifelong learning

Course content

The course begins with an examination of the structural elements of an argument and the importance of argument in scientific discourse. The course then explores various research themes in biology through the critical analysis of relevant scientific papers. During each class, a student will lead a class discussion on a topic based upon at least two papers from the scientific literature. A premium will be placed on papers that are research articles. Students that are not presenting that day will still be evaluated on their participation in the discussion. All students will be required to submit a two-paragraph report prior to their discussion that includes a synopsis of the topic and a critical reflection based upon the papers and ideas proposed in the discussion.

Class structure and assignments

With the exception of the first two weeks, the weekly class format will consist of in-class discussions of research papers provided to the class by the lead student. The lead student should provide a brief overview of the topic based upon the readings, but informed through their own supplemental research. This overview will be uploaded to Turnitin via Moodle. In essence, the lead student must be well versed in the topic to facilitate discussion among the students of the class. Similarly, the rest of the class must come to class prepared to discuss the papers and to contribute to the discussion. At the end of each week, each student will upload his or her two-paragraph reflection-report to Turnitin via Moodle.

Evaluation and grades

The grading for the class is as follows:

Lead discussion	40%
Overview summary & reflection-reports	20%
Group participation	40%
total	100%

Textbook and readings

There are no textbooks for this course. There will be many readings, most of which will be uploaded into Moodle for your access.

Additional materials or equipment

You will need computer access to access Moodle—where most of the literature will be uploaded, discussions may take place, and assignments will be submitted.

Course policies

You are responsible for your learning. Take full advantage of the resources available, including the RFK Library, scientific journals subscribed to by faculty, on-line resources, and office hours.

- We recommend you attend every class period. Students who skip class will not be able to complete in-class assignments and the class is deprived of their valued input into group and class discussions. If something stops you from attending class—contact your instructor as soon as you know that you will have to miss class. Students must attend the section in which they are enrolled.
- For the same reason (the goal is to understand concepts and contribute to class), if something prevents you from attending class, or if we cannot give a class because of absence, typhoon, etc., you are still responsible to keep up with the reading/study: check Moodle and contact a classmate for copies of new handouts if necessary.
- ***No extra-credit assignments or extra-credit exams of any kind will be given.***
- **Academic dishonesty:** All assignments and exams must be your own work. **As aspiring scientists your academic integrity is your most valuable asset**, and is the *sine qua non* for a career in science. Falsification or fabrication of data is a high crime in science, and you should be aware that other kinds of cheating will lead people to suspect your academic integrity. *Don't cheat and don't give anyone reason to suspect you of cheating.* The term “**plagiarism**” includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. If you are not sure what plagiarism is and how to avoid it in using sources for your work, see

www.indiana.edu/~wts/pamphlets/plagiarism.shtml—but be careful when paraphrasing not to change the meaning of scientific information. We will discuss this in class and intend to use “Turnitin” as a further check for originality and the absence of plagiarism. **Note that plagiarism (including the use of another student’s work will result in a final grade of “F.”**

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Schedule

We will give you the tentative schedule Tuesday and update it regularly during class, so you can catch up if you missed. It will also be uploaded to Moodle.

Drop dates

University policy sets the drop dates. You can withdraw from classes “voluntarily” until 9 March 2016 (i.e., without notifying us) and as late as 13 May 2016 with your instructor’s signature(s) on a withdrawal form. Monitor your progress!

Student workload

Time outside the classroom—You should plan to spend an average of 3h outside of class for **every hour of class time** (as with every class). We suggest you structure those 3h per week as follows. (These times will vary from student to student, and from day to day depending on assignments; the 3h/week and the allocation of that time are suggestions that you need to adjust on the basis of your experience in this course.)

Make sure that you read the literature that we will be discussing in the next class. (Bring a copy to class.) Apply your knowledge of the scientific literature not only to understanding the papers, but to your examination of particular aspects of its construction that we will be addressing in class. You will also need this time to complete assignments that were not completed in class, or were assigned as homework.

You may also want to use additional time working with other print/internet sources. There are many resources available on the web, as well as a huge amount of scientific literature that is freely available as open-access resources.

Contact information for classmates

Make sure that you have the contact information for at least 3–4 other students. Consider developing a “WhatsApp” group for each section.

BI 333 & BI 333L: Comparative Vertebrate Anatomy

Lecture & Lab Syllabus

Fañomnagan 2016

Classes

BI 333-01: Mo/We 12:30–1:50 PM, SC 110 (3 units)

BI 333L-01: Fr 8:00–10:50 AM SC 110 (1 unit)

Instructor

Dr. Moots has taught a variety of classes from scuba diving to cadaver dissection. She studies the anatomy, taxonomy, and systematics of pipefishes, seahorses, pipehorses, and ghost pipefishes. She has high expectations of her students and most students learn more than they ever thought possible in one semester. However, this makes her classes both challenging and time consuming. Fortunately, most students find the class interesting and even fun. Dr. Moots is looking forward to sharing her passion for the evolution of vertebrates that can be discovered through the study of their functional anatomy.

office: SC 231, 735-2795

email: dr.moots@yahoo.com

Office hours

Tu/Th 9:30–11:30 AM; We 10:30–12:30 PM (drop-in to SC 231) and by appointment.

