

Division of Natural Science<http://natsci.info.yorku.ca/>**Course Outline**

NATS1660A: The Biology of Sex
Fall-Winter (Y term), 2017
Mondays 2:30pm – 4:30pm and Wednesdays 3:30pm – 4:30pm, SLH-D

Course Instructor(s) and Contact Information**Course Director/Instructor:** Dr. Tanya Da Sylva**Email:** TDcourse@yorku.ca

Contact information for your Lab TAs will be placed on Moodle

Office: 210 Bethune College; office hours will be posted to Moodle, outside of office hours you must make an appointment via email

Office hours are times when you can drop in (no appointment necessary) to ask questions and discuss course matters. Office hours are open to everyone and multiple people may be in my office at once, therefore office hours are not appropriate for private conversations. If there is something you wish to speak to me privately about please email for an appointment.

Email is not a substitute for office hour attendance. Many detailed or more complex questions cannot be well answered through email.

Please Note: Class is cancelled on September 20th.**Email Policies and Etiquette**

Email is the first contact for all course-related matters. I (T. Da Sylva) check email regularly during business hours. I will respond to emails as soon as time allows dependent on subject matter. You can typically expect a response within two business days. You should not expect a response on evenings, weekends or holidays.

To help keep email communication efficient please do the following*:

- Please check the syllabus, FAQs on Moodle, and your lab manual before sending an email. Emails with questions that can be easily answered by reading the course material may not be answered.
- Always send email from your @my.yorku.ca email address. Email from other sources (including gmail) tend to be filtered out by York IT and may not make it to my inbox.
- Have a detailed subject line and include the course code (for example: NATS1660 Questions about cell division).
- Somewhere in the email please include your full name and student number. If you use a different name than what is on your student card, it is especially important that you include your student number.
- Consider these emails professional communication; they should be clear and polite. No harassment, bullying, or violations of academic integrity will be tolerated.

**I may not respond to emails that fail to follow these guidelines*

Expanded Course Description

This course investigates the role of sexual reproduction in the living world. This course will investigate the genetic, evolutionary, and behavioural bases of sex, as well as its origins and its evolutionary impact. There are three lecture hours per week and two lab hours in approximately alternate weeks.

Topics cover a large range of material including: cellular reproduction and inheritance, sex determination, the role of sexual reproduction in speciation and evolution, evolution of reproductive systems and mating systems, impact of sexual reproduction on life histories and organismal fitness, and the anatomy and physiology of reproduction. Many topics will touch on sexual reproduction in humans and human evolution will be discussed. Sexual reproduction in non-human animals and plants will also be discussed in some detail.

Course credit exclusions: SC/NATS 1610 6.00, SC/NATS 1650 6.00, SC/NATS 1675 6.00, SC/NATS 1690 6.00. NCR Note: This course is not open to any student who has passed or is taking SC/BIOL 1000 3.00, SC/BIOL 1001 3.00 or SC/BIOL 1010 6.00.

Course Learning Outcomes

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

- Work effectively, within a group and individually, to gather, review, analyse and present scientific information.
- Describe how science is used to study life and discuss the limitations of the scientific method.
- Use knowledge of the scientific method to evaluate information.
- Use biological terminology correctly in discussions of reproduction.
- Describe mechanisms of sex determination and relate these mechanisms to discussions of the genetic and behavioural bases of sex.
- Describe the chemical nature of life and how biological macromolecules interact at a cellular level.
- Compare and contrast mitosis and meiosis, explaining the ways meiosis generates genetic variability among offspring.
- Explain how genetic information is passed from one generation to the next.
- Calculate the probability of a given outcome in a genetic cross (mating).
- Compare and contrast asexual and sexual reproduction.
- Identify the possible mode(s) of inheritance of a gene/trait from analysis of pedigrees and genetic crosses.
- Explain the roles of meiosis, gamete fertilization and germ cells in sexual reproduction.
- Describe reproduction in plants and animals.
- Relate genetic principles to population structure, speciation and evolution of organisms.
- Discuss the process of evolution and describe the lines of evidence that support evolutionary theory.
- Describe how sexual reproduction impacts evolution and how evolutionary forces can shape reproductive systems and behaviour.
- Relate modes of fertilization and parental care to discussions of and evolutionary forces, life history and reproductive strategies.
- Describe the evolution of mating behaviours.
- Compare prezygotic and postzygotic barriers to reproduction.
- Describe the role of genetic information and the environment in shaping an organism's reproductive strategies.
- Describe the development of human sexual characteristics and the events associated with sperm and egg development.
- Explain how DNA technology has changed science with respect to reproduction.

