

Syllabus

History of the Marine Sciences

History of Science and Technology Programme,
University of King's College

HSTC 3331.03 / HIST 3073.03 / BIOL 4664.03 / MARI 4664.03 /

OCEA 4331.03 / SCIE 4001.03

History of the Marine Sciences

Spring 2025 (May 5 – May 27, 2025)

The University of King's College sits 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. Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.

Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.

Course Instructor(s)

Name	Email	Office Hours
Gillian Gass (she/her)	gillian.gass@dal.ca	by appointment

E-mail is the best way to reach me; my goal is to reply to student emails within 24 hours, Monday through Friday. I'm happy to meet in person outside of class time if you would prefer an in-person conversation – in your email, please just suggest a few times that would work with your schedule.

Course Description

This course traces the history of marine sciences from the antiquity to the 20th century. Topics may include ancient cosmologies, voyages of discovery, ocean circulation, and a range of scientific perspectives and technological developments that have shaped the human understanding of the oceans.

Course Prerequisites

At least 30 earned credit hours are required in order to register for this class.

Course Structure

Introduction to the Course

In this course, we will trace the history of marine sciences from the ancients to the 20th century. We will not attempt a complete narrative covering how human understanding and study of the ocean developed across such a wide range of time and space; instead, at each class meeting we will examine a selection of topics from particular historical moments to try to understand some central questions relevant to the history of marine sciences and the history of science more broadly. This class gives sciences, social sciences, and humanities students alike the opportunity to learn about the historical context of one area of science and to work with primary historical sources and selected secondary analyses that aim to make sense of a particular type of human activity.

This is an advanced-level summer class that will take place within a four-week period. As such, this class will be an intense period of work and, in addition to the regular 9:35-11:55 a.m. class meetings you should expect to spend significant time out of class each day preparing for the next day's class reading as well as working on exams and the course project. All course readings are available to you via our Brightspace site.

Each year, students from a wide range of academic backgrounds take this course, and I encourage each of you to find a place for this course within your overall programme of study and your own particular interests. How does this material fit in with or connect to the rest of what you already know and what you are learning at university? What interests and contributions do you bring to the course? As we focus on particular topics and get into details, it helps to keep in mind the question: what does this mean for how we think about science, about nature, about knowledge and its possibilities and limits?

Course Format

Our class will meet on Mondays, Tuesdays, Wednesdays, and Thursdays in room Seminar 7, at the University of King's College Arts and Administration Building. We have several lab days where the class will meet instead at LSC 2097; please consult the class schedule for details.

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 the oceans and to consider the role of place and other contextual factors in shaping studies of the marine 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 the oceans;
3. to practice reading, thinking, and communicating as an historian by making connections and sharing ideas in group and class discussions, essays, and an individual project.

Course Materials

There is no textbook required for purchase for this class. All readings will be available via the class Brightspace site (dal.brightspace.com). The course readings are often challenging, whether because they are primary source scientific materials or because they contain complex historical analysis; and different readings may present a challenge to different students depending on their academic background. It's okay if you struggle with a reading – help is available, whether via e-mail or in a conversation with me – but do your best to make some sense of it yourself first. As well, it's worth remembering that we can't really make perfect sense of any historical document; we can, at best, try to make sense of it for ourselves or in order to explain it to someone else, and to think about the sense that it might have made to readers at the time that it was published. Our questions for every text are seemingly-simple ones like “what is this saying?” and “what does it mean?” that we answer to the best of our ability given what we know about the document's content and its historical context.

Assessment

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.

Participation: 20%

Our course will include 4 lab/workshop days, and participation in these workshops counts for 10% of your total course grade.

For the remaining 10%, students can choose from

- consistent participation in class/group discussions and classroom activities, in at least three-quarters of the class meetings
- at least two short (300-500 words) written responses (on paper or via e-mail) to material from that day's class, received by 4 p.m. on the day of that class
- some classroom participation (for 5%) and one written response (for the other 5%)

Please consider how you would like to demonstrate your engagement with the class materials and let me know (via e-mail by May 8th) which of the three options above you'd prefer; but keep in mind that you do have the option of revising your plan as the course goes along. In the case of written responses, which will be accepted only for classes attended by the student, the response should not summarize the class materials or readings but instead engage with discussion questions that came up during that day's class.

Midterm Essay Exam: 20%

The midterm exam will consist of two essays from a selection of approximately five questions on specific course topics. This test will cover course material up to and including May 13th. The midterm will be written during class time on May 14th.

Course Project: 30%

Rather than a traditional research essay, this term you will be completing a course project called a "Winsor series" in which you will follow a chain of citations backward in time from a recent scientific journal article in the area of marine sciences. In your Course Documents folder on Brightspace, you'll find a further explanation of this project.

The project has two written stages:

1. An initial proposal stage: this section of the project is worth 10% of your final grade and is due by May 9th at 4 p.m. ADT.
2. A final project submission of about 2500 words: this section of the project is worth 20% of your final grade and is due by May 23rd at 4 p.m. ADT.

