

Faculty of Science Course Syllabus (Section A) (revised June 2021)

Department of Biology

BIOL 3602/HSTC 3302

History of Biology

Fall 2022

Dalhousie University and the University of King's College sit on ancestral and unceded Mi'kmaw territory, subject to the Peace and Friendship Treaties that are the basis for peaceful co-existence and good relations among all who live in Mi'kma'ki. We are all Treaty people.

We acknowledge the histories, contributions, and legacies of the African Nova Scotian people and communities who have been here for over 400 years.

Instructor(s): Dr. Gillian Gass gillian.gass@dal.ca Office hours by appointment

Lectures: Mondays and Wednesdays 2:35-3:55

Course delivery: In-person (lectures/seminars/group work not recorded)

Calendar Course Description

What was life? This course explores a wide range of human attempts to understand the living world, from ancient accounts of spontaneous generation to atomic-age genetics and ecology.

Introduction to the Course

In this class, we'll explore a wide-ranging set of topics in the history of biology; and in our work we will ask, as often as we can, "what was life?" – that is, for a particular moment or text or period of intense investigative activity, what were the features or meanings of living things that were considered important? Once deemed important, what approaches did participants take to building knowledge around these aspects of the living world? Where and how did this work happen and how was it communicated? Who was involved in building this knowledge, and how have historians worked to surface previously overlooked or hidden contributors to the ongoing work of understanding living things? And how can historical work help us in answering these questions?

In class we will work regularly with primary texts, often with representative or crucial passages from longer works. You will gain experience in close, careful, and thoughtful reading techniques and with a range of source materials including published books, articles, images, and online-accessible archived materials. The class will be structured to promote access and flexibility, and you will be able to choose from a number of different approaches to class participation. The take-home midterm and final exams will be essay-based, and for your course project you will curate a dossier of materials about some person, technology, study or site relevant to the history of biology, with the aim of building a collection of good-quality historical information suitable for use by someone teaching or writing about biology.

Course Format

The class will include lecture, seminar, and small-group/workshop elements. Lectures will be used to introduce new ideas and provide context; in seminar-style discussions, we will focus on making connections between course topics and understanding key arguments from the secondary literature; and in small-group/workshop sessions we will focus on working with primary sources, closely reading and discussing selected passages, images, or objects.

Learning Objectives

In this course, students will have the opportunity

1. to recognize and articulate, across a range of different instances, some enduring questions for the human study of living things and to consider the role of place and other contextual factors in shaping studies of the living world;
2. to encounter and analyse a variety of historical source materials and to build an appreciation for what these sources can tell us about the history of practices, ideas, and questions in the study of living things;
3. to practice reading, thinking, and communicating as an historian by making connections and sharing ideas in group and class discussions, essays, short written work, and an individual project.

Course Materials

Readings for each week will be 20-30 pages (so, 10-15 pages per class meeting), emphasizing primary source materials and with some selected secondary materials included to provide support and context. There are no books to buy for this class: all readings will be provided to students via our class Brightspace site.

Course Assessment

Class Participation: 20%

(Throughout term)

Evidence of participation in class can take many forms. In this class you will plan your own pathway through a course in a way that includes some required elements (for example, exams and a course project) and some flexibility in the form of participation.

Students will be able to choose from a set of options to build their participation grade, including:

- regular participation in class/group discussions (for up to 15%)
- substantial contributions in a chosen “keystone” class; this could include taking a leading role in class discussion or providing short verbal summaries of readings (up to three class sessions at 5% each)
- short (300-500 words) written responses to discussion questions (up to three at 5% each)
- curating image sets relevant to course topics, including annotations, alt-text descriptions and sourcing (up to three sets of four images at 5% each)

Please consider how you would like to demonstrate your engagement with the class materials, choosing from among these options a set of activities that add up to a total of 20%. Then, provide me with your participation plan (via e-mail) by September 21, 2022; but keep in mind that you do have the option of revising your plan as the term goes along.

Midterm (Take-Home) Essay Exam: 20%

The midterm exam will consist of two essays from a selection of approximately five questions on specific course topics; as the exam is take-home the essays will be properly sourced with arguments supported by quotations from course readings.

The midterm exam is due Wednesday, October 12 by 11:59 p.m. in Brightspace dropbox. The exam will be available on Brightspace for 24 hours beginning at 11:59 p.m. on Tuesday, October 11; suggested time to complete the exam is 2 hours. This exam is asynchronous and not proctored.

