

# **Biol 422**

## **Conservation Biology**

Winter Term 2026

### **Course Description**

The application of biological research to the conservation of biodiversity and natural resources, as well as the interaction of biology with philosophy, politics and economics in influencing conservation policy.

PREREQUISITE: BIOL 300/3.0 or 302/3.0 or BIOL303/3.0. EXCLUSION ENSC 310.

### **Course Communication**

Students registered in Biol 422 must access the onQ course website using a Queen's User ID. Assignments, class material, resources, and course announcements will be posted to the site. Please consult onQ regularly.

### **Course Materials**

There is one required textbook:

**Sher, A.A. *An Introduction to Conservation Biology*, 3<sup>rd</sup> edition. Oxford University Press.**

The text is available as a softcover text from the bookstore (\$148.99) or an e-text using this link: <https://campusebookstore.com/link/?id=ad570335-106b-4135-b891-de79518e5e01> (\$119.98) Other assigned readings will be posted on OnQ.

### **Learning Outcomes**

The goal of Biology 422 is to provide (i) an exploration of the field of Conservation Biology, (ii) a critical assessment of conservation issues and solutions, (iii) hands-on experience in addressing a conservation issue, (iv) experience presenting and discussing conservation problems, (v) exposure to various career options in Conservation Biology. The course will review the foundations of Conservation Biology, major threats to biodiversity, approaches to solving conservation problems, and societal challenges for conservation. Tutorials will highlight controversial issues in conservation, providing students opportunities to critically assess issues and solutions by applying approaches and concepts discussed in lecture.

By the end of the course, students will be able to:

- Explain the major threats to biodiversity, the most important approaches to conserving biodiversity, and the societal challenges that confront conservation.

- Think critically and creatively about conservation problems and solutions, recognizing the approaches that work better than others, and the importance of compromise in successful conservation.
- Understand how best to address a local conservation issue of their choice.
- Present scientific material to their peers and to the public in various formats (written, oral, graphic).

## Course Outline

The course will include four sections:

*(1) Importance of biodiversity:* What Conservation Biology is; history and perspectives; what biodiversity is; global distribution of biodiversity; ecological, economic and intrinsic values of biodiversity.

*(2) Threats to biodiversity:* Habitat degradation, loss and fragmentation; overexploitation; alien invasive species; climate change; and synergisms.

*(3) Mitigating threats to biodiversity:* Population viability; population reintroductions; conservation breeding; ecosystem restoration; designing and managing protected areas.

*(4) Managing people:* Ecological economics; environmental psychology; environmental policy.

Guest lectures will supplement the material by providing more detailed treatment within this framework.

## Learning Hours

Teaching method	Average hours per week	Number of weeks	Total hours
<i>In-class hours</i>			
Lecture	3	12	36
Tutorial	1.5	12	18
<i>Other</i>			
Private study	3	12	36
Research Project	2.5	12	30
Total hours on task			120

## Assessment

Tutorial Assignments:	40%
Major Project:	30%
Final Exam:	30%

See OnQ for due dates.

## Final Exam

The final exam for this course will be conducted in person. This assessment is designed to test your understanding of topics covered in lecture and the associated readings. The exam will consist primarily of short-answer style questions.

### *Timing of Final Examinations*

Once the exam schedule has been finalized, the exam date will be posted on your SOLUS account. The exam dates for each term are listed on the Faculty of Arts and Science webpage under "[Important Dates](#)." Student exam schedules for the Fall Term are posted on SOLUS immediately prior to Thanksgiving and on the Friday before Reading Week for the Winter Term. **Students should delay finalizing any travel plans until after the examination schedule has been posted. Exams will not be moved or deferred to accommodate employment, travel/holiday plans or flight reservations. For information regarding what is considered extenuating circumstances and qualifications for Academic Consideration, please visit the [Faculty of Arts and Science's Academic Consideration webpage](#).**

***If you are unable to attend an exam and receive approval for a deferred proctored exam, a further deferral of that exam will not be accommodated.***

## Important University Dates

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

## Tutorials

Most tutorial exercises will be conducted during synchronous sessions. You are expected to attend the session that you signed up for through Solus. Most exercises can be completed during the tutorial session and will be assigned participation marks. Two or three group exercises will require work outside the tutorial session. All exercises will be explained in detail during tutorials, with associated documents.

## Research Project

A large portion of the course marks involve a term project, to be explained during lecture with associated documents.

## Grading Method

We use the "Numbers in, Letters out" method for this course. All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to Queen's Official Grade Conversion Scale:

Grade	Range	Grade	Range
A+	90-100	C+	67-69

A	85-89		C	63-66
A-	80-84		C-	60-62
B+	77-79		D+	57-59
B	73-76		D	53-56
B-	70-72		D-	50-52
			F	49 and below

## Assignment submission policy

***Each assignment will have a three-day grace period; your assignments are due on the due date posted but will be accepted, without penalty, up to 72 hours afterwards.*** Late penalties of 5% per day will apply to submissions after this grace period. Short term academic consideration is therefore built into all assignment due dates and will not be extended past this three-day grace period for students without long-term academic consideration or accommodations for disabilities (see below).

Please note that it is your responsibility to ensure the correct files are submitted. Make sure to view and check your submission. Blank assignments or corrupt files will receive a grade of zero. If you encounter technical difficulties while trying to submit an electronic document, email the assessment to your TA along with a short explanation. We will use the timestamp on the email to evaluate late penalties.

