

BI/EV525: Evolutionary Biology

Instructor

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Time & location

Tuesdays, 10:00-11:00am: lecture 1
Thursdays, 10:00-11:00am: lecture 2
Fridays, 10:00-10:40am: seminar/discussion

Classroom

UOG Marine Lab classroom

Office hours

Tuesday & Thursdays 1-2pm in my office (ML room 124) or right after class.

Course materials

Papers and book chapters will be provided as pdfs. The following textbooks are recommended but not required and can be borrowed for scanning and copying:

- Barton et al. 2007 Evolution. Cold Spring Harbor Laboratory Press.
- Hahn 2018 Molecular Population Genetics. Oxford University Press.

Moodle

The UOG moodle webservice will be a major component of this class for communication, information, exam submission and the dissemination of reading materials and grades. Please sign up and let me know if you have any problems asap!

Grading

Learning outcomes will be assessed in oral class discussions and presentations, weekly quizzes and written examinations. Your final grades will be compiled as follows:

- 30% Participation grade, awarded daily for active participation during lectures and discussions. You should plan to say something relevant(!) at least once a week, at least on Fridays.
- 25% Presentation grade, awarded once per semester per student for a presentation during Fridays seminar and discussion class.
- 15% Midterm exam, one, due on Tuesday September 18.
- 30% Final exam, due on Tuesday December 4.

Both exams have to be written on personal computers to be submitted electronically on moodle. They will consist of essay questions that can be answered with full source access. All answers will be checked automatically against all other exams and the internet, including virtually all textbooks, scientific journals and other sources to detect plagiarism and Make-up exams are not possible except under exceptional circumstances and only after discussion with me.

- >99% = A+; 93-98% = A; 90-92% = A-
88-89% = B+; 83-87% = B; 80-82% = B-
78-79% = C+; 73-77% = C; 70-72% = C-
68-69% = D+; 63-67% = D; 60-62% = D-
<60% = F

Attendance is expected but required only for your participation grades. Please be on time for class, late arrivals will be marked down on their participation grade.

Seminar presentations

Presentations should start on time (10:00am) and last about 20min. Major results and conclusions of the presented paper should be clearly indicated. Slides should contain as little text as possible and should be discussed, not read out loud. Figures and tables need to be explained properly.

Academic dishonesty

All assignments and tests must be your own original work.

Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without adequate acknowledgement of the original source. 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.

Quotations are no allowed on take home exams, even if clearly indicated.

Plagiarizing in the exams may result in a score of 0 for that exam. 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 and contact me.

Other Issues

Unforeseen circumstances may make it necessary to amend parts of this syllabus. In such cases, I will inform you in class, by muddle or email, of the changes to be made and, whenever possible, will consult with you prior to initiating the change.

Course description (as defined in the course catalog)

BI525 EVOLUTIONARY BIOLOGY (3) F/Even Years

This course provides a survey of the origin and evolution of life on Earth, exploring the history and major features of evolutionary change through time and the mechanisms responsible for those changes. The course will also consider evolutionary aspects of genetics, development, ecology, biogeography, systematics and paleontology. *Prerequisite: Genetics (BI315) or consent of instructor.*

Course content (as defined in the course catalog)

The course will cover the following topics: (1) Historical evolution: the origin and history of life, including unicellular forms, plants, animals and humans; (2) Patterns of evolution: origination, diversification, and extinction; (3) Origin of evolutionary novelties; (4) Evolution of diversity: speciation, biogeography, and systematics; (5) Mechanisms of evolution: population biology and population genetics.

Course update

This course was originally designed in 1993, i.e. 25 years ago. Several sections of this syllabus (e.g. the course description above) still reflect this original design since changing course descriptions is a major administrative endeavor. However, a lot of things happened in evolutionary biology in the last 25 years. In particular molecular biology and genetics have revolutionized our understanding of evolution. Therefore, I emphasis both genetics and evolutionary processes (topics 3-5 in catalog course content) as major component in this updated course version.

