EVOLUTIONARY GENETICS

BSCI 246
Spring 2004, Tu/Th 11:00-12:15

Instructor:
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Office Hours: 11-1 Tu/Th (or by appointment)
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Prerequisites: This is an upper level course that builds on information covered in previous courses within the department. Of particular importance are BSCI 205 (Evolution) and BSCI 210 (Principles of Genetics). If you have not successfully completed both of these courses, then please speak with me.

Course content: This course covers basic population and quantitative genetic principles and then moves into more advanced (and more conceptual) ‘special’ topics such as the nature and origin of species, conservation genetics, and the evolutionary consequences of genetic modification and transgene escape.

Class structure: Because this course surveys an extremely broad field, lecture will be the primary format for instruction. For each lecture, a printed (but incomplete) PowerPoint presentation will be handed out at the beginning of class. These handouts will include figures, tables, etc., but will be incomplete with regard to the concepts covered in lecture. Please note that these handouts are provided as a note-taking aid, and are not intended as a replacement for regular classroom attendance. If you have any questions, or if I say something that needs clarification, PLEASE INTERRUPT ME AND ASK QUESTIONS! Because 75 minutes is a long time for a lecture class, we will take a short break somewhere near the middle of each lecture. During this break, you’re welcome to stand, stretch, breathe, ask questions, or make a (very) quick run to the restroom.

Discussions: In addition to regular lectures, there will be three in-class discussions. These discussions will be student-led, and will roughly correspond to the three major sections of the course (Population Genetics, Quantitative Genetics, and Special Topics). Three students (depending on final enrollment) will be in charge of each discussion, and will be responsible for choosing papers (in consultation with me), preparing a short presentation of the papers, and then leading the ensuing discussion. All other members of the class are expected to read the papers, prepare a list of three (or more) insightful discussion questions pertaining to the papers of the day and, finally, to participate in the discussion. Let’s keep things interesting!

Readings: Much of our reading will come from Connor and Hartl’s “Primer of Ecological Genetics.” This is a brand new book that won’t actually be released for sale until the first week in February. I have arranged with the publisher for us to have pre-publication access to the early chapters, which will carry us through until the book is available at the bookstore. I will also periodically assign outside readings that either cover topics not included in the textbook, or treat certain subjects in greater depth than the book does. These readings will be made available either in class or on Prometheus, or I will put them on reserve in the library.
**Homework:** You will receive two homework assignments that should help you prepare for the in-class exams (see below). Each assignment will be handed out on a Thursday and will be due at the beginning of class on the following Tuesday. Because I will be making a homework key available to you that day (for exam preparation) please note that I cannot accept late homework assignments. Legitimate, documented excuses will be accepted – I’ll just ignore that assignment when calculating your final grade. Otherwise, missing homework assignments will result in a zero.

**The Project (Graduate Only):** In addition to the other requirements of this course, graduate students will be required to complete an independent project. This project will consist of a short paper written on a topic of your choice. Obviously, topics should fit with the subject matter covered in this course. The paper should take the form of a literature review, and should be 8-10 typewritten pages in length (not counting references). Please use a 12-point font (Times or equivalent), one inch margins, and double-space your writing. Project grades will be based on completeness, reasoning, creativity, writing, and overall quality. The project must be turned in to me no later than 5 PM on the last day of lecture (Tuesday, April 27). Unless accompanied by a legitimate, documented excuse, a late project will be scored one letter grade lower for each calendar day following the due date. For example, an A project would receive a C if it was handed in two days late.

**Grading:** Grades will be based on the two homework assignments, your performance as a discussion leader, class participation, the project the two in-class exams, the project (grad students only), and the final. Each exam will typically be composed of a variety of question formats including multiple choice, true/false, short answer, problem solving, and short essays. Exam questions will be taken from material covered in class (lecture and discussion). Approximately one-third of the final exam will cover material from the lectures after Exam #2, and the other two-thirds will be cumulative.

**Final grade calculation:**
- Homework: 25 pts each (50 pts total)
- Leading Discussion: 30 pts (for the one that you lead)
- Participating in Discussion: 10 pts each (20 pts total for the two that you do not lead)
- In-class Exams: 100 pts each (200 pts total)
- Final Exam: 150 pts
- The Project: 100 pts (Graduate Only)
- Total: 450 pts (550 pts Graduate)

**Attendance:** Please try to avoid missing class, as the exams are based specifically on material covered in class. Although I will make all class handouts available on Prometheus, the handouts provide only a part of the information from lecture (see above) and are not intended as a substitute for coming to class. My own detailed notes will not be distributed. Should you miss a class when an exam is taken, a formal written excuse from a doctor must be presented or you will receive a zero. When an appropriate excuse is presented for a missed exam, you will be allowed to take a challenging make-up exam.

**Academic Honesty:** While I do not anticipate any problems with regard to academic honesty, I want to make clear that the Vanderbilt University Honor Code applies to all graded work in this course. Individuals found to be in violation of the Honor Code will receive a zero on their assignment/exam. If you have any questions with respect to the Honor Code, please consult the Student Handbook. Uncertainty with regard to the Honor Code does not excuse a violation.