

Department of Biology Course Outline

SC/BIOL 4360 3.00 Parasitology Fall 2022

Course Description

Please note that this is an IN-PERSON course. Therefore, all lectures and all formal tests/exams will take place in person at the Keele campus.

Biology of animal parasites; developmental, structural and functional adaptations to the parasitic environments; immune and other responses of hosts; parasitic diseases. Three lecture hours per week. One term. Three credits.

Prerequisites

SC/BIOL 2030 4.00

Course Instructor and Contact Information

Course Director - Dr. Spencer Mukai
Office – 002 Farquharson (Keele Campus), 344 York Hall (Glendon Campus)
Email – smukai@yorku.ca
Office hours –By appointment in-person or via Zoom

Schedule

Tuesdays 7:00-10:00 PM in LSB 105

Please review the technology requirements and FAQs for Moodle eClass. <https://lthelp.yorku.ca/95440-student-faq>

Evaluation

Tests, Assignments and Grading:

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|---|-------------|
| Post-lecture mini-quizzes (~10 mini-quizzes –best 8 out of 10)..... | 10% |
| Parasite ID Test 1 (Oct. 4)- Parasitic Protozoa..... | 10% |
| Midterm Exam (Oct. 25)..... | 20% |
| Parasite ID Test 2 (Nov. 15)- Platyhelminthes..... | 10% |
| Peer-evaluated research assignment (1-page research summary due on Friday Nov. 25 plus three peer evaluations per student due on Friday Dec. 2)..... | 10% |
| Parasite ID Test 3 (Dec.6)..... | 10% |
| Final Exam (cumulative- during Fall 2022 examination period Dec. 8-22)..... | 30% |
| | 100% |

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

Important Dates

Post-lecture mini-quizzes based on the previous lecture (**due 1 week after the quiz is posted**)

Parasite Identification Test 1- Oct. 4, 2022

Midterm exam -Oct. 25, 2022

Parasite Identification Test 2- Nov. 15, 2022

Research summary page submission due on Friday November 25, 2022

Three research summary assessments of your peers due on Friday Dec. 2, 2022

Parasite Identification Test 3- Dec. 6, 2022

Final exam (cumulative)- during Fall examination period Dec. 8- 22, 2022)

*** Do not book vacations or time off until the official examination period has ended***

First day of class: Tuesday Sept. 13, 2022

Last day of class: Tuesday Dec.6, 2022

Drop date: Friday Nov. 11, 2022

*Course Withdrawal Period (students can withdraw from a course & receive a "W" on the transcript):
Nov. 12 – Dec. 8, 2022.

*You may withdraw from a course using the registration and enrolment system after the drop deadline until the last day of class for the term associated with the course. When you withdraw from a course, the course remains on your transcript without a grade and is notated as "W". The withdrawal will not affect your grade point average or count towards the credits required for your degree.

NOTE: for additional important dates such as holidays, refer to the "Important Dates" section of the Registrar's Website <https://registrar.yorku.ca/enrol/dates/2022-2023/fall-winter>

Resources

Required Text: Parasitology: A Conceptual Approach (2015). Eric S. Loker and Bruce V. Hofkin. Garland Science (Taylor and Francis Group)