Dossier Project: 30%

In this project, you will develop a dossier about a past practitioner (in particular, this project is an opportunity to profile members of groups who have been marginalized because of race, sex/gender, and/or disability and are consequently underrepresented in widely-available information about past biologists), a technology, an experiment, a biological entity, or a workspace/study site that has been of importance to the history of biology.

The goal of the dossier project will be to curate a set of credible historical accounts and analyses, primary sources both written and visual, a summary of the key findings from these sources, and a list of further readings, such that a biology teacher or writer/journalist could use the dossier to incorporate the chosen subject into their communication about biology to students or public audiences in a way that is interesting and well-grounded in the historical record. The project proposal will be counted for 10% and the final dossier for an additional 20% of the course grade.

The proposal is due Monday, October 24th, and the final project is due Wednesday, November 30th. Both project components should be uploaded to the Brightspace dropbox by 11:59 p.m. on the due date.

Final (Take-Home) Essay Exam: 30%

The final exam will consist of two essays from a selection of approximately five questions on broad course themes, with examples chosen from both pre- and post-midterm exam material; as the exam is take-home the essays will be properly sourced with arguments supported by quotations from course readings.

The final exam is offered during the scheduled exam period. The exam will be available on Brightspace for 24 hours beginning at the time scheduled by the Registrar and is due by the end of the availability period in our Brightspace dropbox; suggested time to complete the exam is 3 hours. This exam is asynchronous and not proctored.

Summary of course assessment elements and due dates

Assessment Element	Due Date	Grade Value
Participation	Participation plan due September 21 st (via e-mail) with participation taking place throughout term, with final submissions of written/visual elements due by December 7 th at 11:59 p.m. (all times AST) via Brightspace dropbox	20%
Midterm Exam	Test available via Brightspace on October 11 th 11:59 p.m.; test due via Brightspace dropbox October 12 th at 11:59 p.m.	20%
Dossier Project Proposal	Due October 24 th 11:59 p.m. via Brightspace dropbox.	10%
Dossier Project Final	Due November 30 th 11:59 p.m. via Brightspace dropbox	20%
Final Exam	Test available via Brightspace at date and time scheduled by Registrar's Office; completed test due 24 hours after scheduled start time via Brightspace dropbox	30%

The University of King's College uses the following scale for defining and correlating letter grades, number grades, and grade point values. The relationships between letter grades and point values are the same as the Dalhousie Common Grade Scale.

Grade	Percentage Grade Value	Grade Point Value	Definition	
A+	90-100	4.3	Excellent	Considerable evidence of original thinking; demonstrated outstanding capacity to analyze and synthesize; outstanding grasp of subject matter; evidence of extensive knowledge base.
A	85-89	4.0		
A-	80-84	3.7		
B+	77-79	3.3	Good	Evidence of grasp of subject matter, some evidence of critical capacity and analytical ability; reasonable understanding of relevant issues; evidence of familiarity with the literature.
B	73-76	3.0		
B-	70-72	2.7		
C+	65-69	2.3	Satisfactory	Evidence of some understanding of the subject matter; ability to develop solutions to simple problems; benefitting from the university experience.
C	60-64	2.0		
C-	55-59	1.7		
D	50-54	1.0	Marginal Pass	Evidence of minimally acceptable familiarity with subject matter, critical and analytical skills (except in programs where a minimum grade of 'C' or 'C+' is required).
F	0-49	0	Inadequate	Insufficient evidence of understanding of the subject matter; weakness in critical and analytical skills; limited or irrelevant use of the literature.
INC		0	Incomplete	
W		Neutral and no credit obtained	Withdrew after deadline	
ILL		Neutral and no credit obtained	Compassionate reasons, illness	

Access and Flexibility

I have tried to be conscious of access and flexibility when developing this class, but there is always more to be done and you might still encounter barriers to access.¹ The staff at Dalhousie's Student Accessibility Centre (access@dal.ca) are available to support students with disabilities and other access needs. You don't need to wait until you have documentation in hand to start working with the Access staff, so please get in touch with them right away. Please feel free, too, to contact me directly if there's an aspect of the class that is creating a barrier for you. In that case, you absolutely don't need to disclose the specifics of

¹ Laura Mauldin's "Course Ethos of Care" has been a helpful source for this section: (https://docs.google.com/document/d/1lCEMb43ZzdJCA1Z_eni7HX6BH8F6HOeSwkYqlqqADh8/edit)

your situation to me – just explain what you need, and I will do what I can, probably in consultation with the experts at the Access centre. I would also like to hear from you with any ideas that you have about how to make this class more accessible for students.

