

BIOLOGY 4270 3.0

Reproduction

Course description:

This course assumes that you have fundamental knowledge and understanding of basic biological processes, including DNA replication, cell division, genetics, natural selection, life history, and heredity. Essentially, reproduction looks at how organisms pass their genetic material on to subsequent generations. In this course, we use the term reproduction broadly, as it relates to a range of biological fields including behaviour, physiology, anatomy and evolution. While we will discuss human reproduction, it is **not the focus** of this course. Rather we will explore the complexities of reproduction in a variety of species. Written assignments and group seminars provide you with an opportunity to explore in more depth areas of interest to you.

While there is a component of the course that is lecture-based, it is only one part of the course; rather, this course is set up to help you to **develop your skills in writing, thinking critically, and presenting**. Class time is focused on working through interesting/complex topics/concepts and we will rely on primary literature to elaborate on these issues. You may need to consult resources outside of those provided in the course in order to understand more complex issues—this is a great skill to develop (and is useful in the course assignments). I am here to help guide your learning; please ask me for guidance. If you are struggling with an idea: talk to your fellow students (in class, on Moodle, study groups), find and read additional references, and/or come see me. As well, I will give you time, in class, to work on your team seminars.

COURSE LEARNING GOALS:

- Explain major concepts, methodologies, and issues in reproduction, demonstrating detailed knowledge in certain topics (*i.e.*, course topics).
- Gather, review, evaluate, and interpret information/research about reproduction (in reviews and primary sources).
- Summarize key points from a piece of scientific literature to provide relevant information/support in a written scientific assignment.
- Given an experimental figure (graphic) and associated experimental information, describe in your own words what is shown.
- Apply learning from other areas (*e.g.*, genetics, ecology) to reproductive problems/situations/issues.
- Communicate (orally and in writing) reproductive concepts clearly to peers and a scientific audience.
- Prepare clear, appropriately formatted figures and/or tables to represent and communicate experimental data.
- Provide editing and/or evaluation of classmates' written and oral assignments.
- Work effectively and collegially with others in a class setting.
- Use technology (*e.g.*, Moodle forums, Dropbox) to share information while working on a project.

Course Instructor: Dr. Rozhan Sheykhani
Office: 314/317 Farquharson
Email: biol4270@yorku.ca
Office hours: 2-3 PM Tuesdays; 2-3 PM Thursdays by appointment.

Please note: If you contact me by email, text messaging language is UNACCEPTABLE. And I really like salutations and signoffs...don't be a mystery student.

Lectures: Tues. & Thurs. 11:30 am, Duration: 90 minutes, Rm. 101 LSB

Textbook: There is no textbook for this course. Original and review journal articles (as well as lecture information) will be used to examine various aspects of reproduction in diverse array of organisms. **Students are expected to read relevant/assigned papers.** Some assignments will also require additional research and reading of the scientific literature.

Website: The BIOL 4270 Moodle website will include announcements, course materials and resources. <https://moodle.yorku.ca> **Course announcements** from the Moodle site may be sent to your **Yorku email; please check all your email accounts daily.**

Important dates:

The drop deadlines (last day to drop a course without receiving a grade): **Friday Nov 7th**
For all important dates, please check: <http://www.registrar.yorku.ca/enrol/dates/fw14.htm>

GRADING SCHEME:

Midterm 1	22.5% (Oct 7 th)
Midterm 2	22.5% (Nov 6 th)
Team Seminar	20% (Nov. 11 th – Dec 4 th)
Critical review of a primary research article	20%
	(Article must be approved by Tuesday, Oct 14 th)
Annotated Bibliography	3% (due Nov 13 th , in class)
Peer Review	4% (due Nov. 20 th , in class)
Critique	13% (due: Thursday Nov 27 th , in class)
Activities (in-class, includes quizzes, presentation reviews, etc.)	15% (throughout term)

Accommodation Statement:

Students who feel that there are extenuating circumstances that may interfere with their ability to successfully complete the course requirements are encouraged to discuss the matter with the Course Director as soon as possible. Students with physical, learning or psychiatric disabilities who require reasonable accommodations in teaching style or evaluation methods are encouraged to consult with the Office for Persons with Disabilities (OPD) and ensure that requests for appropriate accommodations are arranged with the Course Director early in the term. Please provide me with an accommodation letter **by Thurs. Sept. 18th**.