Catalog course description

BI 333—Comparative Vertebrate Anatomy: This course is a study of the basic morphology of vertebrates, with lecture emphasis on the evolution of vertebrate systems and laboratory emphasis on dissection of these systems in selected vertebrates. It includes three hours of lecture weekly. The lab, BI 333L MUST be taken concurrently. Prerequisite: BI 157-157L and BI 158-158L or equivalent. Co-requisite BI 333L.

BI 333L—Comparative Vertebrate Anatomy Laboratory: BI 333L is the laboratory portion of BI 333 and MUST be taken concurrently. The course consists of one three-hour laboratory period per week. Co-requisite: BI 333.

Rationale for offering the course

The basic biology program includes instruction in genetics, organismal diversity, evolution, ecology, and cellular/molecular biology. This is 1 of 5 courses that examine the diversity of organisms through the study of their structures, functions, and evolution. An understanding and knowledge of the structure and function of the vertebrate body is crucial to the development of those wishing to enter veterinary or medical fields. It is also essential to those who wish to understand the evolutionary constraints of island vertebrates and know more about themselves.

The lab component is a co-requisite and an integral part of the learning process, even though you register for it as a separate course. The lab supports learning in the lecture part of the course; for example, by allowing you to touch and feel the structures that you have heard about in lecture. The lab component provides the experiential side of the course to improve your skills in observation, interpretation, integration, and analysis.

The Biology Program has a number of desired student learning outcomes. These PLOs are as follows:

BI PLO-1: Graduates have advanced understanding of the nationally-recognized core competencies in biology. Students taking biology for GE will have a basic grasp of some of these concepts, especially those relating to the interface of science and society, and will advance their scientific literacy. Students contribute to the public good by using their knowledge and skills in internships, research and volunteering, and in responsible use of natural resources and technology.

BI PLO-2: Graduates use their knowledge and skills to solve problems in ecology, genetics, molecular biology, systematics, and evolution. They can apply their knowledge and skills to locally important issues such as island biogeography, conservation, and endangered species problems; they are also prepared to address broader questions such as biomedical research. They apply elements of thought and intellectual standards to problem solving and effectively judge the usefulness and accuracy of external sources of information.

BI PLO-3: Graduates approach scientific questions using scientific criteria and know how these criteria differ from those in other disciplines and other worldviews.

BI PLO-4: Graduates and GE students have metaknowledge of the diverse ways in which scientists in various disciplines think and work, and how these ways differ from and are useful to public policy making.

BI PLO-5: Graduates apply relevant concepts from chemistry and physics to biology problems; they approach problems in terms of interdisciplinary teams, where appropriate, aware of how other branches of biology and other sciences could be used to "come from the question"

BI PLO-6: Graduates apply numerical methods in collection and analysis of biological data. They formulate testable hypotheses and create effective experimental designs using their knowledge, understanding, and practical experience of scientific instruments and statistics.

BI PLO-7: Graduates are competent in basic biology procedures and safety in the laboratory and field.

BI PLO-8: Graduates use scientific literature and diagrams as a source of information, properly cite sources and avoid plagiarism, and use computer software to create text and graphics to communicate results effectively through print and oral presentations. They take initiative in searching for relevant sources in the scientific literature and assess evidence in writing scientific proposals and reports.

BI PLO-9: Graduates have experience with contributing to and using large databases in bioinformatics, environmental sciences, and biological collections and have the general knowledge and confidence to mine "big data" sources.

BI PLO-10: Graduates follow ethical principles involved in science, ranging from integrity and honesty to authorship criteria; ownership of samples and data; appropriate manipulation of data and images; and (where appropriate) ethical issues in human subject and animal research.

The following table lists the Student Learning Outcomes or goals for this course. The second column identifies the Biology Program Learning Outcomes listed above. The third column identifies the UOG Learning Outcomes (see 2015 UOG Catalog, pg. 10) that are associated with this course. Finally, the last column identifies the assessment methods that will be used.

Course SLOs	Program SLOs (PLOs)	University SLOs (ILOs)	Assessment Method
1. Critically summarize the basic information necessary to differentiate various cratiates on the basis of their taxonomy, phylogeny, morphology, physiology, ecology, and human impact/interactions	PLO 1 PLO 2 PLO 9	ILO 1 ILO 3 ILO 5 ILO 6	Pop quizzes, lecture exams, and class discussions
2. Apply knowledge and skills to identify and classify unknown animals and be able to explain the basis for these hypotheses	PLO 1 PLO 2 PLO 3	ILO 1 ILO 3	Lab practical exams
3. Dissect, differentiate, locate, and identify the components and subcomponents of the organ systems of craniates examined in the laboratory	PLO 1 PLO 2	ILO 1 ILO 3	Lab exercises and lab practical exams
4. Critically evaluate scientific literature on the taxonomy, phylogeny, morphology, physiology, and/or ecology of particular species or groups of craniates and apply that knowledge to locally important issues	PLO 2 PLO 3 PLO 4 PLO 9 PLO 10	ILO 1 ILO 3 ILO 4 ILO 5 ILO 7	Lecture exams and class discussions
5. Evaluate, integrate, analyze, and apply knowledge to hypothetical or actual questions concerning the taxonomy, phylogeny, morphology, physiology, ecology, and/or human impact/interactions of craniates	PLO 1 PLO 2 PLO 4 PLO 9	ILO 1 ILO 3 ILO 5 ILO 6	Pop quizzes, lecture exams, and class discussions

