Faculty of Science YORK UNIVERSITÉ UNIVERSITY

Division of Natural Science

http://natsci.info.yorku.ca/

Course Outline

SC/NATS 1940: Biodiversity and Conservation Biology
Y 2017-18
Tuesdays and Thursdays, 11:30-13:00, VH-C

Course Instructor(s) and Contact Information

- Course Director: Dr. Mark Vicari, mvicari@yorku.ca.
    - Please use this email as the address of first contact for all course-related matters.
    - Send emails from your @my.yorku.ca email as others including hotmail, gmail, yahoo…. may be filtered.
    - Emails will be answered within 2 working days.
- Office hours, 206 LUM: Mondays 11:00-12:00; Tuesdays 13:00-14:00; Fridays 13:00-14:00

Email Policies and Etiquette

- You **MUST** use your Yorku email address when emailing instructors and others within the university. Other email addresses (e.g., Hotmail, Gmail) are filtered out by the university's email system and do not reach their intended recipient. **Emails from addresses other than a yorku.ca email will NOT receive a response.**
- **Subject line:** your name, student number, and a brief indication of topic (*e.g.,* 'Question regarding natural selection'). We receive a lot of email and this practise helps us sort emails efficiently. **Emails without the required information will not receive a response.**
- **Include your NAME at the end of each email.**
- **Remember, you are in a professional environment,** and thus all your written correspondence, including emails, should be professionally conducted. Text-messaging language is unacceptable in emails to anyone (instructors, TAs, staff, etc.) within the university, as are emails written entirely in upper-case letters, etc.
- Please allow 2 working days (48 hrs) for a response.
- Before emailing your instructor, **consider the nature of your question and whether another resource should be consulted first**. Don't be surprised if you don't receive a response to a question that could be easily answered by looking at the Course Outline or the Moodle site. Also, don't write to the instructor to ask what you missed in class—ask classmates instead.
- If you have a question regarding course material that is long and complicated, please attend your instructor's office hours.

Course Description

Humans have always had an interest in the Earth's rich variety of life. This course acquaints students with that diversity at the genetic, species, and ecological levels. Topics include scientific developments in the understanding and classification of diversity, including modern techniques for determining relatedness. Students will develop a working familiarity with the Earth's major groups of organisms and will be able to characterize them by reference to ways of living, ways of reproducing, and special adaptations. Patterns of change in diversity over time, including evolution and extinction, will form part of the material covered. A major theme will be the Biodiversity Crisis caused by multiple modern threats to diversity, and scientific and other responses to such threats will be assessed.

Course Learning Outcomes

Upon successful completion of this course students should be able to:

- Describe the nature of science, including the processes by which scientific knowledge comes to be accepted as valid.
- Explain, in basic terms, how evolution (via mechanisms including, but not limited to natural selection) shapes life on earth, and the necessity of genetic variation.
- Describe the history of evolutionary thought, and the evidence for evolution and the common ancestry of all life on earth.
- Describe the system used to classify species and explain how to use that system to obtain information about species.
- Describe the characteristics of the major groups (kingdoms) of organisms.
- Construct a dichotomous key to identify species within a particular group.
- Use a spreadsheet program (Excel) to analyse and present scientific data.
- Explain the link between an organism's DNA and its physical traits, and how processes that occur at the molecular level are linked to the generation of biological diversity.
- Describe the mechanisms by which new species are created, difficulties in assigning a universal definition of the term 'species', and why the term can vary between groups of organisms.
- Describe the techniques used to reconstruct the history of life and biological diversity on earth.
- Describe patterns of biodiversity distribution in the world today, and the factors that have played a role in influencing those patterns, including continental drift.
- Describe the roles that mass extinctions have played in shaping the history of life.
- Explain how biodiversity is measured.
- Describe the factors that have lead to the current biodiversity crisis, using case studies as examples.
- Describe approaches used in biological conservation and how those approaches relate to evolutionary processes.
- Describe factors that influence population size, the reasons for the recent increase in the human population, and the implications of that increase for biodiversity.
- Describe the threat that climate change poses to biodiversity, evaluate approaches that have been taken in the past to address the threat, and discuss what steps should be taken now.