- The York bookstore does not sell e-copies of the textbook. You can purchase an e-book for a 6-month rental through the publisher, CRC/Routledge Press (Taylor & Francis Group) <https://www.routledge.com/Parasitology-A-Conceptual-Approach/Loker-Hofkin/p/book/9780815344735>
- An E-book can also be purchased from Vital Source <https://www.vitalsource.com/en-ca/products/parasitology-eric-s-loker-bruce-v-hofkin-v9781000544640>
- New and used copies can also be purchased from Amazon Canada https://www.amazon.ca/Parasitology-Conceptual-Approach-Eric-Loker/dp/0815344732/ref=sr_1_1?keywords=parasitology+a+conceptual+approach&qid=1660328198&sr=8-1
- According to the York University copyright office (copy@yorku.ca), students should purchase a legal copy from commercial vendors and NOT utilize sites which have uploaded the textbook illegally (see below) https://www.academia.edu/35767270/Parasitology_A_Conceptual_Approach_Vetbooks_ir
- Supplementary course material will also be made available on eClass.
- Since this course is delivered in a remote format you will need a computer, stable internet connection, perhaps a headset, and preferably a quiet place in your home. You are also responsible for downloading any software (e.g. ZOOM) required for the course.
- Several platforms will be used in this course (e.g., eClass, Zoom, etc.) through which students will interact with the course materials, the course director/TA, as well as with one another. Please review this syllabus to determine how the class meets (in whole or in part), and how office hours and presentations will be conducted.
- Students shall note the following:
 - Zoom is hosted on servers in the U.S. This includes recordings done through Zoom.
 - If you have privacy concerns about your data, provide only your first name or a nickname when you join a session.
 - The system is configured in a way that all participants are automatically notified when a session is being recorded. In other words, a session cannot be recorded without you knowing about it.

Learning Outcomes

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

1. Describe general principles and concepts of parasitology
2. Understand the terminology used in parasitology and to use parasite terminology with proper context
3. Be able to classify major parasites of animals and humans
4. Identify and describe the structure and function of cells, tissues and organs of various animal parasites
5. Describe and be able to compare and contrast the many strategies that parasitic animals have undertaken to successfully complete their life cycles in the face of discontinuity of hosts
6. Describe the diseases caused by animal parasites and understand the measures for treatment, prevention and control of each parasite
7. Generalize on the intestine as a place for animal parasites to inhabit and to predict the changes that animal parasites may make to the intestinal milieu that are supportive of the parasite
8. Describe how anthropogenic changes to the environment can alter parasite transmission
9. Describe, with the aid of figures, some of the ways by which the host may respond to the presence of animal parasites, in particular in mounting an adaptive and protective immune response, and to consider the many ways by which animal parasites may circumvent the defense mechanisms of the host

Course Content

BIOL 4360 3.0- Parasitology

FALL TERM 2022

Class dates & proposed lecture topics (Note: some dates & lecture topics may change during the term)

Sept. 13 , Lecture material- Introduction; principles and general concepts; terminology

Sept. 20, Lecture material- Parasite diversity and Introduction to parasitic protozoa

Sept. 27, Lecture material- Parasitic protozoa (*Entamoeba histolytica*, *Naegleria fowleri*, *Acanthamoeba*); Parasitic protozoa- Metamonada (*Giardia lamblia*, *Trichomonas vaginalis*)

Oct 4, **PARASITE ID TEST 1- PROTOZOA (7-8 PM); LECTURE FOLLOWING TEST**

Oct. 11, **FALL READING WEEK- NO CLASS**

Oct. 18, Parasitic protozoa-Apicomplexa (*Plasmodium*)

Oct. 25, **MIDTERM EXAM (7:00 - 9:00 PM)**

Nov. 1, Parasitic protozoa-Apicomplexa (*Plasmodium*), Kinetoplastida (*Leishmania* spp., *Trypanosoma* spp., other flagellates)

Nov. 8, Lecture material- Parasitic Protozoa – Kinetoplastida (*Leishmania* spp., *Trypanosoma* spp., other flagellates)

Nov. 15, **PARASITE ID TEST 2- PLATYHELMINTHES (7-8 PM); LECTURE FOLLOWING TEST**

Lecture material- Platyhelminthes – General features; Class Trematoda– the digeneans the digeneans (*Schistosoma* spp., *Fasciola*, *Clonorchis*)

Nov, 22, Lecture material- Platyhelminthes – General features; Class Trematoda– the digeneans the digeneans (*Schistosoma* spp, *Fasciola* spp, *Clonorchis*; Class Cestoda (Cestoidea) – the tapeworms (*Taenia* spp, *Diphyllobothrium* spp, *Echinococcus* spp)

