Université d'Ottawa · University of Ottawa

BIO 3115 Conservation Biology Winter 2020

(3, 0, 0 - 3 cr.)

Course prerequisites: Biology 2129/2529 or equivalent. Students who do not have the course pre-requisite must obtain written permission from me to enroll in the course. Please make sure you are officially registered.

Professor: Scott Findlay, Room 301A, Institute of Environment (1 Stewart St.) E-mail: findlay@uottawa.ca; (613) 562-5800 x3018. (N.B. email is a *much* better form of contact).

Class Teaching Assistant: To be determined. I will provide the TA's name and coordinates when available.

Organization and office hours: Lectures are held Mondays at 8:30-10:00, Thursdays at 10:00-11:30, both at FSS 1007 (see the campus map at http://www.uottawa.ca/map/).

Office hours are Thursdays 4:00-5:15 PM. *Although I will try to be in my office at these times, if you wish to consult me, please contact me beforehand to arrange an appointment*. You can do this either by catching me in class or dropping me a line by phone or e-mail (the latter is *much* preferable). This flexibility allows us to schedule appointments outside of what would be my usual office hours.

The course will be organized along a set of themes. For each theme, we will discuss some important concepts and illustrate the application of these concepts in real-world conservation case studies. With regards to the latter, I will be inviting a number of guest speakers with experience in particular areas of conservation biology and related areas. These are people who work "in the conservation trenches" and, as a consequence, will be able to provide a real-world perspective on a number of issues we will discuss in class.

Course objectives: Many of the major problems currently facing humanity are, in one way or another, related to the conservation and sustainable use of environmental resources. Of all species, human beings have almost unlimited capacity to transform their environments. With such capacity comes a responsibility for stewardship: the web of biological diversity that now exists is ours to use, but not to abuse. As such, we need two things: (1) knowledge of how our activities affect biodiversity, and how these negative effects can be mitigated; and (2) a conservation ethic, that is, a sense of the value of biological diversity and a willingness to modify our own (individual and collective) behaviour in a manner which is consistent with the goal of biodiversity conservation

In a completely different vein, it is also my belief that the purpose of a university education is not to fill student's heads with "knowledge" (whatever that is), but rather to develop in students an "informed skepticism". Many of the problems we have gotten ourselves into are due in large *part to people simply accepting what they are told, without questioning whether what they are told in fact bears any relation to reality*. Part of developing a (constructively) skeptical attitude involves developing the skills to think clearly and logically about some problem, and to use these analytical skills either to (a) solve the problem; or (b) evaluate somewhat else's (putative) solution to the problem. It is this analytical and synthetic problem-solving ability, which we, as university educators, should be developing in our students. Unfortunately, we haven't done a very good job thus far, and I hope to improve the situation.

To this end, the course has four principal objectives:

- To introduce fundamental concepts and principals in conservation biology;
- To provide a scientific perspective on some current problems in conservation biology, and to instill some understanding of both the benefits and limitations of such a perspective;
- To develop critical analytical problem-solving skills, using problems in conservation biology as the substrate;
- To inculcate in students a biodiversity conservation ethic.

Student evaluation. There are two different evaluation methods: In Option 1, the final grade is based on the student's performance on 3 assignments, a mid-term exam and a final exam. In Option 2, *students complete a term project in lieu of the final exam*. Please see the section below about term projects.

Course component	***Grade weight (% of final)***	***Due date/time***
Assignment 1	10	January 31, 23:59
Assignment 2	10	February 24, 23:59
Mid-term exam	20	February 24, in class
Assignment 3	10	March 20th, 23:59
Final exam	50	To be determined by the University Powers That Be.

Table 1. Course requirements and associated due dates for grading Option 1. Please note that the timing of submissions for assignments *may be modified during the term*. *In the case of a discrepancy between the dates in Table 1, and the dates and times given when the assignment is posted on BrightSpace, the latter will take precedence*.

Course component	***Grade weight (% of final)***	***Due date/time***
Assignment 1	10	January 31, 23:59
Assignment 2	10	February 24, 23:59
Mid-term exam	20	February 24, in class
Assignment 3	10	March 20th, 23:59
Term project: database population component (individual)	10	To be determined, probably last week of February
Term project: draft submission	15/20*	March 22, 23:59
Term project: final submission	15/20*	April 23, 23:59
Term project: peer evaluation	10/0*	April 23, 23:59

*depending on whether the term project is done individually or in a group. If the project is done in a group, the draft and final submissions are worth 15% each, the peer evaluation 10%. If the term project is done individually, there is no peer evaluation, and the 10% weight assigned to peer evaluation for group projects is divided equally among the draft and final submissions (so, 20% each).