Religious Accommodation Guidelines

Students, who because of religious commitment cannot meet academic obligations, other than formally scheduled examinations...on certain holy days are responsible for giving their instructor **reasonable notice (*not less than 14 days*), of each conflict**. Solutions (up to the discretion of the instructor) may include: rescheduling the evaluation; preparing an alternative evaluation for that particular student; or recalculating the total evaluation in the course to eliminate the component that has been missed. You may be asked to produce a note from a local religious leader.

Academic integrity:

Students are expected to be familiar with and follow York University's policies regarding academic integrity. Please consult the lab manual and website below for more details:

<http://www.yorku.ca/academicintegrity/students/index.htm>

At this point in your academic career, it is expected that you understand what constitutes academic dishonesty. Charges of plagiarism or other academic dishonest behaviour is subject to much heavier penalties than if you were in first year. I would rather you not hand something in than plagiarise it!

Student information sheet – please see:

<http://www.yorku.ca/secretariat/senate/committees/ccas/documents/Course%20Outline%20-%20Student%20Info%20Sheet%20-%20March%2027-06.htm>

TurnItIn.com

In this course, you will be asked to submit electronic copies of your written work to TurnItIn. This will ensure that your hard work, having been added to the database, cannot be plagiarized in the future by students at any university. More information on the TurnItIn registration and password will be provided later in the course.

You may opt not to use TurnItIn. If so, then you will be required to submit rough copies of your assignment, along with rough notes, copies of the articles you cited, with hand-written notes in the margins, dated printouts of database searches, *etc.*; in short, thorough documentation of your research.

Course Policies

1. Assignment and midterm dates are not negotiable.
2. The midterm is short answer, as well as interpretation and critiquing of figures, tables and experiments from scientific articles.
3. There are no alternative assignments that can be completed for students to increase marks.
4. If you miss a test with a legitimate documented reason, first you **Must** email me within **Two (2) days (48 hours)** of missing a test. Permission **may** be granted to take a makeup test. Only a 'York Attending Physician's Statement Form' OR a similarly detailed doctor's note (*i.e.*, NOT a form stating that you visited a clinic) will be accepted for medical excuses. All documentation supporting your excuse for missing a test must be received by me within 1 week of the missed test.
 - a. The midterms must be written in order to pass the course.
 - b. There will be no transferring of weight between various assignments.
5. The midterms and quizzes will include written questions. If you believe that an answer was marked incorrectly, you must submit a written rationale and the paper for remarking within 1 week of the test/quiz being made available to you. Re-marking is only possible for tests/quizzes written in **ink**; those written in pencil will **not** be remarked. **Note: remarking can result in the mark being raised, confirmed, or lowered.**
6. In order to be fair and consistent with regards to the entire class, individual grades are not negotiable. **Contact me about marks ONLY if there is a clear error in your mark (calculation, clerical, etc.), as soon as possible. It is highly unlikely that you will receive a response regarding any other mark-related queries. Also, note that there are NO extra credit assignments available.**
7. **Late assignments will have 10% deducted per day and will be accepted up to 3 days after the due date.** Submissions more than 3 days late will **not** be accepted. This is not negotiable.
8. **Articles for written assignment must be approved by the date shown.** Failure to have an article approved by that date will result in 10% penalty on the mark.
9. You will be held accountable for your role within your group for the Group Seminar and will sign a contract with your group.
10. Groups must meet with me at least once before presenting. Weekly group mini-assignments for which time is provided in class will count towards your group seminar mark or your activities mark.

POTENTIAL TOPICS (not necessarily in this order & subject to change):

- The bases of reproduction: Mitosis and meiosis overview:
Orthodox and unorthodox approach.
- Asexual reproduction, types of asexual reproduction.
- Sexual reproduction
- Why sex?
- Comparison of asexual and sexual reproduction, examining the advantages and disadvantages of each.
- Why sex? Ideas of how sex arose and why it stuck around.
- Mechanisms of sex determination.
- Evolution of X and Y chromosomes.
- Sexual selection – male competition, female choice, reproductive behaviour, sperm competition.
- Sex allocation
- Ethics of assisted reproductive technologies in humans
 - What drugs can enhance fertility and why?
 - Why is low sperm count an issue with human fertility?
 - How can a chemotherapeutic be used to increase a woman's fertility?
 - What can you do to increase male fertility?
- You can be genetically male, but physiologically female...
- Sperm competition means different things in different organisms.