Nov. 29, Lecture material- Phylum Nematoda – General features; Class Enoplea – *Trichuris trichiura*, *Trichinella spiralis*, mermithids, soil-transmitted nematodes (*Strongyloides stercoralis*, *Ancylostoma*

duodenale, *Necator americanus*, *Ascaris lumbricoides*), filarial worms (*Wuchereria bancrofti*, *Brugia malayi*, *Onchocerca volvulus*); Guinea worm (*Dracunculus medinensis*)

Dec. 6, PARASITE ID TEST 3- NEMATODA (7:00-8:00 PM), Lecture material following ID Test 3- Nematoda & course wrap up

Experiential Education and E-Learning

A crucial component of a parasitologist's training is the ability to correctly identify the parasite species that is contributing to animal or plant diseases. Digitized images from prepared slides of parasitic protozoa and helminths will be studied. In addition, selected material from traditional lab manuals which illustrate parasite diversity, structure and function will be posted on the course website. Parasite cell, tissue and organ structure will be identified, described and related to functional adaptations of a parasitic lifestyle. You are expected to know all aspects of the life cycles (specific hosts, mode of transmission, pathology and diseases resulting from infection, treatments for diseases and interventions to halt transmission). The Parasite ID tests will be in the format of a "bell-ringer"- images of parasites will be projected onto the classroom screen and you will have to identify selected parasites which we have studied. In addition, you will be expected to identify specific anatomic structures associated with each parasite and know their functions.

Other Information

Grading: The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.)

(For a full description of the York grading system see the York University Undergraduate Calendar) <https://calendars.students.yorku.ca/2022-2023/grades-and-grading-schemes>

Course Policies

- **WEEKLY QUIZZES:** ~10 mini-quizzes (5 MC questions) will be posted on eClass following the lecture. You will have 1 week to complete these questions after they are posted. You will have only 1 attempt for each question. The best 8 of 10 quizzes will be taken. You cannot make up for any missed quizzes and the weight of any missed quizzes will **NOT** be transferred to the Final Exam. This policy applies to everyone in the course.
- **TESTS & EXAMS:** This is an in-person course. All Parasite ID Tests, the Midterm and the Final exam will be delivered in-person. There will be NO provisions for the remote delivery of tests or exams.
- **PARASITE IDENTIFICATION TESTS:** You will have **THREE** Parasite ID Tests during the term. The first ID test will be based on the posted material about PROTOZOA, the second ID Test is based on the PLATYHEMINTHES and the third ID test will be based on the NEMATODA. The Parasite ID tests will be a "bell-ringer" type test. **The ID tests will be Delivered in person in LSB 105. You will not receive full marks if you incorrectly identify the parasite and its stage, parasite structure or if your answer is misspelled.**
- **MISSED PARASITE ID TESTS or MIDTERM EXAM:** If you miss a Parasite ID Test or the Midterm (e.g. due to illness, personal or family emergency etc.), the weight of the missed evaluation will automatically be transferred to the Final Exam. **THERE WILL BE NO MAKE-UP ID TESTS or MIDTERM IN THIS COURSE.** This policy applies to everyone in the course.
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- **PEER-REVIEWED RESEARCH SUMMARY ASSIGNMENT:** If you do not submit the peer-reviewed research summary assignment, you will receive a **ZERO** for this evaluation. The weight of this assignment WILL NOT BE TRANSFERRED TO THE FINAL EXAM. This policy applies to everyone in the course.
- **GRADED TESTS/EXAMS:** If you believe that a written answer on a test was marked incorrectly, you must submit a written rationale for remarking within 1 week of the evaluation being made available to you. Remarking can result in the mark being raised, confirmed or lowered. In order to be fair and consistent with the entire class, individual grades are not negotiable. I cannot provide “extra credit” assignments. Marks for assignments and tests will not be “rounded”. Contact the course director about marks ONLY if there is a clear error in your mark (calculation, clerical, etc.) as soon as possible at smukai@yorku.ca. It is highly unlikely that you will receive a response regarding any other mark-related queries.
- **DEFERRED STANDING FOR FINAL EXAM:** Students who do not write the Final Exam during the Fall 2022 examination period but have completed all other course components by the scheduled dates, must submit a **Deferred Standing Agreement (DSA)** form downloaded at https://secure.students.yorku.ca/pdf/deferred_standing_agreement.pdf. It is Senate Policy that "Normal requests for deferred standing must be communicated within one week following a missed examination, or on the last day to submit course work". Please check out the Registrar's Office Deferred Standing FAQs <https://myacademicrecord.students.yorku.ca/deferred-standing>
- **ACADEMIC HONESTY:** Numerous students in the Faculty of Science courses have been charged with academic misconduct when materials they uploaded to third party repository sites (e.g. Course Hero, One Class, etc.) were taken and used by unknown students in later offerings of the course. The Faculty's Committee on Examinations and Academic Standards (CEAS) found in these cases that the burden of proof in a charge of aiding and abetting had been met, since the uploading students had been found in all cases to be wilfully blind to the reasonable likelihood of supporting plagiarism in this manner. Accordingly, to avoid this risk, students are urged not to upload their work to these sites. **Whenever a student submits work obtained through Course Hero or One Class, the submitting student will be charged with plagiarism and the uploading student will be charged with aiding and abetting.** Note also that exams, tests, and other assignments are the copyrighted works of the professor assigning them, whether copyright is overtly claimed or not (i.e. whether the © is used or not). Scanning these documents constitutes copying, which is a breach of Canadian copyright law, and the breach is aggravated when scans are shared or uploaded to third party repository sites.
- **RECORDING LECTURES:** Students are allowed to record lectures using their own voice recording devices. However, taking pictures or video recording of exam questions discussed in class will **NOT** be allowed. **Lecture recordings, slides, assignments and test questions are the intellectual property of the course instructor and CANNOT be uploaded or distributed to any third-party sites (see above section regarding ACADEMIC HONESTY). THIS STATEMENT APPLIES TO BOTH REMOTE & IN-PERSON LECTURES.**
- **E-MAIL ETIQUETTE:** Use your Yorku email address as other email addresses (e.g., Hotmail, Gmail) are filtered out by the university's email system and do not always reach their intended recipient. **Please DO NOT use the Moodle email function or respond to course announcement emails.** I will try to respond within 1 business day, but this is not always possible. I typically do not check email between 6 pm and 9 am, nor on the weekends.