Table 2. Course requirements and associated due dates for grading Option 2. Please note that the timing of submissions for assignments may change during the term. *In the case of a discrepancy between the dates in Table 1, and the dates and times given when the assignment is posted on BrightSpace, the latter will take precedence*.

Assignments: Assignments must be completed through BrightSpace. Submission dates and times will be indicated when the assignment is posted, and students will have at least 2 weeks to complete their assignment. Students are responsible for ensuring assignments are submitted on time. *DO NOT leave your submission to the last minute*, as last-minute technical glitches often occur. *Late assignments will be not be accepted unless you have made previous arrangements with me*.

Although I furnish the template for grading of examinations and assignments, part of the grading is done by the course TA. The course is not me, and it is entirely possible that her evaluation of your answer to a question might differ from mine. Moreover, I am by no means infallible: complete infallibility is not given to mere mortals. This is why it is absolutely critical that (1) you always compare your assignment or exam solutions with mine to check for errors; and (2) you bring any errors to my attention immediately. If you think that you deserve a better (or worse) grade than you received for a particular examination question or assignment, you should send an email to me, cc'd to the course TA, with "BIO 3115 re-evaluation" in the subject line. In the body of the email, you should explain why you believe you deserve a grade different than the one assigned. I will then re-evaluate your paper, bearing in mind the rationale you've provided. If I think an error has been made, I will change the grade: if not, I won't.

Term projects. The total grade for the term project (50 %) will be broken down as described in Table 2. Deadlines for term project elements are also given in Table 2. Late submissions, either of draft or final projects, will incur a penalty of *5% per day* (including weekends), *unless you have made previous arrangements for late submission with me*.

In some cases, a student may initially decide to undertake a term project (option 1), and subsequently decide to go with option 1. To revert to option 1, she must then apprise the course instructor of her intention by March 6, 2020. If a student commits to undertake a term project as part of a group, then she and the members of her group must meet with the course instructor so as to determine a fair and equitable solution. *In such situations, it is entirely possible that the only fair solution is to disallow the student from withdrawing from option 2*.

Peer evaluation of team term projects: Because of the possibility of unequal contributions to group projects, each team member will provide a confidential rating (out of 10) for all other team members. The set of peer scores will then be used to compute the student's peer evaluation score (see Table 2) and will contribute 10% to the overall grade.

By default, all members of the team will receive the same mark for the draft and final project submissions. If, however, as the term progresses there are concerns about the contribution of certain team members, these *must be brought to my attention immediately* so that I can discuss the issue with the student(s) in question, thereby allowing him/her/them the opportunity to improve. If there is no improvement, students may be asked to complete their work individually.

Exam evaluation format: All exams take the form of ***problems***, where you are given a set of data, and required to (a) evaluate/analyze these data; (b) use this analysis/evaluation to answer specific questions. *As such, all exams are open book. You may bring whatever materials you think will be helpful into the exam hall, including laptops, books or notes*. My allowing you to use your laptop opens up the possibility that students might communicate electronically among themselves. This is a risk I am willing to take. *Be advised,*

however, that all exams will be invigilated by both myself and the TA, and during the exams, any evidence of communication with other students will be considered evidence of academic fraud.

Examples of previous exams will be posted on Brightspace, along with the solutions, so that students can get a feel for what will be expected. It is strongly recommended that students work through these old exams and questions, so as to not only familiarize themselves with the important concepts, but to see how these concepts and issues appear in the evaluation tools I design. Students should note that all exam questions are based on actual conservation biology studies, though at times I have exercised my pedagogical prerogative by modifying the presented data so as to make the "noisy" patterns that appear in "real world" studies more obvious.

I will also post on BrightSpace two "tips" files which provide valuable information about *how to prepare for BIO 3115 exams*. Please ensure that you read, and digest the contents of, these files.