6. Research and present a description of a undomesticated vertebrate on Guam	PLO 2 PLO 3 PLO 8 PLO 10	ILO 1 ILO 3 ILO 6	Species paper and poster presentation
6. Assist in the preparation of a Bryde's whale skeleton for display at UOG	PLO 2 PLO 3 PLO 5 PLO 6 PLO 7 PLO 10	ILO 1 ILO 2 ILO 6 ILO 7	Lab preparation
7. Utilize the techniques of microscopy and dissection to make personal observations of craniate structure	PLO 7	ILO 6	Lab exercises and lab practical exams
8. Demonstrate laboratory safety	PLO 1 PLO 7	ILO 6	Lab exercises

Course content

This course examines the diversity and morphology of craniates from an evolutionary perspective. In the lecture sessions, we will examine the historical changes in the structure of vertebrates, beginning with vertebrate relatives and then quickly survey the diversity of vertebrates and their design. Next we will investigate the impact of this design on the life histories of various vertebrates. Finally, we will examine the organ systems (integumentary, skeletal, muscular, respiratory, circulatory, digestive, urogenital, endocrine, and nervous) in detail.

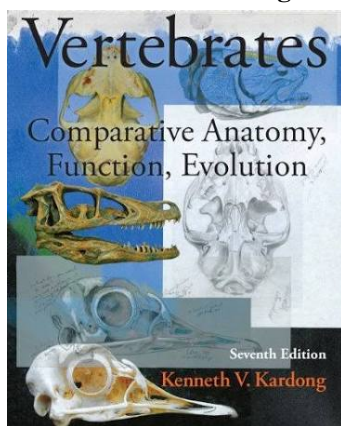
The laboratory sessions will allow you to personally explore and discover the evolution and structure of vertebrates, through examination of specimens, slides, and dissections.

I generally discuss the topics in the order they are presented in the textbook. Note that you will be responsible for the material in the textbook and lab manual, regardless of whether it was covered during the lectures or lab.

Format and activities in the course

The schedule includes 3 hours of lecture and 3 hours of lab each week. Assessment activities for the lecture include 14 in-class quizzes, 3 in-class exams, and a comprehensive lecture final. Assessment activities for the lab include 3 lab practical exams, 3 assignments, and an evaluation of the care and skill of completed dissections.

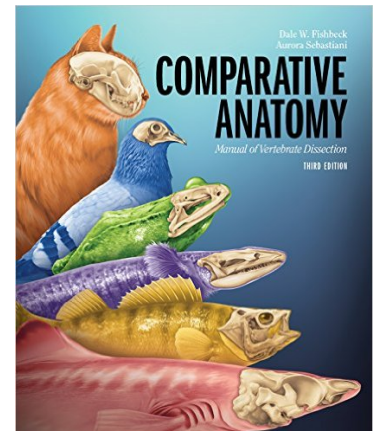
Textbook and readings



The textbook for the lecture is *Vertebrates: Comparative Anatomy, Function, Evolution* (7th edition) by KV Kardong (2015). ISBN: 978-0-07-802302-6. Alternatively, you may use the previous edition, although there are some slight differences. **This textbook is a required resource.** The manual for the lab is *Comparative Anatomy: A Manual of Vertebrate Dissection* (3rd edition) by DW Fishbeck & A Sebastiani (2015). ISBN: 978-1617310423. You must purchase this edition! **This is a required resource.**

You are expected to use these learning resources as active learners. Read appropriate sections of the book as we get to them in lecture, and again after the topic is covered in class.

Topics that I have not covered in class, but which are in the textbook or lab manual are still considered essential parts of the class. You must master them during your review and studying. By the end of the semester, you should be able to knowledgeably discuss the material included in both the text and lab manual.



Additional materials or equipment

Other than a notebook and writing implements, no additional materials or equipment is required for the lecture. For the lab, you will need to have the use of a dissecting kit. This kit **MUST** have a pair of scissors with 2 fine tips and fine forceps. In addition, it is a good idea to protect your clothes in the lab. Wearing an old (and slightly large) shirt that will cover your clothes is the easiest and cheapest solution. Lab coats are available for sale at Tools of the Trade.

Homework assignments, quizzes, and exams

The class moves forward at a very fast pace. **Read your textbook. Read your lab manual.** It is also a very good plan to review your notes and text after each class.

There will be 14 quizzes (closed book, ~15 min long), each covering a single chapter. Quizzes are intended to encourage you to read and review the material. Quizzes may vary significantly in design. There will be 3 tests (closed book, ~1½-hr long). These tests will cover material since the last test or exam. Tests are designed to help you begin to develop a cohesive synthesis of the evolution of vertebrates. The final exam is comprehensive (closed book, ~2-hours long) and will cover all the material from the beginning of the course. The tests and exams tend to challenge your thinking. They may include multiple choice, short answer, graphs and figures to interpret, drawings to label, and sketches. I do not use true-false questions or full essay questions. Questions will be based on the lectures, textbook, and lab exercises.

There will be 3 assignments; each will be part of your lab grade. The deadlines will be strictly enforced. Failure to meet deadline = grade of 0 (zero) on that assignment. A grading guide (rubric) will be given to you with the assignment. Make sure that you follow the instructions for the assignment and are certain of what is required. The 1st assignment will be the preparation of a species description for one non-introduced, undomesticated vertebrate found on Guam or in the waters surrounding Guam. This description will be in the form of a publishable note for submission to the scholarly journal *Micronesica*. This will be due 8 April 2016. The 2nd assignment will be to prepare a poster of your vertebrate species, for presentation during “The Vertebrate Species Symposium” on Saturday 23 April 2015. The 3rd assignment will be collaboration in the preparation and reconstruction of a Bryde’s whale skeleton. This will take place throughout the semester.