Subject line: your name, student number and a brief indication of topic (e.g., ‘Question regarding host-parasite interaction). **Emails without the required information will not receive a response. Please include your NAME at the end of each email.** I will not be able to offer individual tutoring by email. **If your question requires me to type up several paragraphs to essentially repeat what was posted, I may not be able to respond.** Please listen to the lecture recordings and take notes.

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.

<https://www.yorku.ca/secretariat/policies/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

<https://spark.library.yorku.ca/academic-integrity-what-is-academic-integrity/>

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.

Keele campus students in need of these services are asked to register with Student Accessibility Services (SAS) <https://accessibility.students.yorku.ca/> as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. For Glendon campus students please contact the Glendon Accessibility Services

<https://www.glendon.yorku.ca/counselling/disability/registering/> 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 SAS and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

NOTE: It is the student's responsibility to contact the Alternate Exam/Test Scheduling Center <https://altexams.students.yorku.ca/> (Keele Campus) or <https://www.glendon.yorku.ca/counselling/disability/registering/> (Glendon Campus) so that an arrangement can be made to write in person at the Alternate Exam Center. You can submit all of your accommodation requests at the beginning of the term when you receive the syllabus for your course(s).

Additional information is available at the following websites:

Accessibility Services at Keele <https://accessibility.students.yorku.ca/>

Accessibility Services at Glendon <https://www.glendon.yorku.ca/counselling/disability/registering/>

York Accessibility Hub <https://accessibilityhub.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

<https://registrar.yorku.ca/node/1260>

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

<https://secure.students.yorku.ca/pdf/religious-accommodation-agreement-final-examinations.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-andor-harassing-behaviour-in-academic-situations-senate-policy/>