During the term you might need to miss a class now and then due to health reasons, caregiving responsibilities, or unexpected circumstances (and so might I). The class is designed to allow for participation options that don't require always being in class, and the midterm and final exams include a choice of questions so that not every day's in-class material will be tested directly. If a situation arises that requires you to miss more than a few classes, please let me know. We might find, too, that as term goes on we have to make changes to the class due to updated public health rules or other circumstances that can't be predicted at the start of term; in that case, I will keep access and flexibility as priorities in navigating these changes.

For more on access, please see Syllabus Section B (Policies and Statements).

Policy on deadlines, supplemental and missed tests

All assignments, projects, and tests are handed in through our Brightspace site into the appropriate assignment dropbox, and all work is due by 11:59 p.m. Halifax time on the due dates specified above (please don't cut the timing too closely, though – allow yourself some leeway in case of a Brightspace glitch or other unexpected delay). Assignments submitted after the specified due date and time will have 10% deducted per day overdue. If you are unable to submit your paper on time due to illness or personal/family circumstances, please contact me as soon as you can to discuss a revised due date.

There are no supplementary exams or projects in this class. If you have missed an intended participation element, you can choose a new participation option from the list to replace it; in that case, please just let me know about the change of plans. Please make sure to do your best on all tests and assignments by not leaving any work until the last minute, and please don't hesitate to ask questions if you need some help.

Academic Integrity

In academic work, we value and highlight the contributions of other scholars, and take care in the use of quotation and citation to show how our own work is built upon the words and ideas of other thinkers. This commitment, and the set of practices that we use to enact that commitment, is often called “academic integrity”.

Academic integrity is a central value at Dalhousie and King's, and violations of academic integrity such as plagiarism and other forms of cheating are not acceptable. Penalties assessed in cases of academic dishonesty can range from zero grades on assignments or courses, to notations on transcripts, to suspension or expulsion. It is not worth taking this risk – so don't. Just do your own work and give proper credit to your source materials. If you're not sure how to give proper credit, please check with me or with the Writing Centre. In this class, all exams, assignments, and projects are expected to consist of the student's own work. Plagiarism detection software will not be used in this class.

For more on academic integrity, please see Syllabus Section B (Policies and Statements).

Course Topics

For each day's assigned readings, please see our class Brightspace site.

Date	Topics
07-Sep	Course introduction
12-Sep	Generation, spontaneous and otherwise, in Classical Antiquity
14-Sep	Generation continued, and plant knowledge in an ancient/medieval herbal
19-Sep	Living beings and the Classical Islamic world
21-Sep	Life under the microscope in 17th century natural philosophy
26-Sep	Metamorphoses and observations in 17th and 18th century studies of life
28-Sep	How and why to classify: arguing about methods in the 18th century
03-Oct	Colonial botany, bioprospecting, and living world knowledge in place
05-Oct	Course project work day
10-Oct	Thanksgiving holiday (no class)
12-Oct	Midterm day (no new class material)
17-Oct	Observation, representation, and invisibility: scientific illustrations and illustrators
19-Oct	Cells and states in the 19th century German lands
24-Oct	What was Mendel doing?
26-Oct	Species and changes: evolutionary thinking before and after Darwin
31-Oct	Spaces for biological work: lab and field, local knowledge and expeditions
02-Nov	Catch-up day
	Break week
14-Nov	Guest lecture by Dr. Mélanie Frappier: Ant nests and domestic spaces for science
16-Nov	Mathematical models, model organisms, and chromosomes
21-Nov	Eugenics and early genetics
23-Nov	Genetics, development and the "natural" in early 20th century biology
28-Nov	Mutations and visualizations in Atomic Age genetics
30-Nov	Fallout: radiation and ecology in the pond and under the sea
05-Dec	Crystallographers, structures, and transformations in early molecular biology
06-Dec	Course wrap-up: knowledge and the living world (Please note that this is a Tuesday; and we do not have class on the following day, Wednesday December 7 th as Friday classes are being held that day. See https://www.dal.ca/academics/important_dates.html for details.)