You should also review your notes and text after each lab, because there will be 3 lab practical exams (closed book, timed stations), each based on the labs we have completed. All 3 lab practical exams will only cover the material since the last practical. These lab practical exams tend to challenge your thinking. Lab practical exams may include identification of structures, short answer, multiple choice, and drawings to label.

Evaluation and grades

My philosophy in testing is to see that you have gone beyond memorizing facts, and have reached a level of understanding the key concepts. Your understanding will be tested through your skills in:

- *interpreting*—e.g., *interpreting* graphs & figures;
- *exemplifying*—e.g., giving an *example* of a commonly known group of vertebrates that is paraphyletic;
- *summarizing*—e.g., be able to *summarize* the evolutionary changes in skull morphology that led to the mammalian ear;
- *inferring*—e.g., using Hox gene evolution, *draw a logical conclusion* concerning the evolutionary development of body plans;
- *comparing & contrasting*—e.g., listing the *similarities* and *differences* between the patterns of circulation of a shark and a mammal;
- *explaining*—e.g., *explain* how sharks can hear without an eardrum.

In addition to understanding, you will be expected to

- *apply knowledge*—e.g., apply information on the evolution of the cardiovascular system to make strong predictions about the functional morphology of the cardiovascular system in related taxa.

You will begin with *factual knowledge* (i.e., terminology, specific details), but the goal is for you to end with *conceptual knowledge*, including:

- knowledge of principles and generalizations,
- knowledge of structures and functions, and
- knowledge of evolutionary patterns and processes.

The grading for the classes is as follows:

Lecture		Lab	
Quizzes (14)	20% (lowest 2 dropped)	Species paper	10%
Tests (3)	55%	Species symposium	10%
Final exam	<u>25%</u>	Bryde's whale project	20%
Total	100%	Lab practical exams (3)	45%
		Dissection	<u>15%</u>
		Total	100%

I use criterion-referenced marking and generally do not grade on a curve. The percentages required for grades are usually: A = 85–100%; B = 75–84%; C = 60–74%; D = 45–59%; F = <45%.

Course policies

You are responsible for your learning. Take full advantage of the resources available, including the textbook, lab manual, lectures, library, internet, and office hours.

- To ensure that you can begin learning immediately, the 1st few chapters of the textbook and lab manual will be uploaded to Moodle as we get to them. I will NOT upload the entire book, or the entire lab manual.
- I recommend that you attend every lecture period. Most students who attend class only to write the quiz or exam, and then leave, fail this class. If something stops you from attending class—come see me.
- For the same reason (that goal is to understand concepts not to attend class), if something prevents you from attending class, or if I cannot give a class because of absence, typhoon, etc., you are still responsible to keep up with the reading/study; contact a classmate for copies of new handouts if necessary.
- ***No make-up tests or exams***—If you miss a test or exam for a valid reason, I will average it out of your score, otherwise your score = 0. You **must** tell me if you have such a valid reason **before** you miss the test or exam.
- ***No extra-credit assignments or extra-credit exams of any kind will be given.***
- **Academic dishonesty:** All assignments, quizzes, and exams must be your own work. The term “**plagiarism**” includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. If you are not sure what plagiarism is and how to avoid it in using sources for your work, see www.indiana.edu/~wts/pamphlets/plagiarism.shtml—but be careful when paraphrasing not to change the meaning of scientific information. You may quote materials from the textbook or manual, or research papers for your assignments, but clearly indicate that you have done so. We will be using Turnitin—so that you can check whether you have done a good job of paraphrasing. The answers that you write on the tests and exams must come only from in your head or the information supplied in the exam papers; anything else is cheating. The term “**cheating**” includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes or exams, e.g., looking at other students’ answers, using crib notes (including electronic), getting information from another person via any kind of communication; (2) dependence upon the aid of sources beyond those authorized by the instructor in solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of exams or other academic material belonging to a member of the University faculty or staff. If you need to use an electronic translator, you must discuss this with me in advance. If a cell phone is visible during any closed-book quiz or exam—it will be considered electronic cheating. **Cheating on any quiz, lab practical, or exam will be punished with a final grade of “F” in this class for all students involved, including those who allowed other students to obtain or read their answers.**
- Classroom courtesy: to cause the least disruption to your fellow learners, please
 - avoid coming late to class or leaving early. If you absolutely must, come in quietly! If you need to go to the toilet, please wait until there is a break in activities.
 - don’t talk to each other when I am addressing the class. It is very rude to your fellow students (as well as to me)!
 - set your cell phones to silent mode, especially during exams.

UOG Disabilities Policy Statement

The University of Guam (UOG) is committed to achieving equal opportunity and full participation of persons with disabilities by providing for non-discriminatory access to its services and facilities through the ADA Office. The Mission of the ADA Office is to ensure non-discriminatory access to all benefits, privileges, opportunities and obligations to students with disabilities and to ensure a process for full compliance by UOG with the ADA of 1990, as amended, and Section 504 of the Rehabilitation Act of 1973, as amended, taking into account the economic climate and multi-cultural diversity of the institution.