Both written stages must be submitted for you to receive credit for the course project: that is, the final project submission will not be accepted if you haven't first submitted the proposal for feedback. As well, you should keep your notes and an ongoing record of your work on the project in case these need to be consulted during final project grading. No AI/large language model tools (for example, ChatGPT) are to be used in completing the proposal or final stages of this project.

The proposal and final project will both be handed in via our Brightspace site using dropboxes in the Assignments area.

Final 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. The final exam will be written during class time on May 27th.

Summary of course assessment elements and due dates:

Assessment Element	Due Date	Grade Value
Participation	Workshops/lab days throughout term for 10%, and additional participation (in-class and/or written) for 10% total	20%
Course Project Proposal	May 9 th by 4 p.m. ADT via Brightspace dropbox.	10%
Midterm Exam	May 14 th during class time	20%
Final Exam	May 27 th during class time	30%
Course Project Final	May 23 rd by 4 p.m. ADT via Brightspace dropbox	20%

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 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 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. Please note that we do not use the SDA (Student Declaration of Absence) form in this class.

For more on access, please see the University Policies and Statements section of the syllabus.

Policy on due dates, supplemental and missed tests

The project proposal and final document are handed in through our Brightspace site into the appropriate assignment dropbox, and all work is due by 4 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). 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. Work sent in after the specified due date and time without an agreed-upon revised due date will have 10% deducted per day overdue.

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.

¹ Laura Mauldin's "Course Ethos of Care" has been a helpful resource for this section:
(https://docs.google.com/document/d/1ICeMb43ZzdJCA1Z_eni7HX6BH8F6HOeSwkYqlqgADh8/edit)

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 each individual student’s own work: all work handed in for credit must be your own work in your own words, with quotations from other works indicated clearly with quotations and page numbers indicated and all sources properly credited.

No AI/generative/large language model technologies (for example, ChatGPT) are to be used in your work for this course. For details, please see the statements on page 12 of this syllabus which govern student work done in University of King’s College courses like this one.

Plagiarism detection software will not be used in this class.

For more on academic integrity, please see the University Policies and Statements section of the syllabus.

Course Topics

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

All classes meet in Seminar 7 at King's unless otherwise specified below.

Class date	Topics
May 5	1. Course Introduction and Syllabus 2. Water in Motion: Observing, Explaining, and Navigating the Oceans
May 6	Some Ancient and Classical Natural History of Marine Life
May 7	Medieval and Classical Marine Life, Navigation, and Instruments Lab Day: class meets at LSC 2097 (one of the first-year Biology lab rooms)
May 8	Studying the Sea in 17 th Century Britain
May 12	Currents, Corals, Charts, and Chronometers
May 13	Enchantment Under the Sea: Guest class with Dr. Simon Kow and Dr. Mélanie Frappier
May 14	Midterm Exam during class time
May 15	Learning from Instruments in Physical Oceanography Lab Day: class meets at LSC 2097 (one of the first-year Biology lab rooms)
May 19	<i>No class today: Victoria Day holiday</i>
May 20	Fisheries Science, Three Ways, and Containing the Ocean: Aquariums, Jars and Tanks in 19 th and 20 th century marine zoology Lab Day: class meets at 9:35 at LSC 2097 ; we'll be doing some work at the McCulloch Museum (Biology Department, just down the hall from the lab room), and at 10:30 and 11:15 a.m. (sign up for one or the other time) we'll go to the Aquatron .
May 21	At Sea and At the Seaside: The <i>Challenger</i> Expedition and Marine Stations
May 22	Plankton Ahoy! Lab Day: class meets at 9:35 at LSC 2097
May 26	Who Goes to Sea? Women in 20 th century Marine Sciences
May 27	Final Exam during class time

University Policies and Statements

Dalhousie:

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (<https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html>)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: <http://www.dal.ca/cultureofrespect.html>

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner - perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be found at: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.

University of King's College:

Copyright and privacy: Recorded lectures or posted lecture notes remain the intellectual property of the instructor and guest lecturers. Reposting, sharing, further distributing or otherwise misusing them violates their privacy and copyright interests and is expressly prohibited without explicit permission. Strict privacy protections also apply. Provincial and federal laws restrict the dissemination of personal information about academic staff and students—including email addresses, phone numbers, residential information, images and videos. In light of all this, tutorials should not be recorded by students or screenshots taken without express permission.

Academic Rules and Regulations

This course is governed by the academic rules and regulations set forth in the University of King's College [Calendar](#).

Academic Integrity

At the University of King's College and Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, respect, and courage (The Center for Academic Integrity, 2021). As a student, you are required to demonstrate these values in all the work you do.

The notion of academic integrity is broad, as is the notion of plagiarism, and you are encouraged to read up on them [here](#). But in essence, what both notions mean for this course is the following: **Every assignment you complete for this course will be your own work and you will acknowledge sources of information and ideas when they are not your own.** Failure to do so constitutes a serious academic offense and could result in academic penalty.

