



Faculty of Science Course Syllabus Department of Biology

BIOL 4003 - Indigenous Perspectives in Conservation Biology

Summer July 26 - August 10, 2021

Instructor(s):

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Zonghua Ai zonghuaai@dal.ca

Lectures: 9am to 5pm, Seaside Lab, 4th Floor, Rm. 4012, Department of Biology, Life Sciences Centre

Laboratories and field trips: 9am to 5pm. Intensive multiple overnight trips.

Tutorials: NA

Course Description

Frameworks in science are discussed in conservation hotspots. Indigenous ways of knowing and responsibilities are observed with Canada's managerial frameworks and our treaties. Ceremony and protocols in land based learning, with cases in ethnolinguistics, ecological knowledge, ethnobotany, food sovereignty, and medicine are presented.

Course Prerequisites

There are no prerequisites required; however, students should be prepared for overnight backcountry hiking and exposure to seasonal elements. Students must be ready to engage new ways of learning and ways of knowing. Timeliness is essential.

Learning Outcomes

Students that have taken this course should be able to:

1. List tenets and protocols in Indigenous and Western Sciences
2. Reflect on treaties, policies and language for conservation biology
3. Recognize cultural protocols, research, and work ethics for work with Indigenous communities
4. Discuss Traditional Ecological Knowledge (TEK), sources of life, and conservation responsibilities of Indigenous Peoples in relation to resources and management frameworks in Canada
5. Observe and discuss frameworks of food security, food sovereignty, and their threats
6. List factors affecting species richness
7. Evaluate development projects versus non-consumption practices
8. Use dichotomous keys and Indigenous languages for determining flora and fauna
9. Practice and develop experimental design approaches
10. Write a report with a testable hypothesis or objective according to peer reviewed publication/ community standards; and or,
11. Present a report with a testable hypothesis or objective according to peer reviewed conference/ community standards; and or,
12. Deliver a story (oral or written) regarding self knowledge and individual growth as a practitioner of conservation biology

Course Materials

Peer reviewed literature will be provided on the website as readings for the course.

Assignments

1. **Self-knowledge reflection essay.** Conservation biology is what? What perspectives do you have on conservation biology? Based on your self-knowledge of your starting point(s) as a conservation biologist focus on pertinent Indigenous languages and Biodiversity in your life. Present an Indigenous perspective in your essay territorial focus. Land-based learning, teachings, readings, and ongoing individual growth assessments can mark a growth objective as a conservation biologist in this essay. Follows an, Introduction, Methods, Results & Discussion, References format in the course's Writing Guide.

The reflection's objective will be referenced in Assignment 2, 3.

Submitted on bus July 27th—20%

2. **Conservation presentation.** Based on your participatory observations, fieldwork sampling data, Biodiversity and ethnolinguistic results. This presentation tells a story about Marine, Freshwater, Terrestrial or Airborne life in an Indigenous language, referencing class, the Ferrier Lab literature collection, Novanet, and local knowledge.

(August 7th)—30%

3. **Self knowledge conservation report (Selected topic to be cleared with Instructors).** Based on a conservation topic important to the community and your learning goals in Assignment 1. This report will focus on one major topic or finding from researching your conservation biology interests: decolonizing policy, ecological knowledge cases, or biological mechanisms in the lab. How has this work contributed to your growth objective in Assessment 1? Follows an, Introduction, Methods, Results & Discussion, References format in the course's Writing Guide.

(August 15)—30%

Other course requirements (20%)

1. Daily field book entries with data and reflection notes: 2%
2. Participation: 2%
3. Timeliness: 2%
4. Teamwork: 2%
5. Community contribution result: 2%
6. Field and lab exercises: 10%

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (<50)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies

- More than two absences, missed, or late assignments, exams, etc. must be excused by a medical or community leader, in a note, signed or via some means of communication with the professor. Extension time shall begin after the leave time outlined in the excuse note, and begin from the leave end, through the allocated class time. Otherwise, component value is nil.



DALHOUSIE UNIVERSITY

- 'Student Declaration of Absence (SDA)' can be found here (two max): https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/academic-policies/student-absence.html
- Plagiarism detection software may be used by the instructor in the course
- Lectures may not be recorded

Other policies include:

- Submissions shall be made during class; except for Assignment 3 (via email to jferrier@dal.ca and Biology Department Office).
- Submissions shall be returned with time for feedback, review, and reflection prior to next task deadline
- Professionalism and respect around elders, teachers is expected
- Emails will be responded to within 24 hours (48 during break)
- Information to be completed by student and submitted to instructor will be kept in a locked office, in a locked filing cabinet, will remain confidential, not copied, prior to being returned to the student
- Trigger warnings and content warnings will be issued prior to sensitive topics

Course Content

Material to be covered in the lab and on the land:

1. Introduction to Indigenous perspectives in conservation biology

July 26, 2020

Opening prayer and introductions 9

Tobacco ties 10

Native Science and Western Scientific paradigms 11

Ethnobiology safety and fieldwork methods 1

Writing and storytelling workshop 2

2. Land based learning protocols in Northwestern Unama'ki (F2F)

July 27-30th, 2020 Fishing Cove, Unama'ki

July 27th, morning departure: 8 am, Biology to Fishing Cove: <https://www.pc.gc.ca/en/pn-np/ns/cbreton/activ/camping/fishing>

July 27th: Field protocols and walk to camp - 1:30pm

Marine, Freshwater, Terrestrial biodiversity observations and ID: 3 days

Drum making: 3 days

July 30th: Medicine walk to bus

Afternoon departure to Dalhousie: 1 pm, July 30th

Decompress and prep field samples and camp supplies.