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact your instructor and the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide your instructor with documentation concerning your need for accommodation(s) from the EEO/ADA & Title IX Office. If you have not registered with the EEO/ADA & Title IX Office, you should do so immediately to coordinate your accommodation request. The ADA Office provides reasonable accommodation for students in accordance with the UOG Policy and Procedure for students and applicants with a disability. The ADA Office can be contacted at telephone number (671) 735-2244 or Telephone Device for the Deaf (TDD) number (671) 735-2243. You must directly request for all ADA services four (4) to eight (8) weeks in advance. The ADA policy can be found on the UOG website.

Tobacco-free/Smoke-free/Vaping-free campus

UOG is a tobacco-free/smoke-free/vaping-free/e-cigarette-free campus. Thank you for not using tobacco products or e-cigarettes on campus, for helping to fight cancer, and for helping to make UOG a healthy learning environment.

Schedule

I will give you the tentative schedules today and update it regularly during class, so you can catch up if you missed.

Drop dates

University policy sets the drop dates. You can withdraw from classes “voluntarily” until 9 March 2016 and as late as 13 May 2016 with my signature on a withdrawal form. Monitor your progress! If you fail the 1st exam, find out why and make appropriate changes.

Student workload

Time outside the classroom—You should plan to spend at least 2 hr studying for every hour of **lecture** class time (as with every class), and 3 hr/session for the **lab**. I suggest you structure those 9 hr per week as follows. (These times will vary from student to student, and from day to day depending on assignments and exams; the 9 hr/week and the allocation of that time are suggestions that you need to adjust on the basis of your experience in this course.)

4 hr pre-reading the textbook & lab manual (*before it is due*)

Read the sections that are going to be covered in lecture and before the lab. Make note of new terms/key words. (Key words are printed in boldface when first introduced. Some definitions can be found in the Glossary at the back of the textbook and lab manual and roots for many scientific terms in Appendix C of the textbook.) *Note that I do not want you to memorize the definitions and will not ask for them on the exams.* You will be expected to know what the terms mean and be able to use them appropriately.

3 hr doing projects and completing dissections

Use the projects to try and understand the material that we completed in lab. Note that each project has a real purpose, requirements, and a hard deadline. Given the bulk of the material we will cover this semester, you may find that you need additional time to complete your dissections. As you work on your dissections, use this as an opportunity to learn the structures you will have to know for the lab practical exams.

2 hr re-reading the textbook (and lab manual) and revising your notes after class

Focus on filling in the details you missed in your initial reading. Remember to check your answers for the quizzes and exams, correct your answers in detail, and analyze your answers when they are different. These can also be used to fill in some of the details from the labs and lectures in your notes. If you still are unclear about the answers, ask questions after class or come see me.

+ **Additional time working with other print/internet sources**

If the lab manual and textbook do not give clear or complete information that will allow you to understand the material we covered in lab and lecture, or if you feel you need different resources to understand the material better, you should spend time on the web and/or find other textbooks.

Additional resources

There are many texts and research papers on comparative anatomy that you may wish to consult, if you are having trouble with or wish to know more about a particular subject. Note that RFK library has a number of books that can be useful for this class. In addition, you may be surprised how many YouTube videos there are of dissection, as well as of the function of many of the structures we study. (Remember, however, that you get what you pay for!)

Special Considerations for the Lab

1. You must wear gloves while actively completing dissections. (The person taking notes, or acting as a dissection guide does not need to use gloves.)
2. No food or drink may be consumed in the lab during dissections.
3. If you are unsure—Ask!
4. Microscopes are valuable equipment. Always follow the appropriate procedures for obtaining Köhler Illumination and for properly putting them away.
5. Dangerous behavior will result in a final lab grade of “F.”

Contact information for classmates

Write down the names and contact info for at least two or three classmates you can contact if you miss a session or want to study together. I encourage you to form study groups!

Name	Home phone	Cell	email

BI 392: Laboratory Teaching and Assisting (Undergraduate TA)

Syllabus, Spring 2016

BI 392-01 (1 credit hour, 3 hours of laboratory teaching & assisting)

BI 392-02 (2 credit hours, 6 hours of laboratory teaching & assisting)

Catalog course description

This course provides for practical educational experience in undergraduate course laboratories. It may be taken more than once for credit. Prerequisites: Completion of the course in which the laboratory is offered, or of an equivalent course, and consent of the instructor.

Additional information concerning this course

Although all students enrolled in this course currently register with Dr. Moots, each student will work specifically with the instructor for the lab section(s) with which they are teaching and assisting. Duties may include assisting in laboratory supervision, helping to ensure student safety in the laboratory and in the field, delivering instructions for the laboratory or fieldwork, assisting in the setup of laboratory quizzes and exams, proctoring laboratory quizzes & exams, assisting with grading laboratory reports and exams, and preparing materials for the laboratory or fieldwork. Some course administrative work may also be required. This course is offered in both Spring and Fall semesters and may be offered during Fall Intersession and Summer, depending on need of the Biology Program. The Biology Program discourages enrolling in more than 4 credit hours of courses in the 390/490 series (BI 390/490, BI 392/492, and BI 398/498).

Intended student learning goals

The following table lists the Student Learning Outcomes or goals for this course. The second column identifies the Biology Program Learning Outcomes (see 2015 UOG Catalog, pg. 93–94) that are associated with the goals of this course. The third column identifies the UOG Learning Outcomes (see 2015 UOG Catalog, pg. 10) that are associated with this course. Finally, the last column identifies the assessment methods that will be used.