Evaluation

There are four components to your grade: Tests (four distributed over the year), Labs (see Moodle for schedule), Course Project, and Class Activities (both in-class and online).

Test 1: October 23rd worth 15% of your mark

Test 2: December 4th worth 15% of your mark

Test 3: March 5th worth 15% of your mark

Test 4: April 4th worth 15% of your mark

Labs: Approximately every two weeks, worth 20% of your mark

Course Project: due March 21st by 3:30pm, worth 10% of your mark

Class Activities: occur regularly throughout term, worth 10% of your mark

Your final letter grade will conform to the York Undergraduate Letter-Grade System. You should familiarize yourself with the definition of each letter grade.

Some more information (see Course Policies section below for information on missed/late components):

- Tests are held during class time and will begin, promptly, at the start of class. Most tests follow a 2-stage format (see Moodle for details).
- Labs are graded based on your pre-lab assignment (must be done by the start of your lab) and your laboratory exercise (completed in the lab), and may also include participation marks. The weight of the lab component given here and some other information differs from that in your lab manual. **In all cases, where the lab manual and this outline are different the information given in this outline will be used.**
- Course Project outline containing detailed information will be posted on Moodle.
- Class Activities will be marked based on completion (participation) and will consist of both in-class activities and activities posted to the course Moodle page. You will earn Activity Points for completing activities and at the end of term your Class Activities grade will be calculated out of 80% of the total available activity points (i.e., you can complete only 80% of the activities and still receive 100% on this component).
 - In-class activities (iClicker): in class you will be using iClickers (REEF). This Fall York will start supporting iClickers exclusively. iClicker allows you to use your own mobile device to answer in-class polls and quiz questions. Further information will be posted to Moodle.
 - Other activities: sometimes worksheets may be used in class and quizzes or other learning activities may be posted online (via the course Moodle page). The Activity Points assigned to each of these activities will be announced.

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.

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

Course Materials

Textbook (Required): Custom text for NATS 1660: **Biology of Sex**, available in the York University Bookstore.

Lab Manual (Required): NATS 1660 Lab Manual, available in the York Bookstore. You must purchase a new copy.

iClicker (REEF): Required for in-class activities; iClicker allows you to use a laptop, smartphone or tablet to respond to in-class questions. Further information will be posted to Moodle. Starting September 25th you will lose activity points if you do not respond to iClicker questions in class.

Laboratory/Tutorial

- The Lab schedule will be posted to Moodle. Labs occur approximately bi-weekly.
- Further information about the lab exercises, required conduct in the labs and general policies can be found in the Lab Manual. You must follow all policies and safety procedures outlined in the lab manual or you will not be allowed to complete the lab.
- You must attend the lab section you are registered in (check your student records if unsure). You will not be allowed to stay in a lab you are not registered in unless special permission has been granted by the Lab coordinator or myself. If you wish to switch sections you must do so using the same online enrolment system you used to enrol in the course. Once the last day to add courses without permission has passed (Sept. 20th) you will not be allowed to switch sections.
- You must be on time for your lab, latecomers will not be admitted to the lab.

Course Content and Format

- A lecture and reading schedule will be posted to Moodle and updated as the course progresses.
 - Your textbook readings and supplemental information (provided through Moodle) provide you with useful background information that will help you reach the learning objectives.
 - You are expected to complete the required readings prior to class time.
 - In class we will further explore concepts, and actively engage with course material. You will also have the opportunity to have guided discussions, and explore course material with your peers. This structure provides you with the information and challenges that help you learn and will help you develop study skills; you are expected to be an active participant in class. As with all courses, you are still expected to spend time beyond the regular course hours in preparation, review, studying, etc.
- This course is not designed as a distance course; class attendance is expected. It is not a course where you have to simply memorize material from a textbook or PowerPoint slides! Some of the material will only be delivered during lecture. Students who attend lecture have a better chance of understanding material well and getting high marks on tests. If you cannot regularly attend lectures feel free to discuss the issue with me.