Evaluation

• Four Assignments (@ 7% each)	28%	(2 per term)
• In-class questions/participation (REEF polling)	8%	
• Mid Fall Test	16%	(Tues Oct 17th at 11:30 am)
• Late Fall Test	16%	(Thurs Nov 30th at 11:30 am)
• Mid Winter Test	16%	(Thurs Feb 15th at 11:30 am)
• Spring Test	16%	(Thurs Apr 5th at 11:30 am)

- **Test format:** Approx. 70-80% of marks based on multiple choice questions; 20-30% based on short answer questions
- **In-class questions** will be conducted using the smartphone-based REEF system. Questions will be marked for participation only; there is no penalty for submitting an incorrect answer, as long as an answer is submitted.
- The lowest 20% of polling sessions (lectures) will be dropped in calculating student participation grades. This is to account for dead cellphone batteries, classes missed for any reason, etc. Additional exemptions for classes missed due to illness will not be granted (i.e. they will count among the 20% of lectures that are automatically dropped in calculating your participation grade).

Course Materials

- **Required Text**: Biodiversity and Conservation Biology 1940 Custom Text available at York Bookstore.

Laboratory/Tutorial

- This course does not have a laboratory or tutorial component

Course Content and Format

Topics covered will include (not necessarily in this order):

1. The Science of Biology
2. Types of Biodiversity
3. Evidence for Evolution
4. Processes of Evolution
5. Genetic diversity: Inheritance
6. Genetic diversity: Gene pools
7. Ecosystem diversity
8. Classification of organisms
9. Species diversity over time
10. Species diversity now
11. Major Groups: The obscure
12. Major Groups: Plants
13. Major Groups: Animals
14. Human effects: Landscape change
15. Human effects: climate change
16. Human effects: alien species
17. Human effects: exploitation
18. Sustaining biodiversity

Course format: two 80-minute lectures per week.

Math Content

- Grade 11 level

Course Policies

- **Questions and Concerns should be directed to**
  - Dr. Mark Vicari (Course Director), mvicari@yorku.ca
- **Posting of lecture material online**
  - Lecture slides (.pptx) will be posted on the class Moodle website within 24-48 hrs after each lecture. A preview version of the lecture will usually be posted 1-2 hrs prior to each lecture.
  - The course is not designed as a distance course. Some material will only be delivered during the lecture.
- **Missed tests**
  - Students who miss a test due to an illness or emergency must provide supporting documentation to the instructor as soon as possible. Tests missed due to medical circumstances must be supported by an Attending Physician's Statement, which can be downloaded from: **http://www.registrar.yorku.ca/pdf/attending-physicians-statement.pdf** or a statement by a psychologist or counsellor: **http://myacademicrecord.students.yorku.ca/pdf/counsellors-statement.pdf**
  - **Students are NOT expected to disclose the nature of the illness.** The document must specify: 1) date of consultation; 2) contact information (e.g. phone number of the hospital; legible name of the health provider) that would allow verification of the document; 3) a statement that the student would not have been able to attend class (or carry out activities) during the relevant period of time. The documentation must be dated on the same day as the test or earlier, or it will not be accepted. Appropriate documentation must be submitted to Dr Vicari as soon as possible after the test.

- For students who submit approved documentation, a makeup test will be arranged approximately one week after the date of the original test (details will be posted on the course website).
- Note that medical documentation is not required for missed REEF polling sessions; the lowest 20% of lectures will be dropped automatically in calculating your participation grade (see Evaluation section above).

- **Grading and late penalties**
  - In order to be fair and consistent to the entire class, individual grades are not negotiable and "extra credit" assignments are not provided at any point during or after the course. Please contact the instructor about a grade **only** if there is a clear error (calculation, clerical, etc.) within two weeks of the grade being made available to you.
  - A penalty of 10% per day will apply to all material handed in late.
- **Conduct during classes**
  - Please refrain from texting, chatting, and attending to websites during lectures as these activities are disruptive.

Copyright and Intellectual Property

- **Photographs or video recordings of any portions of the lectures (including the slides) are prohibited.** Images and material presented are subject to Canadian copyright law.
- Personal 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. Lectures are the intellectual property of the instructor and cannot be distributed without permission.

