

Syllabus

Biology 369 Sex & Evolution

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1. APPLY FUNDAMENTAL SCIENTIFIC PRINCIPLES AND CRITICAL THINKING SKILLS TO INDEPENDENTLY DEVELOP AND CONDUCT A NOVEL AND DISCRETE BIOLOGICAL RESEARCH STUDY.	ERROR! BOOKMARK NOT DEFINED.
2. DEMONSTRATE KEY PROFESSIONAL SKILLS, SUCH AS ADVANCED LABORATORY AND/OR FIELD BIOLOGICAL TECHNIQUES, EFFECTIVE PROPOSAL AND MANUSCRIPT WRITING, ORAL COMMUNICATION, CRITICAL EVALUATION OF THE LITERATURE, LAB TEAM-WORK, AND PROBLEM SOLVING.	ERROR! BOOKMARK NOT DEFINED.
3. VERBALLY SYNTHESIZE THE STUDY AND DEFEND THE MAIN RESEARCH FINDINGS AND THEIR INTERPRETATION AT A STANDARD APPROPRIATE FOR A PROFESSIONAL SCIENTIFIC CONFERENCE.	ERROR! BOOKMARK NOT DEFINED.
4. ANALYSE AND INTERPRET THE STUDY RESULTS, AND PRESENT THEM AND AN EVALUATION OF THEIR SIGNIFICANCE IN WRITING AT A STANDARD APPROPRIATE FOR A PEER-REVIEWED SCIENCE JOURNAL.	ERROR! BOOKMARK NOT DEFINED.
5. CONSTRUCTIVELY CRITIQUE THE STRENGTHS AND WEAKNESSES OF OTHER STUDENTS' STUDIES TO REFINE AND IMPROVE THEIR SCIENTIFIC VALUE.	ERROR! BOOKMARK NOT DEFINED.
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Course Information

General Course Information

Course: BIOL 369

Course title: Sex & Evolution

Pre-requisites: Prerequisite ([BIOL 102/3.0](#) and [BIOL 103/3.0](#) and 3.0 units from [[BCHM 218/3.0](#); [BIOL 200/3.0](#); [BIOL 205/3.0](#), or [BIOL 206/3.0](#)]).

Recommended [BIOL 206/3.0](#).

Semester and year: F26

Number of credits: 3.0

Learning hours: 125

Modality (on campus, blended, or online): On-campus

Classroom accessibility: Buildings on campus

Course Description

Why sex? The evolutionary origins and consequences of sex and sexual reproduction. Topics include costs and benefits of sexual reproduction, the evolution and coevolution of sexes, gametes and genitalia, mating systems, gender differences and sex determination throughout the biotic world.

Topics (subject to change)

Week	Topic
1	The evolutionary enigma of sex: why persistent and dominant in Eukaryotes.
2	Models: Genetical and diversity/uncertainty theories on adaptive value.
3	Egg vs. sperm: Anisogamy and its consequences.
4	Sex determination and sex chromosomes.
5	The mating game: Sexual selection 1.
6	Sexual selection 2.
7	Coevolution: Chases and races.
8	ARTs: Alternative reproductive tactics.
9	Postcopulatory Sexual Selection: sperm competition and cryptic choice.
10	Genitalia, reproductive systems, orgasm and other topics.
11	The Dark Side: Sexual conflicts
12	Parenting, ageing, menopause

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. Apply a variety of evolutionary principles to better understand the nature of biotic variation.

2. Formulate informed hypotheses about the adaptive nature of reproductive processes, such as what benefits may accrue for a particular species from sexual, rather than asexual, reproduction.
3. Appreciate the extraordinary diversity of reproductive systems and how they influence organismal behaviour.
4. Transduce complex primary literature into simplified, engaging, and scientifically accurate presentations and reports.
5. Relate a ridiculous number of weird biology factoids to friends and family.

Important University Dates

Please visit the [Faculty of Arts and Sciences Sessional Dates website](#) for all academic deadlines.

Inclusion

Land Acknowledgement

Queen's University is situated on the territory of the Haudenosaunee and Anishinaabek, the original stewards of the land that we live and work upon. To read more about the history of the land, see the [Queen's Encyclopedia](#) and to learn more about land acknowledgements, see the [Office of Indigenous Initiatives](#).

Equity, Diversity, and Inclusivity Statement

Queen's University recognizes that the values of equity and diversity are vital to and in harmony with its educational mission and standards of excellence. For more information about the university's policies and plans of action, please visit the [Human Rights and Equity Office](#).