Course Student Learning Outcomes	Program Learning Outcomes (PLOs)	University Learning Outcomes (ILOs)	Assessment Method
1. Present/communicate biological concepts and application of knowledge and skills to locally important issues to the class as a whole and to individual students	PLO 1, 4, 6	ILO 1, 3, 4, 5, 6	—Informal evaluation by instructor of teaching to both groups of students and individual students —Informal evaluation of professionalism in appearance, work, and attitude —Informal evaluation of preparation for laboratory or fieldwork —Required attendance at all laboratory sessions
2. Assist students with both quantitative and qualitative problem solving	PLO 1, 2, 3, 4, 6	ILO 1, 2, 3, 4, 6	
3. Assist in maintaining safe laboratory and fieldwork procedures and practices	PLO 3, 6	ILO 1, 3, 4, 5, 6	
4. Follow ethical principles in the conduct of teaching	PLO 6	ILO 3, 4, 5, 6, 7	
5. Demonstrate leadership and professionalism in working with students	PLO 6	ILO 1, 4, 6, 7	

Course content, format, and activities

The course will involve assisting the Instructor in the conduct of laboratory sessions and/or fieldwork sessions. The Undergraduate TA is assigned to a particular laboratory class section and is considered part of the professional team, who are preparing, conducting, and evaluating laboratory and/or fieldwork sessions. This means that the Undergraduate TA should prepare for the session by reading and reviewing all materials concerning that session, anticipate any potential problems, anticipate likely needs of the instructor, and arrive at least a half-hour prior to the session to assist the instructor in any last-minute preparations.

During the laboratory and or field session, the Undergraduate TA will assist the instructor in maintaining safe and proper conduct during the session. The Undergraduate TA must be aware of all the safety procedures in the

laboratory and/or the field site. The Undergraduate TA must be able to answer all fundamental questions related to the session.

After the session, the Undergraduate TA should assist the instructor in either securing the laboratory and equipment or in ensuring that all students have safely returned to the exit point for the fieldwork. The Instructor may also require that the Undergraduate TA assist in grading laboratory reports, quizzes, exams, or assignments.

The Instructor will informally evaluate the performance of the Undergraduate TA after every session, by providing tips for improvement. The Undergraduate TA must present at least one pre-lab briefing during the semester. The final grade will be assessed through the attached rubric.

Evaluation and Grades

See the attached rubric.

Textbooks, readings, and additional materials required for the course

No new materials or textbooks are required for the course, but each Undergraduate TA should have access to the materials and textbooks they used when they completed the course. It will be necessary to read and review the pertinent sections of these **prior to** each session.

Course policies

Attendance is mandatory. In the same sense that the Instructor cannot be absent or too busy to conduct class, the Undergraduate TA is part of the management team and must be present and ready to conduct class. Absences in case of illness must be documented with a note from a physician.

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If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact your instructor and the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide your instructor with documentation concerning your need for accommodation(s) from the EEO/ADA & Title IX Office. If you have not registered with the EEO/ADA & Title IX Office, you should do so immediately to coordinate your accommodation request. The ADA Office provides reasonable accommodation for students in accordance with the UOG Policy and Procedure for students and applicants with a disability. The ADA Office can be contacted at telephone number (671) 735-2244 or Telephone Device for the Deaf (TDD) number (671) 735-2243. You must directly request for all ADA services four (4) to eight (8) weeks in advance. The ADA policy can be found on the UOG website.

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Drop dates

University policy sets the drop dates. You can withdraw from classes “voluntarily” until 9 March 2016 and as late as 20 May 2016 with your instructor’s signature on a withdrawal form. Monitor your progress! If you suspect that you are performing poorly, find out why and make appropriate changes.

Student workload

This course requires additional time outside of the scheduled laboratory or field sessions. It requires that you prepare for each class. It also requires that you be ready to work and assist the Instructor at least one-half hour before each session. It may also require additional time after the scheduled laboratory or field session to secure the lab and/or equipment. Finally it may require additional time assisting with the setup of quizzes or exams and it may require additional time assisting with grading. Note that for each hour of university class time, university Instructors expect at least 3 hours of your time working on the material!

Spring Semester - 2016
BIOL 360 & 360L – ETHOLOGY
University of Guam

Location: SC 110
Dates: 20 Jan - 20 May, 2016
Time: T/Th 09:30-10:50
W 14:00-16:50 (Lab)

Instructor: Dr. G. Curt Fiedler
e-mail: gcfiedler@triton.uog.edu
Phone: 734-2788
Office: SC 118
Office Hours: M&W 1000-1200, T 1400-1600

Course Text :

Animal Behavior: An Evolutionary Approach, 10th Ed, 2013, John Alcock, Sinauer Associates, Inc.

Course Description:

BI 360 Ethology (3)

This course is an introductory survey of the field of Ethology. Ethology is the study of animal behavior, particularly under natural conditions. It encompasses proximate (genetic, neurophysiological) and ultimate (evolutionary) causes of animal behavior, and employs both field and laboratory research approaches. The course will show the influence of genetics, physiology, ecology, and natural selection, and evolution on the expression of behavioral traits. This course consists of three hours of lecture per week. The lab, BI 360L, MUST be taken concurrently. Prerequisites: BI157, BI157L, BI158 and BI158L or equivalent. Corequisite: BI360L

BI 360L Ethology Laboratory (1)

BI360L is the laboratory portion of BI360 and MUST be taken concurrently. The course consists of one three-hour laboratory period per week. Corequisite: BI360

Course Objectives:

- Gain a thorough understanding of the role behavior plays at all levels in the biology of organisms – from the neuromuscular level, to organismal biology, to populations, and ecosystems.
- Learn the difference between proximate and ultimate causal factors of behavior.
- Examine the importance of ethological data in the study of ecology, physiology, phylogenetics, and evolution.
- Develop the skills to recognize, measure and assess relevant behavioral data.
- Introduce the variety of professional applications of ethology.
- Identify the challenges facing the next generation of scientists and where state of the art technology is likely to be employed in the future.
- Develop observational skills and the ability to relay knowledge to others.