Field guides:

- 1) Nova Scotia Plants <https://ojs.library.dal.ca/NSM/pages/view/Plants>
- 2) Fungi of Ontario
- 3) Newcomb's Wildflower Guide, Mushrooms of Ontario
- 3) Seaweeds of Eastern Canada
- 4) Ferrier Lab Ethnobiology resources

Break: August 1,2, 2020

3. Biodiversity and Indigenous Languages**August 3 - August 5, 2020 (F2F)**

August 3: Talking circle
Specimen curation
Characterization and identification of field specimens

References:

- Plant Identification Terminology Illustrated Glossary
 - Nova Scotia Plants <https://ojs.library.dal.ca/NSM/pages/view/Plants>
 - or other taxonomy guides

August 4: Talking circle
ArcGIS Story Map workshop

August 5: Talking circle
Ethnolinguistics (Mi'kmaq/Nishnaabe/Inuit etc.) of Kijipuktuk's food, medicine, and material life forms

August 6: Talking circle
Guest Elder
Conservation stories, drum songs, ways forward

4. Food, Medicine, Material Sovereignty

August 6: Talking circle
Land based learning video series

5. Conservation Biologists in Indigenous Territories**August 7 - August 10, 2020 (Online synchronous)**

August 7: Conservation biology presentations from each camp that cover the diversity and ethnolinguistics of visited locations with Arc Story Maps **(August 7)—30%**

August 8: Talking Circle
People, Industry, and Government roles
People and species at risk
Policies and our role as conservation biologists

August 9-10: Open house
Laboratory exercises wrap-up
Assignment 3 review

August 13, 2020

Conservation report (selected topic) with self growth assessment reflection-(August 13th)—30%

Suggested readings

Suggested readings according to the instructor's approach to biodiversity and Anishinaabemowin (Nishnaabemwin) conservation. This may change according to Indigenous territory.

Conservation biology in Mi'kma'ki: <https://mikmawconservation.ca> for this courses land relationship.

1. Ariel Rivero, Gabriela Llull, and G. D. M. (2021.). 1-Mapping the Spatial Distribution of Language. Retrieved January 6, 2021, from <https://www.esri.com/news/arcuser/1002/linguistics.html>
2. Berg, V. Den. (2014). Rock Art Studies : A Bibliographic Database Rock Art Studies : A Bibliographic Database (Vol. 2001).
3. Cajete, G. (2000). Native science: Natural laws of interdependence. Santa Fe, NM: Clear Light Publishing.
4. Chamberlain, A. F. (1892). The language of the Mississauga Indians of Skūgog: a contribution to the linguistics of the Algonkian tribes of Canada. Philadelphia: Press of MacCalla & Company.
5. Chapman, A. D. (2005). Principles and Methods of Data Cleaning – Primary Species and Species-Occurrence Data, version 1.0. Report for the Global Biodiversity Information Facility. Copenhagen.
6. Crins, W., Gray, P., Uhlig, P., & Wester, M. (2009). The ecosystems of Ontario, Part 1: Ecozones and ecoregions. SIB TER IMA TR-01 (Vol. Science an). Ontario, Ministry of Natural Resources, Inventory, Monitoring and Assessement Section. Retrieved from <https://dr6j45jk9xcmk.cloudfront.net/documents/2712/stdprod-101587.pdf>
7. Flora of North America. (2020). Retrieved from floranorthamerica.org
8. Dickinson, R., & Royer, F. (2014). Plants of Southern Ontario. Lone Pine Publishing, Canada.
9. Ferrier, J., Pesek, T., Zinck, N., Curtis, S., Wanyerka, P., Cal, V., ... Arnason, J. T. (2020). A Classic Maya Mystery of a Medicinal Plant and Maya Hieroglyphs. *Heritage 2020*, Vol. 3, Pages 275-282, 3(2), 275–282. <https://doi.org/10.3390/HERITAGE3020016>
10. Gorenflo, L. J., Romaine, S., Mittermeier, R. A., & Walker-Painemilla, K. (2012). Co-occurrence of linguistic and biological diversity in biodiversity hotspots and high biodiversity wilderness areas. *Proceedings of the National Academy of Sciences of the United States of America*, 109(21), 8032–8037. <https://doi.org/10.1073/pnas.1117511109>
11. Kerr, J. T., & Cihlar, J. (2004). Patterns and causes of species endangerment in Canada. *Ecological Applications*, 14(3), 743–753. <https://doi.org/10.1890/02-5117>
12. Parliament of Canada. Government Bill (House of Commons) C-91 (42-1) Indigenous Languages Act. Retrieved from <https://www.parl.ca/DocumentViewer/en/42-1/bill/C-91/royal-assent>
13. Peluso, N. (1995). Whose Woods are These? Counter-Mapping Forest Territories in Kalimantan, Indonesia. *Antipode*, 27(4), 383–406.
14. Rhodes, R. A. (2015). Eastern Ojibwa-Chippewa-Ottawa Dictionary (Reprint 2015 edition). Mouton De Gruyter. New York.
15. Rogers, S. R., & Staub, B. (2013). Standard use of Geographic Information System (GIS) techniques in honey bee research. *Journal of Apicultural Research*, 52(4), 1–48. <https://doi.org/10.3896/IBRA.1.52.4.08>