Building a Classroom Community

University is a place to share, question, and challenge ideas. Each student brings a different set of lived experiences. You can help to create a safer, more respectful classroom community for learners by following these guidelines:

- Make a personal commitment to learn about, understand, and support your peers.
- Assume the best of others and expect the best of them.
- Recognize and value the experiences, abilities, and knowledge each person brings to the course.
- Acknowledge the impact of oppression on other people's lives and make sure your words and tone are respectful and inclusive.
- Encourage others to develop and share their ideas.

- Pay close attention to what your peers say/write before you respond. Think through and re-read what you have written before you post online or send your comments to others.
- Be open to having your ideas challenged and challenge others with the intent of facilitating growth.
- Look for opportunities to agree with one another, building on and intentionally referencing peers' thoughts and ideas; disagree with ideas without making personal attacks, demeaning, or embarrassing others.

Fostering Accessibility

All of us have a shared responsibility for reducing barriers to learning and fostering accessibility and promoting meaningful inclusion of those with disabilities. The [Accessibility Hub](#) at Queen's University's Human Rights & Equity Office offer a host of [tutorials](#) that provide us all with practical tips for:

- creating accessible documents, e.g., to submit to your teaching team or share with peers in peer feedback activities/in a presentation,
- emails, e.g., while communicating with group members or your teaching team, and
- meeting practices (e.g., in tutorials/labs/seminars or virtual meetings).

Name/Pronoun

If, for whatever reason, you wish to change how your name appears in onQ and/or on class lists, please follow these steps. You may also use this process to add your pronouns to the appearance of your name.

1. Log into SOLUS.
2. Click on Personal Information tab.
3. Click on the Names tab
4. Click on the Add New Name tab
5. Choose Preferred from the Name Type drop down menu
6. Enter the name you would like to appear in onQ and/or on class lists.
7. Click Save.

Please allow 24 to 48 hours for your name to be registered within the system. If you have further questions or concerns, please contact ITS at Queen's University.

Course Materials & Technologies

* **Material costs** (pending change approval of Academic regulation 7.2.1)

Required Course Textbooks

Course Textbooks	Edition(s)	Publisher	For Purchase	Cost	At Queen's Library?
none	n/a	n/a	n/a	n/a	No

Copyright of Course Material

Course materials created by the course instructor, including all slides, presentations, handouts, tests, exams, and other similar course materials, are the intellectual property of the instructor. It is a departure from academic integrity to distribute, publicly post, sell or otherwise disseminate an instructor's course materials or to provide an instructor's course materials to anyone else for distribution, posting, sale or other means of dissemination, without the instructor's express consent. A student who engages in such conduct may be subject to penalty for a departure from academic integrity and may also face adverse legal consequences for infringement of intellectual property rights.

Communication

Questions about the Course and Contacting the Teaching Team

Please address questions about BIOL 537 to BIOL537@queensu.ca

Queen's Email

The university communicates with students via Queen's email. Please check your email regularly to ensure you do not miss important information related to your course.

Course Feedback

At various points during the course, you may be asked to take part in a variety of feedback activities, such as surveys and questionnaires. This feedback enables the teaching team to improve the course. All surveys are anonymous and are directly related to activities, assessments, and other course material.

Assessments

Weighting and Alignment with Course Learning Outcomes (CLOs) -

Assessment	Alignment with CLOs	Weighting
Research paper proposal (F)	1, 2	5
Midterm Exams	1, 2, 3, 4	15
Seminar (F)	1, 2, 3, 5	3x15
Tutorial Exercises	1, 2, 3, 4	30
Clicker questions	1, 2, 4	5

Total

100%

Assignment Submission Policy

Penalties for late submissions are dealt with on an individual basis. The recommended assignment submission late penalties are as follows:

5% shall be deducted from an assignment for each day following any grace period allowed

Students with letters of accommodation must confirm the implementation of their accommodations prior to the listed due date. Please see the “Accommodations for Disabilities” section of this syllabus for more information.

Students experiencing short-term extenuating circumstances that are beyond their control and may affect their academic work must submit a request to their faculty office for academic consideration. Please see the “Academic Considerations for Students in Extenuating Circumstances” section of this syllabus for more details.

Written Submissions: *The written submissions (i.e., proposal and magazine article) have a built-in three-day grace period, which aligns with the Faculty of Arts and Science’s policy for Academic Considerations. If you have extenuating circumstances when a submission is due, and these circumstances will last up to three (3) days, you can use the grace period without applying for formal Academic Considerations through the Portal. The grace period is automatically applied to papers submitted up to three (3) days late. However, if your circumstances will last more than three (3) days you must use the Academic Considerations Portal.*

Late Policy: *Late assignments without approved Considerations or Accommodations will be penalized **5% per day (or part thereof)** that it is late, including weekends, unless arrangements have been made.*

Please see the Academic Considerations for Students with Extenuating Circumstances and Accommodations for Disabilities sections of the syllabus for more information.

