

Department of Biology Course Outline

SC/BIOL 3300 3.00 Origins and Development of Biological Theories
Fall 2016

Course Description

An analysis of the origins and development of biological theories in regard to evolution and ecology. Three lecture hours. One term. Three credits.

Prerequisites

Note: Open only to students in the third or final year of a biology program, or with permission of the instructor. Only open to students who have completed a minimum of 12 credits at the 2000 level in Biology courses. Course Credit Exclusion: SC/BIOL 4300 3.00

Course Instructors and Contact Information

Professor Jan Sapp
Email: biol3200@yorku.ca
Office: Farquharson 306.
Office hours: Thursdays 13:30-14:30 by appointment: jsapp@yorku.ca

Schedule

Class time: Thursdays 14:30-17:30
Location: LSB101

Evaluation

Midterm test: 25% October 13- based on lectures and required readings.

Research Proposal: 10%, due date October 7. Assessment will be based on formulation of the questions of your essay highlighting the significance of the research you will write about, and how you will investigate the origins and development of that research. ~300 words, plus an indicative bibliography.

Oral Presentation: 15%. Dates to be assigned. Assessment will be based on the organization of your 10-minute presentation, and your responses to questions from the class. Please note **10% of the value of your mark will be deducted for presentations exceeding the allotted length of time. Hint: Practice**

with a timer.

Essay: 50% due December 1. Length ~2000 words per student, plus references: 12 font, double spaced.

Your essay will be assessed according to the following weighted criteria:

- Identification, understanding, and analysis of *primary sources, i.e. journal articles*. **Please note: only literature acquired from scholarly journals** and books may be used (not internet sites). Minimum of six papers should be referred to in a scholarly way, not simply listed.
- Ability to situate the topic within its larger setting: Who? What? Where? When? Why? How?
- Your understanding of the theoretical and/or practical implications.
- Organization and coherence; writing, grammar and scholarly referencing style.

Class participation Up to 10% of final mark will be deducted for lack of class attendance and/or not having read the required reading for the week: 10% deducted for two classes missed; 15% for three classes missed.

See also "course policies" section below

"Final course grades may be adjusted to conform to Program or Faculty grades distribution profiles."

Important Dates

Dates of Tests/Exams, Due Dates of Major Assignments, First class, last class, drop date, etc.

First day of Class; September 8

Research proposals due: October 6

Mid term test: October 13

University "reading days:" October 27-30

Final term paper due: December 1

Last date to drop course without receiving a grade: November 9.

NOTE: for additional important dates such as holidays, refer to the "Important Dates" section of the Registrar's Website at <http://www.yorku.ca/yorkweb/cs.htm>

Resources

Course Moodle: Required readings for the lecture part of the course and lectures. PowerPoint slides will be made available to the class through the course Moodle site.

See also "Getting started" on the course Moodle site for references to suggested topics

Learning Outcomes

Upon successful completion of this course, you should have acquired some understanding of some of the major changes that have occurred in evolutionary biology and ecology resulting from molecular phylogenetics. You should have improved your ability to read scientific literature critically, to write a scholarly report, and to give an oral presentation.

Course Content

The aim of this course is to introduce you to some major contemporary trends in evolutionary biology and ecology. My lectures will be focussed on the evolutionary ecology of tropical biodiversity. Your essays will be focussed on various contemporary issues in ecology and evolution and the impact of molecular phylogenetics. You will learn how to analyze primary scientific literature and situate the development of new research programs, and to examine the complex relations between theory and techniques. You will work in groups, write essays, and give oral presentations. Suggested research topics include: human microbiomes, evolutionary medicine, human origins, epigenetics, hybridization in evolution, convergent evolution origins of life, the origins and evolution of viruses, ecology and evolution of emerging infectious diseases, mass extinctions.