Important Notes on Generative Writing Tools:

1. **Generative writing tools like Chat GPT, Google Translate and QuillBot (etc.) are not permitted in King's classes, unless explicitly allowed by the course instructor.**
2. **If the instructor has explicitly sanctioned its usage,** it is important for their students to remember that the information derived from generative writing tools is based on

previously published materials. Therefore, using these tools without proper citation constitutes plagiarism. For information on how to cite the use of artificial intelligence, please see the Dal [Library's guidelines on how to cite artificial intelligence](#).

3. Any assignment that is found to have used AI tools when they were not explicitly permitted by the course instructor will be considered as plagiarism and reported as an academic offense.

Academic integrity issues involving King's courses are normally dealt with by the Academic Integrity Officer (AIO) of the University of King's College.

Keeping academic term

Examination dates cannot be changed to accommodate travel plans, work arrangements and personal activities. It is the obligation of each student to ensure that his or her travel arrangements or other activities do not conflict with in-class activities or the end-of-term examinations. The keeping of academic term is the responsibility of every student.

Students' responsibilities on evaluations

It is the student's responsibility to keep his or her assignments and evaluations to protect themselves against possible lost grades or in case of grade revision (the original marked copy of the assignment will be required in such a case).

Codes of conduct

Everyone at Dalhousie and King's is expected to treat others with dignity and respect. Two Codes of Conduct are relevant to students enrolled in Joint Dalhousie/King's classes:

- (1) The University of King's College Code of Conduct as contained in the *Yellow Book* (read more [here](#)).
- (2) The Dalhousie Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution (read more [here](#)).

Disputes over academic performance and assessment will be dealt with according to the Academic Regulations of University of King's College. For more information, see the King's [calendar](#).

Diversity and Inclusion—Culture of Respect

The University of King's College is committed to a welcoming and respectful working and learning environment that is free from harassment and discrimination. We encourage open dialogue; to that end, members of the class are expected to refrain from speaking or behaving in ways that are harmful to others, through racism, homophobia, sexism, or other derogatory treatment based on characteristics protected under the Nova Scotia Human Rights Act. The King's College Code of Conduct (*Yellow Book*) provides specifics. Students are also directed to Dalhousie's [Strategy on Diversity and Inclusiveness](#).

The full list of characteristics protected under the Nova Scotia Human Rights Act can be found [here](#).

King's-Specific Student Supports

Students often look for support related to accommodations, sexual health and safety, mental health or other life circumstances. Please visit [the Student Support Directory](#) on the King's website for a list of some of the King's-specific supports available, including the referral and contact process for each person or program.

University Policies and Programs

[Important Dates in the Academic Year](#) (including add/drop dates)

[Dalhousie Grading Practices Policy](#)

[Grade Appeal Process](#)

[Scent-Free Program](#)

Learning and support resources

Academic Support and Advising

[King's](#)

[Dalhousie](#)

Accessibility and Accommodations

The [Student Accessibility Centre](#) provides King's students with accessibility and accommodations supports. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation.

If there are aspects of the design, instruction, and/or experiences of this course that result in barriers to your inclusion, please contact King's Accessibility Officer Michelle Mahoney (michelle.mahoney@ukings.ca) or the Centre (access@dal.ca).

Please note that our classroom may contain accessible furniture and equipment. It is important that these items remain in the classroom, undisturbed, so that students who require their use will be able to fully participate.

Health and Wellness

[Student Health & Wellness Centre](#)

On Track (helps you transition into university, and supports you through your first year at King's and Dalhousie and beyond): www.dal.ca/campus_life/academic-support/On-track.html

[Dalhousie Multifaith Services](#) is a space where Dalhousie and King's students, staff, and faculty can address the basic questions of meaning and purpose in their lives—no matter what their faith, philosophy or doubt may be. Dalhousie Multifaith Services provides chaplains for Buddhist, Anglican, Baptist, Lutheran, Pentecostal, United Church of Canada, Baha'i, Hindu, Jewish, Roman Catholic, Sunni Muslim and Unitarian Universalist faith traditions. The University of King's College Chaplain, Fr Ranall Ingalls, whose office is in the King's A&A Building, is a Christian priest in the

Anglican tradition, but he is at King's for everyone and not only Anglicans or Christians. Read about the King's Chapel [here](#).

Student Support, Advising and Advocacy

Dalhousie's [Indigenous Student Centre](#)

The [Elders-in-Residence](#) program provides students with access to First Nations elders for guidance, counsel and support. Visit the office in the Indigenous Student Centre or contact the program at elders@dal.ca or 902-494-6803.

[Black Student Advising](#)

[International Centre and academic advising for International Students](#)

[South House Sexual and Gender Resource Centre](#)

[LGBTQ2SIA+ Collaborative](#)

Dalhousie Student Advocacy Service ([DSAS](#))

[Dalhousie Ombudsperson](#)

[Human Rights and Equity Services](#)

Writing Centre and Study Skills:

If you need extra help with your writing, you can contact the [Writing Centre in the Killam Library](#).

A Study Skills Programme is offered by Academic Support (Killam Library: 494-3077).

Study Skills/Tutoring: www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Fair Dealing and Copyright Guidelines:

The [Dalhousie University Fair Dealing Policy](#) provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at King's College and Dalhousie.

Libraries:

[King's library](#)

[Dalhousie libraries](#)