Work Load:

*Time outside the classroom--*You should plan to spend an average of 2 h studying for every hour of lecture class time (as with every class), and 1 h/week for the lab. I suggest you structure those 7 h per week as follows. (These times will vary from student to student, and from week to week depending on assignments and tests; the 6 h/wk and the allocation of that time are suggestions that your need to adjust on the basis of your experience in this course.)

This includes: 2 h pre-reading the textbook (*before* class), 2 h re-reading the textbook and revising your notes after class, 2 h doing assignments and testing yourself on the Learning Objectives and Review questions in the text.

Students with Disabilities:

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me and the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA & TITLE IX Office. If you have not registered with the EEO/ADA & TITLE IX Office, you should do so immediately at 735-2244, (TTY) 735-2243 to coordinate your accommodation request.

Grading Information:

For the lecture, grading is based on two Mid Term Exams (I, II), 10 (of 12) quizzes, and one Final Exam (III).

Point Breakdown:

Task	Points	Total Points	Percent
Midterm Exams	2 @ 50	100	33.3
Quizzes	10 @ 10	100	33.3
Final Exam	1 @ 100	100	33.3
		<u>300</u>	

Grading Scale:

Percent	Letter Grade
90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
00 – 59	F

For the lab, grading is based upon 10 Lab/Field Exercises and one individual research project (paper + presentation).

Task	Points	Percent
Lab/Field Exercises	60	60%
Individual Project/Oral Presentation	40	40%

Course Components:

I. Lectures

Lectures will occur at the scheduled times and location, barring any emergencies. Attendance to lectures is expected, but I will not take attendance. Absences, excused or unexcused, do not alter coursework responsibilities. Nearly 100% of the material on exams and quizzes will come from lecture (the rest from the text). Therefore, getting a good grade depends on regular lecture attendance. *Those students who attend classes regularly and participate fully in the course may receive consideration if they are a point or two below a final grade level on the above scale.*

II. Quizzes

There are twelve (12) quizzes in this course. Quizzes will occur as scheduled below and will generally be given at the start of class sessions. The quizzes will help prepare you for the Exams. All quizzes will measure your understanding of the material covered in preceding lecture material and corresponding text reading. Quizzes will consist of multiple choice, true/false, matching, short answer, and/or short essay questions. Your two lowest quiz scores will be dropped. Hence, only your top ten (10) quiz scores will count towards your final grade. Quizzes are worth 33% of your final grade. *If you miss one quiz because of absence, excused or otherwise, it counts as your dropped quiz. There will be no make-up quizzes.*

III. Exams

There are 3 exams in this course of differing weight. Midterm Exams (I, II) are not cumulative and are worth 50 points each. The Final Exam is cumulative for the entire semester and worth 100 points. Exams will be given on the scheduled days below. All exams begin at the start of the class period. Exams will test your understanding of the material covered in this course, including terminology and concepts. In other words, you will need to know both ‘what’ and ‘why’. Each exam will consist of multiple choice, matching, true/false, short answer, and essay questions. Exams are worth 67% of your final grade. Exams *must* be taken on the dates listed in the syllabus, *unless* you have a valid, documented medical or other excuse. *Make-ups must be generally taken with 48hrs of the scheduled exam and arranged by the student. It is the student’s responsibility to contact the instructor in such cases.*

Make up Quizzes & Exams

- *There will be no make up quizzes!* If you miss a quiz, excused or otherwise, it counts as one of your dropped scores.
- If you have a legitimate, documented medical or other excuse (vacation doesn’t count) for missing an exam, I will consider offering a make up *within 48 hours* of the normal scheduled time. It is the student’s responsibility to contact the instructor in such cases. The instructor reserves the right to refuse make-up exams if proper documentation is not provided.

Lab/Field Exercises

For each laboratory or field lab session, there will be a brief set of questions or tasks for students to complete and turn in prior to the subsequent lab session. These exercises will be worth 60% of the lab grade.

Individual Projects

Each student will propose, plan, and carry out an ethology experiment, using laboratory session time in the latter part of the semester. It is expected that students will collect data, analyze, and present their results in the last class session of the laboratory course.

Extra Credit

There will be no extra credit assignments. In most cases, there are bonus points with every quiz and exam in this course. So, you will have a chance to make up a few points here and there during the term with bonus points.

Additional resources

Throughout both the lecture and lab courses, various handouts and supplemental materials (printed & other media forms) will be made available to students to enhance topics covered in lecture.

Academic dishonesty:

All assignments and tests must be your own work. Answers you write on the tests must come only from in your head or the information supplied in the test papers; anything else is cheating. The term “**cheating**” includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations, e.g., looking at other students’ answers, using crib notes (including electronic), getting information from another person via any kind of communication; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the University faculty or staff. If you need to use an electronic translator, you must discuss this with me in advance.

Any cases of Academic Dishonesty will be dealt with according to university policies, which may include academic probation or expulsion.