Assignments: Assignments must be completed through Brightspace. Submission dates and times are indicated in Tables 1 and 2 above. Students are responsible for ensuring assignments are submitted on time. ***DO NOT leave your submission to the last minute***, as last-minute technical glitches often occur. ***Late assignments will not be accepted unless you have made previous arrangements with me***.

Conservation Biology on-line: All material for the course, including course syllabus, lecture presentations, reference material, assignments, old exams and solutions, bibliographic material etc. will be posted on Brightspace.

Course texts: There is no *required* text. All course material is posted on the course web – lectures should be downloaded, read (and digested) and brought to class. I will also post readings as required, usually in the form of published scientific reports or papers.

There are several excellent conservation biology texts available, including:

- Groom, M.J., Meffe, G.K and C.R Caroll 2006. *Principles of Conservation Biology*, 3rd edition, Sinauer, Sunderland MA.
- Van Dyke, F. 2008. Conservation Biology: *Foundations, Concepts and Applications*, 2nd edition, Springer, Dordrecht.
- Ehrlich, P.R and Sodhi, N.S. 2010. *Conservation Biology for All*, Oxford University Press, Oxford. A full version of this text is available free of charge at: https://conbio.org/images/content_publications/ConservationBiologyforAll_reducedsize.pdf

The first listed is the most comprehensive introductory text on conservation biology currently available, but is now somewhat outdated. A new edition was expected in 2016, but has not yet been forthcoming. Nonetheless, several copies of this text are on reserve in the library. The last two are also excellent texts, and are available as e-books in the library.

Guest Lectures. Throughout the term, we will have presentations by speakers from outside the university who work for provincial, territorial or federal governments, non-governmental organizations, or in the private sector. These guest lectures are designed to give students an exposure to the real-world issues of biodiversity conservation "in the trenches". Material from guest lectures is fair game for examinations and assignments. ***I remind all students that the people giving these guest lectures are very busy in their professional lives, and I expect all students to show them the courtesy they deserve by attending their lectures.*** I expect even those students who have chosen to do a term project attend these lectures, even though (under option 2), you will not be "responsible" for any of the material covered during these guest lectures as part of the final exam. Note, however, that material covered by guest lectures may be useful – *perhaps even critical* – for one or more assignments.

Term projects. The following gives an overview description of the term projects, plus general information. The specific term projects are described in more detail in a document posted on BrightSpace.

Term project objectives: The term project is designed to provide students with the experience of working on a "real-life" project provided by institutions external to the university. These institutions may be community organizations, non-governmental organizations (NGOs), private companies (e.g. environmental consulting firms); or provincial, federal or municipal governments/agencies. This will also provide students with the opportunity to (a) contribute to an undertaking of tangible benefit outside the academic setting; (b) begin to establish networks outside the university of professionals working in different areas related to biodiversity conservation; and (c) become familiar with potential future employers.

Term project rationale and background: Over the past few years, I have grown increasingly disenchanted with the usual format for courses, especially for upper year courses. Instead, I have begun playing around with a format which will help develop in students skills/aptitudes that I believe are very important – indeed critical – to a student's ability to excel outside the university. As such, the term project is designed to develop synthetic and analytic reasoning skills, communication skills, project management skills and networking skills. As a corollary, students will develop real world expertise in proposing, developing, and implementing solutions to real-world biodiversity conservation problems.

Term project expectations: Students are expected to work on their term projects throughout the term (i.e. not leave it until the last possible femto-second), and to consult with the course instructor on an ongoing basis, as they consider appropriate[1]. It is my experience (based on 30 years of teaching) that ongoing consultation will result in a substantially better product.

If students wish to receive constructive comment on their draft projects, they must submit the draft by the deadline shown in Table 2 (or possibly by some other date *agreed upon by the course instructor*). Feedback will be of two forms:

(1) *Comments on presentation*. My experience is that most draft student reports require improvement in the writing and/or presentation. In particular, there is a very common tendency for text to be far more extensive that is required to convey an idea clearly and concisely. In my review of your draft, I will revise/edit a couple of paragraphs in (excruciating) detail so that you get an idea of how, in my view, the presentation could be improved. That the remainder of your text has little, if any, "red ink" on it should not be taken to mean that I consider

(2) *Comments on substance*: in this context, I will provide you with constructive feedback on content elements that I believe are missing, or that might profitably be excluded (as they are deviating fro the "critical" path). It is then your task to follow up these suggestions, as you deem appropriate. A very common suggestion to students concerns the way in which they have approached their analyses: in this case, my substantive comments would concern alternate methods of analysis.