Institutional learning objectives (as defined in the 2018-2019 Graduate Bulletin)

Mastery of critical thinking and problem solving (a)

Assessed in classroom participation, presentation(s), quizzes and exams

Effective oral and written communication (b)

Assessed in classroom participation, presentation(s) and exams

Responsible use of knowledge, natural resources, and technology (c)

Assessed in presentation(s) and exams

Program learning objectives (as defined in the 2018-2019 Graduate Bulletin)

Demonstrate knowledge of basic organismal and ecological principles (a)

Assessed in classroom participation, presentation(s), quizzes and exams

Demonstrate knowledge of basic cellular and molecular-level principles (b)

Assessed in classroom participation, presentation(s), quizzes and exams

Demonstrate knowledge of the latest advances in a variety of fields in biology (c)

Assessed in classroom participation, presentation(s), quizzes and exams.

Demonstrate the ability to disseminate scientific concepts and research findings in a variety formats (e.g., written and oral) (d)

Assessed in classroom presentation(s) and exams.

Student learning objectives (as defined in the course catalog)

a) Analyze the evolutionary history of life on the Earth;

b) Outline how life originated;

c) Evaluate paleontological data to measure speciation and extinction rates;

d) Analyze how the theory of natural selection provides a causal mechanism for adaptive evolution and speciation;

e) Relate the theory of biogeography to speciation patterns;

f) Demonstrate understanding how genetic variation provides the source of all evolutionary change;

g) Evaluate the roles of mutation, selection, population structure and non-random mating in producing evolutionary change;

h) Analyze how genetics and selection produce ecological adaptation.

Assessed in classroom participation, presentation(s), quizzes and exams.

General UOG rules and regulations:

Student Workload

Expect to spend a minimum of two hours in preparation for each hour in lecture.

Drop dates

University policy sets the drop dates for classes. You can withdraw from classes “voluntarily” until mid-October without notifying me and as late as the end of the semester with my signature on a withdrawal form. You can track your standing in class on moodle.

UOG special needs

Students with special needs must make arrangements through the ADA office. The University makes every attempt to accommodate such requests (see below). Students who cannot meet the requirements of a particular field trip must discuss the problem with me several days in advance.

UOG disabilities policy

In accordance with the Americans with Disabilities Act (ADA) of 1990 and the Rehabilitation Act of 1973, the University of Guam does not discriminate against students and applicants on the basis of disability in the administration of its educational and other programs. The University offers reasonable accommodations for a student or applicant who is otherwise qualified, if the accommodation is reasonable, effective and will not alter a fundamental aspect of the University's program nor will otherwise impose an undue hardship on the University, and/or there are not equivalent alternatives. Students are expected to make timely requests for accommodation, using the procedure below*. If appropriate, the University may choose to consult with such individuals, at or outside the University, to provide expertise needed to evaluate the request for accommodation. Each student bears the responsibility for initiating and then documenting a disability-related request for accommodation in the manner requested in this Policy. Full text at:

www.uog.edu/dynamicdata/EqualEmploymentOffice.aspx?siteid=1&p=66

Family Educational Rights & Privacy Act (FERPA)

UOG is bound by the policies of the Family Educational Rights & Privacy Act. This means your educational records and personal information are protected by law. Please consult the FERPA web site for more information: <http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html>

UOG tobacco-free policy

Pursuant to Board of Regents Resolution No. 13-24, the University of Guam (UOG) has a total ban on the sales, smoking and the distribution and use of tobacco and tobacco-based products on the UOG Campus, and properties. The purpose of this policy is to protect the public health and welfare by prohibiting smoking and the use of tobacco products or simulated smoking devices, including but not limited to E-cigarettes, on the UOG campus and properties; to guarantee the right of nonsmokers to breathe smoke-free air, while recognizing that the need to breathe smoke-free air shall have priority over the desire to smoke; and to encourage a healthier, more productive living/learning environment for all members of our University community.