## Land Acknowledgement

The territory that Queen's University occupies is included in the Dish with One Spoon Wampum Belt Covenant, an agreement between the Iroquois Confederacy and the Confederacy of the Ojibwe and Allied Nations to peaceably share and care for the resources around the Great Lakes. The Kingston Indigenous community continues to reflect the area's Anishinaabe and Haudenosaunee roots. There is also a significant Métis community as well as First Peoples from other Nations across Turtle Island present here today.

## Policies

### 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).
- **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 courageous 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.

## Generative Artificial Intelligence (AI) Tools

Students are expected to submit their own original work. Course assignments are carefully designed to support creativity, critical thinking, analysis, and application of ideas. Copying or paraphrasing from AI tools, such as ChatGPT, to complete an assignment is not a productive or ethical use of these tools and will be considered a departure from academic integrity. However, AI tools may be used for the following specific tasks that support your learning: brainstorming and refining ideas, generating sources on a topic, checking grammar and style. Remember that these tools often contain errors and have biases; you are responsible for the quality of any information they produce. At the end of all assignments, please include a statement disclosing if you used AI tools or not. If yes, specify what tools you used, how they contributed to your work, and provide a list of all prompts used. This statement will not count towards the word count of assignments.

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.

Please read Turnitin's [Privacy Policy](#), [Acceptable Use Policy](#) and [End-User License Agreement](#), which govern users' relationship with Turnitin. Also, please note that Turnitin uses cookies and other tracking technologies; however, in its service contract with Queen's Turnitin has agreed that neither Turnitin nor its third-party partners will use data collected through cookies or other tracking technologies for marketing or advertising purposes.

For further information about how you can exercise control over cookies, see [Turnitin's Privacy Policy](#).

Turnitin may provide other services that are not connected to the purpose for which Queen's University has engaged Turnitin. Your independent use of Turnitin's other services is subject solely to Turnitin's Terms of Service and Privacy Policy, and Queen's University has no liability for any independent interaction you choose to have with Turnitin.

*Portions of this document have been adapted, with permission, from the University of Toronto Centre for Teaching Support and Innovation tip sheet "[Turnitin: An Electronic Resource to Deter Plagiarism](#)".*

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### **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.

### **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. It acknowledges that direct, indirect, and systemic discrimination exists within our institutional structures, policies, and practices and in our community. These take many forms and work to differentially advantage and disadvantage persons across social identities such as race, ethnicity, disability, gender identity, sexual orientation, faith, and socioeconomic status, among other examples. In this class I will work to promote an anti-discriminatory, anti-racist and accountable environment where everyone feels welcome. Every member of this class is asked to show respect for every other member.

## **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 Schedule**

*Subject to changes – especially in the case of Tutorials; please follow the weekly course schedule on onQ for the most up to date version.*

Week	Lecture / (Readings from text)	Tutorial / Assignment
<b>Part 1: Valuing Biodiversity</b> Wk1 Jan 5-9	Introduction, Research project (p97-103) History and principles of Cons Biol (p3-21) Robin W. Kimmerer recorded guest seminar	No tutorials
Wk2 Jan 12-16	What is biodiversity? (p25-46) Where is biodiversity found? (p46-54) Ecological value of biodiversity (p40-46, 194-198, 202-206)	Tutorial #1 Initial footprint calculation. Read text p99-103 before tutorial.
Wk3 Jan 19-23	Utilitarian value of biodiversity (p64-87) Conservation ethics (p85-92)	Tutorial #2 Work on ethics presentation
<b>Part 2: Threats to Biodiversity</b> Wk4 Jan 26-30	Rates and patterns of extinction (p170-186) Habitat destruction (p103-114) Alien invasive species increase disease (p152-166)	Tutorial #3 Ethics and Conservation presentation
Wk5 Feb 2-6	Habitat fragmentation (p114-120) Pollution (p121-128) <b>Guest lecture?</b>	Tutorial #4 Alien invasive species. Set up project presentations
Wk6 Feb 9-13	Climate change part 1 (evidence) (p131-144) Climate change part 2 (effects on biodiversity) Overexploitation and synergisms (p144-152)	Tutorial #5 Project <b>proposal</b> presentations
Wk7 Feb 16-20	Reading Week	/ Winter Term Break
<b>Part 3: Mitigating threats to biodiversity</b> Wk8 Feb 23-27	Predicting vulnerability to extinction (p186-191) Re-establishing populations, and captive breeding (p251-267) Guest lecture? Ex-situ conservation (p267-277)	Tutorial #6 <b>NO tutorials this week.</b> Work on your project.
Wk9 Mar 2-6	Population-level conservation (p216-229) Species level conservation (p229-234, 238-242) Establishing protected areas (p285-301)	Tutorial #7 R-studio. Population viability

Wk10 Mar 9-13	Habitat restoration (p357-381) Networking and managing protected areas (p301-319) Conservation outside protected areas (p324-349)	Tutorial #8 Work on Endangered Species Legislation (ESL) presentations
Wk11 Mar 16-20	<b><i>Guest lecture?</i></b> Role of NGOs in conservation Ecological economics (p57-64, 405-414) <b><i>Guest lecture?</i></b> Promoting biodiversity on farms	Tutorial #9 ESL presentations (6%)
<b>Part 4: Managing people</b> Wk12 Mar 23-27	<b><i>Guest lecture?</i></b> Birds <b><i>Guest lecture?</i></b> Conservation marketing Managing protected areas activity	Tutorial #10 <b>NO tutorials this week.</b> Work on your project.
Wk13 Mar 30-Apr 3	<b><i>Guest lecture?</i></b> The role of govt in conservation Environmental policy (p 242-247, 385-404) Changing values (p428-433)	Tutorial #11 Footprint conclusion (3%)
Wk14 Apr 6	Course wrap up Exam Review	