Students should be aware that my feedback is meant to be *illustrative* rather than *comprehensive*. In other words, just because you revise your submission by "doing everything I told you to do", you should not assume that this will result in a grade of A (or A+). It is up to you to think about my explicit comments, and see how they might be profitably employed to improve your submission in other ways, e.g. more detailed or comprehensive analysis, greater scope, etc. If I believe such is the case, I will append some seemingly vague/elliptical comment like "You might wish to consider recent work that has been done on issues with how the conservation value of different types of lands might be determined"

[1] I consider 3rd year students to be adults and hence, responsible for their own education. My role is to provide guidance and resources to assist you (as best I can) in doing so. It is not my responsibility to chase after you, but rather to accommodate your needs in a manner consistent with this role.

Procedure for project selection:

1. Projects may be done singly or in groups of up to 4 students. Group projects are encouraged, as this almost always results in a better and more useful product. Students may choose their own group members.

2. By 17:00 on January 17, students intending to do a term project must submit to me, via email with "BIO3115 2019 term project selection" in the subject line: (1) the names and student numbers of all members of the group; (2) their selected term project. Students who do not have a group, but wish to do a project, should submit their candidate projects as well in order of priority (1st choice, 2nd choice). Over the remainder of that week, I will assign (a) individual students to groups; and (b) groups to projects, based on a first come, first served basis if there are limits on the number of students that can be accommodated for a given project.

3. All projects involve the production of electronic databases, the details of which will be described in additional documents. The structure of these databases is will be indicated, along with specific required information fields that must be completed. Data from students is then compiled, and a set of questions provided, the answers to which are based on analysis of the compiled data. The written submission then takes the form of answers to the questions posed, and the supporting analysis. Training sessions for data extraction and database population will begin the third week of classes.

4. All projects include a contact person or persons. All technical questions (e.g. about the content of the final report, database structure/organization, etc.) should be directed to the course instructor. The contact persons are there to provide context-specific information. *Remember that the contact persons have their own full-time jobs, so use them sparingly and only when absolutely necessary.*

5. Most sponsoring agencies will register with the University of Ottawa's Community Service Learning program (http://www.sass.uottawa.ca/els/csl/student_registration.php). That is, the project will be registered as a Community Service Learning placement. Once this has been done, you can create your own account and register for a placement. Assuming that your final project is acceptable (both to me and to the external agency), you will then receive CSL credit for the work you have done on your project.

6. A brief description of each candidate project will be provided in class on January 9th. More detailed descriptions of each project will also be available on Brightspace.

University policy on plagiarism: Make sure you are familiar with, and understand, the university's definition of plagiarism:

https://www.uottawa.ca/about/sites/www.uottawa.ca.about/files/plagiarism.pdf

and its policy on academic fraud (http://www.uottawa.ca/academic-regulations/academic-fraud.html. As you are doubtless aware, there are various tools available to instructors for checking for plagiarism - forewarned is forearmed.

uOttawa Virtual Campus:
Course outline, lectures and readings and other information will be made available online on the course website, which can be accessed via uOttawa's Virtual Campus. Brightspace is our new platform for course delivery. Help in accessing is available from www.uottawa.ca/cybersos/.

Accommodations and Student Support:
Students requiring short-term accommodation (e.g. due to acute illness or family emergencies) or long-term accommodation (e.g. due to permanent or ongoing concerns such as a disability) should communicate with the course instructor, who will then advise

Students requiring special arrangements for examinations or academic support due to health concerns, learning disabilities or other conditions that influence learning are encouraged to contact Access Services:

In person:	Desmarais Building, Room 3172 (3rd floor)
By phone:	562-5976
TTY:	562-5214
Email:	adapt@uottawa.ca
Webpage:	www.sass.uottawa.ca/acces/

Academic Integrity:

All students are subject to the university regulations pertaining to academic integrity. It is the student's responsibility to understand and comply with the regulations. Please consult the website to familiarize yourselves with the rules and your responsibilities: http://web5.uottawa.ca/mcs-smc/academicintegrity/home.php

as well as related documents:
http://www.uottawa.ca/vice-president-academic/sites/www.uottawa.ca.vice-president-academic/files/academic-integrity-students-guide.pdf