University Policies

Important Sessional Dates

Includes sessional start and end dates, drop deadlines, and withdrawal dates.
See the Office of the Registrar website at http://www.registrar.yorku.ca/enrol/dates/

Academic Honesty and Integrity

Academic honesty requires that persons do not falsely claim credit for the ideas, writing or other intellectual property of others, either by presenting such works as their own or through impersonation. Similarly, academic honesty requires that persons do not cheat (attempt to gain an improper advantage in an academic evaluation), nor attempt or actually alter, suppress, falsify or fabricate any research data or results, official academic record, application or document. Finally, academic honesty requires that persons do not aid or abet others to commit an offence of academic dishonesty, including intentional acts to disrupt academic activities.

Suspected breaches of academic honesty will be investigated and charges shall be laid if reasonable and probable grounds exist.

Academic Honesty and electronic devices during assessments (*e.g.* exams)

- Internet capable and personal storage devices of all kinds must be turned off, including vibrate. These and any other unauthorized material must be placed under the student's chair and should not be accessed at any point during the exam. Failure to comply with directive may be considered a break of academic honesty.
- See http://registrar.yorku.ca/exams/tipsheet

Please familiarize yourself with the full Senate Policy on Academic Honesty, found at http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/

Please also familiarize yourself with the SPARK Academic Honesty tutorial found at https://spark.library.yorku.ca/academic-integrity-what-is-academic-integrity/

Academic Accommodation for Students with Disabilities

York University shall make reasonable and appropriate accommodations and adaptations in order to

promote the ability of students with disabilities to fulfill the academic requirements of their programs.

The nature and extent of accommodations shall be consistent with and supportive of the integrity of the curriculum and of the academic standards of programs or courses.

Please familiarize yourself with the full Senate Policy on Academic Accommodations for Students with Disabilities, found at http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/

Note: Students should submit accommodation letters from Counseling and Disability Services (CDS) to the course instructor within the first two weeks of the course or as soon as issued.

Counseling and Disability Services - http://cds.info.yorku.ca/

York Accessibility Hub - http://accessibilityhub.info.yorku.ca/

Note: A student registered with CDS, and choosing to write with Alternate Exams, is responsible for making the appropriate writing arrangements within the timeframes outlined by Alternate Exams.

Alternate Exams - http://altexams.students.yorku.ca/

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.

https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/15/wo/kmHGekTpzKLX6XYKBXYc8M/0.3.4.62.0

Note: Students who will have an academic conflict as a result of a religious observance, at any point in the term, should make the instructor aware of such at least three weeks prior to the conflict.

For conflicts occurring during an official examination period, please complete the Examination Accommodation Form available at http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf and submit to your instructor at least three weeks prior to the final exam.

Student Conduct in Academic Situations

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect and to refrain from actions disruptive to such a relationship. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom 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. A statement of the policy and procedures regarding disruptive and/or harassing behaviour by students in academic situations is available on the website of the University Secretariat (http://secretariat.info.yorku.ca/).

Division of Natural Science Resources

NATS-AID

Free peer tutoring for students enrolled in Natural Science Courses.
See http://natsci.info.yorku.ca/nats-aid/

M-AID in NATS (Math Aid)

Free math help for students enrolled in Natural Science Courses (TA tutors)
See http://natsci.info.yorku.ca/m-aid-in-nats/

Other Resources

Learning Commons
The Learning Commons brings together key supports for your learning: writing, research, learning skills and career services. http://www.library.yorku.ca/cms/learning-commons/

goSAFE
goSAFE is a complimentary service provided to the York Community. At the Keele campus, goSAFE has two routes: North Route & South Route which will safely transport community members by vehicle from one specified hub to another on campus. goSAFE operates seven days a week, all year round, including University closures (with the exception at Glendon during the Christmas holiday closure).

Call the goSAFE office at 416-736-5454 or extension 55454 during hours of operation. Please give your name, location and destination. http://www.yorku.ca/goSAFE/

Mental Health and Wellness at York University
Outlines a variety of resources available to support mental health and wellness
http://mhw.info.yorku.ca/resources/resources-at-york/students/

Good2Talk
Post-Secondary Student 24 hour Helpline
http://www.good2talk.ca/ 1-866-925-5454