Policy Review of Graded Work

Requests for assignment regrading may be made to your TA 48 hours after you have received the marked copy of your assignment, but no more than 10 days later. Be sure to read your feedback carefully before you submit a review of graded work. To request that your assignment be reviewed, please include the following in your email:

- *Your name, student number, and TA’s name.*
- *The original copy of your marked assignment, attached.*
- *Your reason for the request:*
 - *The specific aspects of your assignment that you believe were not sufficiently awarded, referring to the categories of the rubric.*
 - *Why you believe that your assignment meets the criteria for a higher mark for each of the categories of the rubric that you indicated above. Please make explicit reference to the detailed descriptions of each category provided in the rubric.*

If a review of graded work results in only a slightly different final grade, the original grade will stand. Should we find an error where marks were not assigned when they should have been or were missed in adding up the total score or were added up incorrectly resulting in a higher score than earned, the grade will be changed so that it is accurate. Grades would only increase or decrease if there was evidence of an error in marking, not simply because the regrader interprets or applies the rubric slightly differently than the original grader.

Policies

Class Attendance

Your presence and participation in class contributes to the knowledge and skills that you will develop throughout this course. I expect that you attend class regularly, participate in class conversations and learning activities. These types of activities provide active engagement, promote a deeper understanding of the course content, and contribute to your success in this course.

Academic Support

All undergraduate students face new learning and writing challenges as they progress through university: essays and reports become more complex; effectively incorporating research into writing becomes more important; the types of assignments become more diverse; managing your time and developing the skills you need to read and think critically gets more challenging. I encourage students to contact Student Academic Success Services (SASS). SASS offers many different ways to receive support:

- Free online or in-person [appointments](#) to get personalized support on writing and academic skills from expert staff and trained peers.
- [Workshops](#) and [drop-in programs](#). SASS' [Events Calendar lists events coming soon](#).
- [Online resources](#) that provide strategies for academic skills and writing development at university.
- If English is not your first language, SASS has specific resources for [English as Additional Language students](#), including weekly programs and EAL academic skills appointments. You can meet on an ongoing basis with an EAL consultant to work on your academic writing, speaking, listening, and reading skills.

Accommodations for Disabilities

Queen's University is committed to working with students with disabilities to remove barriers to their academic goals. Queen's Student Accessibility Services (QSAS), students with disabilities, instructors, and faculty staff work together to provide and implement academic accommodations designed to allow students with disabilities equitable access to all course material (including in-class as well as exams). If you are a student currently experiencing barriers to your academics due to disability related reasons, and you would like to understand whether academic accommodations could support the removal of those barriers, please visit the [QSAS website](#) to learn more about academic accommodations or start the registration process with QSAS by clicking **Access Ventus** button at [Ventus | Accessibility Services | Queen's \(queensu.ca\)](#)

VENTUS is an online portal that connects students, instructors, Queen's Student Accessibility Services, the Exam's Office and other support services in the process to request, assess, and implement academic accommodations.

To learn more go to: <https://www.queensu.ca/ventus-support/students/visual-guide-ventus-students>

Academic Consideration for Students in Extenuating Circumstances

Academic Consideration is a process for the University community to provide a compassionate response to assist students experiencing unforeseen, short-term extenuating circumstances that may impact or impede a student's ability to complete their academics. This may include but is not limited to any extenuating circumstance (illness, bereavement, traumatic event, injury, family emergency, etc.) which is short-lived, begins within the term, and will not last longer than 12 weeks - see [Academic Consideration](#) webpage for details (<https://www.queensu.ca/artsci/undergraduate/student-services/academic-consideration>)

Each Faculty has developed a protocol to provide a consistent and equitable approach in dealing with requests for academic consideration for students facing extenuating circumstances. For more information, undergraduate students in the Faculty of Arts and Sciences should consult the Faculty's webpage on [Academic Consideration in Extenuating Circumstances](#) and submit a request via the [Academic Consideration Request Portal](#). Students in other Faculties and Schools who are enrolled in this course should refer to the protocol for their home Faculty.