Class Room Etiquette:

- 1. **Cell phones must be turned to silent mode (or off) during class time.**
- 2. **Do not talk while the instructor is lecturing or disturb others in the classroom.**
- 3. **In the lab or field, safety is the first priority.**

Tobacco-free/Smoke-free campus:

UOG is a tobacco-free campus. Thank you for not using tobacco products on campus, and for helping make UOG a healthy learning and living environment.

Contact information for classmates

Write the names and contact info below for two or three classmates you can contact if you miss a session or want to study together. I encourage you to form study groups!

- 1.
- 2.
- 3.

BI 360-01 & BI 360L-01

Student Learning Outcome (SLO) Matrix

Course SLOs	Program SLOs (PLOs)	University SLOs (ILOs)	Assessment Method
1. Gain a thorough understanding of the role behavior plays at all levels in the biology of organisms - from the neuromuscular level, to organismal biology, to populations, and ecosystems.	PLO 1a PLO 1b PLO 1c PLO 2 PLO 5	ILO 1 ILO 3 ILO 6	Exams, quizzes
2. Learn the difference between proximate and ultimate casual factors of behavior.	PLO 1a PLO 1b PLO 1c PLO 1d PLO 2	ILO 1	Exams, quizzes
3. Examine the importance of ethological data in the study of ecology, physiology, phylogenetics, and evolution.	PLO 1a PLO 1b PLO 1c PLO 1d PLO 2 PLO 5 PLO 7	ILO 1 ILO 2 ILO 3 ILO 6	Exams, quizzes
4. Develop the skills to recognize measure and assess relevant behavioral data.	PLO 1b PLO 2 PLO 3 PLO 4 PLO 5 PLO 7	ILO 1 ILO 2 ILO 3 ILO 5	Lab reports, research projects, research presentation
5. Introduce the variety of professional applications of ethology.	PLO 1c PLO 1d PLO 2 PLO 3 PLO 7	ILO 1 ILO 5	
6. Identify the challenges facing the next generation of scientists and where state of the art technology is likely to be employed in the future.	PLO 5	ILO 1 ILO 2 ILO 3 ILO 5	Lab reports, research projects, research presentation
7. Develop observational skills and the ability to relay knowledge to others.	PLO 1b PLO 1c PLO 3 PLO 4 PLO 5 PLO 7	ILO 1 ILO 2 ILO 3 ILO 5 ILO 6	Lab reports, research projects, research presentation

Biol 360 - Spring 2016 Semester Schedule

Month	Tue	Weds (Lab)	Thur
Jan		20: No Lab Class! Behavior Ecology Documentary?	21: Class Intro, <u>Ch 1</u> : Introduction, <u>Ch2</u> : Behavioral Ecology
	26: Quiz 1 <u>Chap 2</u> : Altruism	27: Learning how to observe – artificial life!	28: <u>Chap 3</u> : Evolution of Social Behavior
Feb	02: <u>Chap 3</u> : Social Behavior	03: Learning how to observe – Asan Beach Park.	04: Quiz 2 <u>Chap 4</u> : Evolution of Communication
	09: <u>Chap 4</u> : Communication	10: Valentines Day Dilemma	11: Quiz 3 <u>Chap 5</u> : Predators and Predation
	16: <u>Chap 5</u> : Predators and Predation	17: How to Read a Scientific Paper	18: Quiz 4 <u>Chap 6</u> : Habitat Selection, Territoriality
	23: <u>Chap 6</u> : Migration	24: Fiddler Crab Displays	25: EXAM I
March	01: <u>Chap 7</u> : Evolution of Reproductive Behavior	02: Hermit Crab Shell Selection at Tanguisson Beach	03: Quiz 5 <u>Chap 7</u> : Evolution of Reproductive Behavior
	08: Charter Day	09: Underwater World?	10: <u>Chap 8</u> : Evolution of Mating Systems
	15: Quiz 6 <u>Chap 8</u> : Evolution of Mating Systems	16: Ritidian Snake Lab?	17: <u>Chap 9</u> : Evolution of Parental Care
	22: Spring Break	23: Spring Break	24: Spring Break
April	29: Quiz 7 <u>Chap 9</u> : Evolution of Parental Care	30: TBA	31: <u>Chap 10</u> : Proximate/Ultime Causes of Behavior
	05: Quiz 8 <u>Chap 10</u> : Proximate/Ultime Causes of Behavior	06: How to Write a Scientific Paper	07: EXAM II
	12: <u>Chap 10</u> : Proximate/Ultime Causes of Behavior	13: **Student Project Proposals Due	14: <u>Chap 11</u> : Development of Behavior
	19: Quiz 9 <u>Chap 11</u> : Development of Behavior	20: Student Projects	21 <u>Chap 12</u> : Nervous Systems & Behavior
	26: Quiz 10 <u>Chap 12</u> : Nervous Systems & Behavior	27: Student Projects	28: <u>Chap 13</u> : Neurons & Hormones
May	03: Quiz 11 <u>Chap 13</u> : Neurons & Hormones	04 Student Projects	05: <u>Chap 14</u> : Evolution of Human Behavior
	10: Quiz 12 <u>Chap 14</u> : Evolution of Human Behavior	11: **Student Presentations	12: <u>Chap 14</u> : Evolution of Human Behavior
	16-18: Final Exam – TBA		

NOTE:

1. The above schedules and procedures in this course are subject to change in the event of extenuating circumstances.
2. Field trips will require students to sign a liability waiver, and sign in / sign out, as per UOG policies.