Math Content

- We will use mathematical concepts at the level of Ontario Grade 10 Math. These concepts will be used mainly in data analysis, and the calculation of inheritance probabilities and other genetic problem solving.
 - You should be comfortable using fractions (finding a common denominator, adding, subtracting, multiplying, dividing, reducing, etc) and may wish to review these concepts.
 - See the Division of Natural Sciences Resources Section (below) for information on Math support

Course Policies

- **Questions and concerns should be directed to the course director (T. Da Sylva) first, except for Lab Attendance issues.**
 - Email me at TDCourse@yorku.ca and follow the email etiquette rules outlined under my contact information on the first page of this outline.
 - See Moodle for Lab contact information.
- **Conduct during Assessments**
 - Most tests will follow a 2-stage format (see Moodle for details).
 - You are expected to follow all York policies on Academic Honesty and Integrity. Any suspected violations of Academic Integrity will be reported to the Division Office and/or the Dean's Office as appropriate.

- You are expected to follow all rules announced by the invigilators during a test.
- Any aids or other material you bring into a test, lab or exam may be inspected and/or removed from your possession at any time.
- You may be assigned seating or asked to change seats at any time during a test, lab or exam.
- During in-class tests you will be asked to store notes, books, bags and such in a place not viewable from your seated position (please listen to instructions). You will not be allowed to keep your cell phone, tablet, and such with you (including in your pockets). Valuable objects should be kept at home, or locked away that day, if possible.
- Cell phones must be turned off (not just on vibrate) for the duration of a test. If you must be reachable during the test period (e.g., daycare may call in an emergency), please let an invigilator or myself (T. Da Sylva) know before the start of the test so arrangements can be made.
- **Policy for a Missed Tests/Labs**
 - Enrolling in another course that overlaps with this course is not an acceptable midterm or lab conflict. You are responsible for being free to attend class and labs at all scheduled times.
 - Under normal circumstances, you will not be granted make-up tests or labs, or extensions for having multiple midterms, tests, or assignments/tutorials/labs scheduled on the same day.
 - Class, labs, and/or tests are only cancelled if York declares an official weather emergency. If the university is open you are responsible for being here.
 - For Religious Observance Accommodations please see the University Policies section below.
 - **Tests:**
 - If you are ill, don't enter the exam room. Once you've written an exam, your mark will stand. If you miss a test with a legitimate reason, permission **may** be granted to take a makeup test.
 - **Not all situations will be accommodated**; those that aren't will earn a zero on the missed test.
 - The **Missed Test link on Moodle** has more information and links to a form where you can submit your reason for absence with any required documentation.
 - You must submit notice of absence and any required documentation within five business days of a missed test (Missed Test link on Moodle).
 - Make up tests will be available but may take place at any time during the semester and may be a different length or format than the original test. Make-ups for Test 4 may occur after the exam period.
 - **Labs:** Students are expected to attend their normal laboratory section unless there is an illness or emergency.
 - You are allowed to miss one lab without penalty (weight of the missed lab will be transferred to other labs).
 - If you miss more than one lab, to be eligible for a make-up lab or further reweighting of marks you must notify the **laboratory coordinator** of your absence and provide any required documentation within five business days. Before contacting the lab coordinator make sure you have read and follow the missed lab instructions under the Lab section on Moodle. DO NOT use the Missed Test link on Moodle.
 - If possible, arrangements will be made to make up the lab in another section. In this case, a student must obtain a **Temporary Change of Lab Section** form from the lab coordinator. If it is not possible to make up the lab the weight of the missed lab will be redistributed to the remaining labs.
- **Policy for Missed Classes (In class Activity Points)**
 - You cannot make-up activity points missed due to class absence. However your Class Activities grade is calculated out of 80% of the total available points (i.e., you can miss 20% without penalty).
 - If regular class attendance is difficult for you please discuss alternatives with me.
- **Late Submissions and Late Penalties (Course Project)**
 - Late submissions of will have 10% deducted per day.
- **Reappraisal Requests**
 - The protocol for requesting reappraisal of lab assignments, short answer questions on tests, and/or project submissions can be found on Moodle.
- **Course Forum Code of Conduct**
 - You must read and follow all of the rules outlined in the course forum. Your posts may be removed or moved to a more appropriate location at any time.

Copyright and Intellectual Property

York takes copyright and intellectual property very seriously. If you are in doubt please check with a librarian or myself (T. Da Sylva) before using or posting material you did not create.

- The textbook publisher or image creator maintains the copyright to most of the figures/images that we will be using in class and on Moodle. The lectures themselves are my intellectual property. Therefore:
 - You cannot photograph slides or take video during lectures or labs.
 - You cannot record lectures for non-personal use (e.g. uploading to websites)
 - You cannot alter, upload or post to websites(or distribute in any other way) slides, assignments and other intellectual property, which is not yours.
- You **may audio record lectures for your own personal use** (check with your TA before recording labs).
- You **may share audio recordings or your own notes with others in your class section only.**

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