Students are encouraged to submit requests as soon as the need becomes apparent and to contact their instructor and/or course coordinator as soon as possible once academic consideration has been granted. Any delay in contact may limit the options available for academic consideration. While we encourage instructors to accommodate, each instructor has discretion in deciding whether or how to apply the Academic Consideration. For more information on the Academic Consideration process, what is and is not an extenuating circumstance, and to submit an Academic Consideration request, please see the Faculty of Arts and Science's [Academic Consideration website](#). ASO courses include links to information on **Academic Consideration** on your **Course Homepage** in onQ.

Please see the Teaching Team page for contact information for your instructor and TA(s), where relevant.

For more information, please see the [Senate Policy on Academic Consideration for Students in Extenuating Circumstances](#).

Queen's Policy Statement on Academic Integrity -

Queen's University is dedicated to creating a scholarly community free to explore a range of ideas, to build and advance knowledge and to share the ideas and knowledge that emerge from a range of intellectual pursuits. Each core value of academic integrity, as defined in the [Senate Academic Integrity Policy](#), gives rise to and supports the next.

Honesty appears in presenting one's own academic work, whether in the context of an examination, written assignment, laboratory or seminar presentation. It is in researching one's own work for course assignments, acknowledging dependence on the ideas or words of another and in distinguishing one's own ideas and thoughts from other sources. It is also present in faithfully reporting laboratory results even when they do not conform to an original hypothesis. Further, honesty is present in truthfully communicating in written and/or oral exchanges with instructors, peers and other individuals (e.g. teaching assistants, proctors, university staff and/or university administrators).

Trust exists in an environment in which one's own ideas can be expressed without fear of ridicule or fear that someone else will take credit for them.

Fairness appears in the proper and full acknowledgement of the contributions of collaborators in group projects and in the full participation of partners in collaborative projects.

Respect, in a general sense, is part of an intellectual community that recognizes the participatory nature of the learning process and honours and respects a wide range of opinions and ideas. However, "respect" appears in a very particular sense when students attend class, pay attention, contribute to discussion and submit papers on time; instructors "show respect by taking students' ideas seriously, by recognizing them as individuals, helping them develop their ideas, providing full and honest feedback on their work, and valuing their perspectives and their goals" ("[The Fundamental Values of Academic Integrity](#)", 3rd Edition, p. 8).

Ultimately, responsibility is both personal and collective and engages students, administrators, faculty and staff in creating and maintaining a learning environment supported by and supporting academic integrity.

Courage differs from the preceding values by being more a quality or capacity of character – "the capacity to act in accordance with one's values despite fear" ("[The Fundamental Values of Academic Integrity](#)", 3rd edition, p. 10). Courage is displayed by students who make choices and integrous decisions that are followed by action, even in the face of peer pressure to cheat, copy another's material, provide their own work to others to facilitate cheating, or otherwise represent themselves dishonestly. Students also display courage by acknowledging prior wrongdoing and taking proactive measures to rectify any associated negative impact.

All of these values are not merely abstract but are expressed in and reinforced by the University's policies and practices.

Syllabus statements for Generative Artificial Intelligence (AI) Tools (select one of the following)

- **Not permitted**
 - Original work, completed wholly by you, is expected to be submitted in this course. The use of generative AI writing tools such as ChatGPT is only permitted for brainstorming and grammar checks NOT to generate content. Submission of

AI generated content constitutes a departure from academic (and scientific) integrity.

Queen's [Student Academic Success Services](#) (SASS) offers a self-directed, online academic integrity module which we encourage all students to take which will help with:

- Understanding the nature of the academic integrity departure
- Understanding the expectations of and role of sources in scholarly writing
- Integrating sources into your writing (paraphrasing, quoting, summarizing)
- Understanding when and how to cite your sources
- Managing your time effectively to avoid the need for shortcuts
- Taking effective notes to ensure accuracy of source material and correct attribution

Turnitin Statement-

This course makes use of Turnitin, a third-party application that helps maintain standards of excellence in academic integrity. Normally, students will be required to submit their course assignments through onQ to Turnitin. In doing so, students' work will be included as source documents in the Turnitin reference database, where they will be used solely for the purpose of detecting plagiarized text in this course. Data from submissions is also collected and analyzed by Turnitin for detecting Artificial Intelligence [\(AI\)-generated text](#). These results are not reported to your instructor at this time but could be in the future.

Turnitin is a suite of tools that provide instructors with information about the authenticity of submitted work and facilitates the process of grading. The similarity report generated after an assignment file is submitted produces a similarity score for each assignment. A similarity score is the percentage of writing that is similar to content found on the internet or the Turnitin extensive database of content. Turnitin does not determine if an instance of plagiarism has occurred. Instead, it gives instructors the information they need to determine the authenticity of work as a part of a larger process.

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