Class Schedule

September 8: **Introduction, methods for writing a term paper for this course, topics and forming groups.**

September 15: **Three Domains, Symbiosis and Lateral gene Transfer.**

Required reading:

Gilbert, Scott, Jan Sapp, and Alfred Tauber, "A Symbiotic View of Life, We have never been individuals," *Quarterly Review of Biology* 87(2012): 325-341.

September 22: **The other world: Is evolution different in the Tropics?**

Required readings: on moodle

Jan Sapp, *Co-existence: The Ecology and Evolution of Tropical Biodiversity* Chapters 1, 3, 4, 5

September 29: **How can so many species live together?**

Required readings: on moodle

Jan Sapp, *Co-existence: The Ecology and Evolution of Tropical Biodiversity* Chapters 9, 10, 11, 13,

October 6: **Adaptations, cryptic species, insects and microbes (proposals due)**

Required readings: on moodle

Jan Sapp, *Co-existence: The Ecology and Evolution of Tropical Biodiversity* Chapters 15, 16, 17, 18

October 13: Test on lectures and required readings

October 20: Workshop

November 3: Student Presentations

November 10: Student Presentations

November 17: Student Presentations

November 24: Student Presentations

December 1: Student Presentations

Course Policies

MISSED test or missed due date on assignment:

Assignment and midterm dates are non-negotiable. They have been structured to distribute your workload over the term. There are no alternative assignments that can be completed for you to increase your mark, and the value of any missed assignment cannot be transferred to another. **20% of the value will be deducted for any assignment not completed on the due date.**

- You must contact (email) me within TWO (2) days (48 hours) of missing a midterm test. If you missed the test with a legitimate documented reason, permission may be granted to take a makeup test. All documentation supporting your excuse for missing a test must be received within ONE (1) WEEK of the missed test, or assignment's due date (or as soon as you are able to return to the university if you are ill for more than a week).
- Only a 'York Attending Physician's Statement Form' (can be downloaded as part of the Petitions Package) OR a similarly detailed doctor's note (i.e., NOT a form stating only that the student visited the clinic) will be accepted for medical excuses for missing tests and due dates for assignments. Documentation must cover the date of the missed test and/or assignment. Death of an immediate family member requires a death certificate or letter from the funeral director. Makeup tests may differ in format from the original test (i.e., include more short/long answer questions). **If appropriate documentation is NOT provided within ONE (1) week, a zero will be earned on the missed test and/or assignment.**
- NOT all situations will be accommodated; for those that are not, you will earn a zero on the missed midterm and/or assignment. Circumstances not accommodated include, but are not limited to: schedule confusion, sleeping in, missing the bus, rain or snow/ice causing increased travel time to campus, personal endeavours (including a job), busy lives (including too many assignments or tests that same week/day, etc.)

Recording Lectures:

Photographs or video recordings of any portion of the lectures (including slides) are PROHIBITED. Images and material presented are subject to Canadian copyright law.

Audio recordings are permitted provided they are used ONLY as a personal study aid, and are NOT sold, passed on to others, or posted online. The lectures are the intellectual property of the professor and cannot be distributed without permission. They may ONLY be recorded from your seat. No recording devices are permitted on the front table, lectern and computer area.

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University Policies

Academic Honesty and Integrity

York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty (<http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve students' research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website at - <http://www.yorku.ca/academicintegrity/>

Access/Disability

York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.

Student's in need of these services are asked to register with disability services as early as possible to

ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

Additional information is available at the following websites:

Counselling & Disability Services - <http://cds.info.yorku.ca/>

Ethics Review Process

York students are subject to the York University *Policy for the Ethics Review Process for Research Involving Human Participants*. In particular, students proposing to undertake research involving human participants (e.g., interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an *Application for Ethical Approval of Research Involving Human Participants* at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately.

Religious Observance Accommodation

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course director immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at

http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf (PDF)

Student Conduct in Academic Situations

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at - <http://secretariat-policies.info.yorku.ca/policies/disruptive-and-or-harassing-behaviour-in-academic-situations-senate-policy/>