16. Ryan, A. (2017). Our rivers are not blue: Lessons reflections and challenges from Waorani map making in the Ecuadorian Amazon. In British Cartographic Society Conference : Maps for Changing Reality (Vol. 51, pp. 59–69).
 17. Sullivan Sr, M. D., Gundel, J., & Nichols, J. D. (2016). Revitalization in Ojibwe. A Dissertation University of Minnesota.
 18. Tardío, J., & Pardo-De-Santayana, M. (2008). Cultural importance indices: A comparative analysis based on the useful wild plants of southern Cantabria (northern Spain). *Economic Botany*, 62(1), 24–39. <https://doi.org/10.1007/s12231-007-9004-5>
 19. Todd, E. M. (1972). Ojibwa Syllabic Writing and Its Implications for a Standard Ojibwa Alphabet. *Anthropological Linguistics*, 14, 357–360.
 20. Trotter, R., & Logan, M. (1986). Informant consensus: a new approach for identifying potentially effective medicinal plants. In N. L. Etkin (Ed.), *Plants in Indigenous Medicine and Diet: Biobehavioural Approaches* (pp. 91–112). Bedford Hills
 21. UN General Assembly. 2019 International Year of Indigenous Languages, Pub. L. No. A/RES/71/178. Retrieved from <https://www.un.org/development/desa/dspd/2019/01/2019-international-year-of-indigenous-languages/>
 22. UN General Assembly. (2007) United Nations Declaration on the Rights of Indigenous Peoples : resolution / adopted by the General Assembly 2007.
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ACCOMMODATION POLICY FOR STUDENTS

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic under the Nova Scotia Human Rights Act. Students with disabilities are encouraged to register as quickly as possible at the Student Accessibility Services if they wish to receive academic accommodations. To do so please phone 494-2836, e-mail access@dal.ca, drop in at the Mark A. Hill Accessibility Centre, or visit their website www.studentaccessibility.dal.ca.

ACADEMIC INTEGRITY

Academic integrity, with its embodied values, is seen as a foundation of Dalhousie University. Our Academic Integrity website (<http://academicintegrity.dal.ca>) is an exceptional resource that provides students and faculty access to current university policies. It highlights issues of concern to discourage violations of acceptable conduct, and provides many links to help students succeed honestly.

It is the responsibility of ALL students to be familiar with behaviours and practices associated with academic integrity – ***IGNORANCE IS NO EXCUSE FOR PLAGIARISM, CHEATING OR ANY OTHER ACADEMIC OFFENCE.***

At Dalhousie University, plagiarism is defined as “the submission or presentation of the work of another as if it were one’s own.” (Dalhousie Undergraduate Academic Calendar)

Instructors are REQUIRED to forward any suspected cases of plagiarism to the Academic Integrity Officer for their Faculty. If you are accused of plagiarism you will be informed of the allegation by the Faculty of Science Academic Integrity Officer, and a date will be set for a meeting. You may contact Dalhousie Student Advocacy Services to assist you in preparing a defense. Until the case is resolved, your final letter grade will be an “INC”. If it is determined that you have committed an offence you will be penalized. Penalties are determined on a case by case basis. For more details see the Academic Integrity Website and Academic Regulations (<http://academicintegrity.dal.ca>).

“Plagiarism is considered a serious academic offence that may lead to the assignment of a failing grade, suspension or expulsion from the University.” (Dalhousie Undergraduate Academic Calendar)

STUDENT CODE OF CONDUCT

Dalhousie University has a student code of conduct, and it is expected that students will adhere to the code during their participation in lectures and other activities associated with this course.

In general:

“The University treats students as adults free to organize their own personal lives, behaviour and associations subject only to the law, and to University regulations that are necessary to protect

- the integrity and proper functioning of the academic and non – academic programs and activities of the University or its faculties, schools or departments;
- the peaceful and safe enjoyment of University facilities by other members of the University and the public;
- the freedom of members of the University to participate reasonably in the programs of the University and in activities on the University's premises;
- the property of the University or its members.”

The full text of the code can be found here:

http://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html