BIOL 511/812 Syllabus

Brief Overview

This syllabus is long and contains important information. A table of contents is provided at the top to help you navigate to specific sections. Here is a very brief summary/overview of the syllabus:

Course Philosophy

- **Learn by doing**: Coding is a skill developed through practice, not memorization.
- **Learn the literature**: the best way to learn bioinformatics and data analysis is to work through real analyses from real published papers.

Tech Setup (Before Week 1)

You must bring a laptop to class and install the following (select 'free version' of each):

1. **Install R**: https://cran.r-project.org/
2. **Install Positron** (the successor to RStudio): https://positron.posit.co/
3. In Positron, install tidyverse:
```
install.packages("tidyverse")
library(tidyverse)
```
4. In Positron, install positpal:
```
install.packages("remotes")
remotes::install_url("https://quantitative.bio/downloads/positpal.tar.gz")
library(positpal)
```

Course Materials

- **All material needed for this course** is freely available through OnQ. This includes electronic copies of the main **textbooks** (optional printed copies available for purchase):
  - *R Crash Course for Biologists*
  - *R STATS Crash Course for Biologists*
  - *R ML Crash Course for Biologists*
  - *R Bioinformatics Crash Course for Biologists*

Weekly Routine

- **Before class**: read the assigned chapter/paper(s) for the week and follow the presenters' setup instructions (download the data/code, install any packages).
- **During class** (3 hours): two tutorials or paper discussions of ~60 minutes each, with a short break between. Bring your laptop and code along.
- **After class**: submit a short structured peer evaluation within 48 hours.

Assessments

- **35% Tutorial Presentation:** teach a guided tutorial to the class.
- **35% Paper Presentation:** lead a discussion of a peer-reviewed paper and its data analysis.
- **10% Participation:** attendance, reading the papers before class, engaging in tutorials and discussion, and completing all peer evaluations.
- **20% Final Exam:** a short (~1 hr), handwritten exam reviewing everything covered in the course.

Penalties (does not apply to students with pre-arranged accommodations)

- -**100%** on late coding challenges (but note that the lowest 5 grades are dropped).
- **-50%** for working with a group other than the one to which you were assigned on OnQ.
- **-100%** on final project. It is presented in week 12, so it can't be late.

Using AI Tools

- You may use LLMs like ChatGPT, Claude, or Copilot **only to help debug or explain code**.
- **Do not use AI** to write code, make slides, or create anything else you present to the class. **NEVER copy-paste any text out of an LLM**.

Communication

- Ask questions in lecture/tutorial or office hours. ***Email is usually an unnecessary distraction that is used minimally in this course*** (both for students and for instructors/TAs).
- Check OnQ regularly for updates.

Course Information

General Course Information

Course: Biol 511 (undergraduate) / Biol 812 (graduate)
Course title: Applied Bioinformatics for Biologists
Pre-requisites: *BIOL 511*: Level 4 and registration in a Biology Honours Plan (BIOL-M-BSH, BIOL-P-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH) and a minimum GPA of 2.0 in the Biological Foundations List, or permission of the Department. Recommended: BIOL 331/3.0 and BIOL 343/3.0.
BIOL 812: Registration in a graduate program in Biology (or permission of the instructor) and prior experience with R and/or Python
Semester and year: Fall 2026
Number of credits: 3.0
Learning hours: 120 (36 Lecture; 19 Tutorial; 65 Private Study + Group Work
Modality (on campus, blended, or online): On campus

Course Description

This course examines common bioinformatics tools and their applications in biological research, through a combination of in-class coding tutorials and discussions of published research articles chosen by students. Students may choose primary research articles from any area of biology including (but not limited to) molecular genetics, cell biology, physiology, ecology, population genetics, molecular evolution, and conservation biology.

Welcome to BIOL 511 / BIOL 812!

Most courses teach you methods in isolation and glo0os over the messy details about how you apply them to biological research. This course makes the transition to examining real, published research that connects back to the bioinformatics and data-analysis methods that produced it. Modern journals increasingly require authors to archive the data and code behind their papers representing a valuable learning resource.

The course runs in two phases. In the first few weeks, we run through hands-on tutorials covering the shared toolkit: how to find and evaluate archived data and code, how to set up a reproducible analysis environment, the file formats and data structures common in bioinformatics, and how to structure an effective tutorial presentation. A midterm test at the end of this phase covers these fundamentals and sets the tone for engaged, in-class learning.

In the remaining weeks, students choose a published paper with well-curated data and code, and teach it to the class as a tutorial: the biological question and study design, the structure of the archived dataset, and a guided, code-along walkthrough that reproduces at least parts of the paper. Along the way you will discover what published science actually looks like from the inside: code that doesn't run on the first try, data files with undocumented quirks, and analytical decisions that are debatable.

Everyone in the room is responsible for everyone else's learning. It is important that you complete the assigned readings before class, code along during tutorials, ask questions when something is unclear, and give structured written feedback on every presentation. The small final exam reviews everything

covered in the course to encourage everyone to pay attention, ask good questions, and develop deeper understanding

Expectations

For the Teaching Team

The teaching team is responsible for developing and editing the course material, which was written or curated specifically for this course and for you, the biology student. We will ensure that all relevant course material is available online and released on a weekly basis so that you know where you should focus your available time and energy. The course content is always a work in progress, so we welcome any feedback on this material, from small spelling/grammar errors to points of confusion and general suggestions for improvement.

You will make mistakes, both in coding and in learning about coding and in presenting. Everyone makes mistakes, and coding is particularly prone to error, especially when there are distractions. We will use these opportunities to demonstrate how to troubleshoot errors by carefully reading the warning messages and running smaller subsets of code to identify where the problems lie. **Learning how to interpret and review published code is perhaps the most important skills you can learn in this course.** But it requires a different kind of mindset (see 'For Students' Section).

The entire teaching team is committed to establishing and maintaining a healthy and inclusive learning environment. We recognize that mistakes and errors are an important part of your learning process. We respect and value students who are not afraid to take risks or try things that might be 'wrong'. Above all, we value students who are not afraid to fail.

For Students

You are expected to bring a laptop capable of running Windows, MacOS, or Linux programs, and you must be able to access Queen's wireless network during lecture and tutorial sessions (see also "Technology Requirements"). Be sure to charge your laptop battery as there may not be enough plugs for everyone who needs one. When working in class, **you will code along in real-time**. The only way to effectively learn to program is to practice, and you are expected to practice as much as possible!

You are expected to organize your thoughts into questions to ask during class. Please do not email questions that can be addressed during lecture or office hours. You are expected to check the course website regularly (or use alerts) to keep track of deadlines. **Late assignments are scored as zero** (but see below regarding accommodations).

Any questions or concerns about the course should be raised in lecture or tutorial, or privately during weekly office hours (no appointment needed). Email is generally not an effective tool for course material, and questions that can be addressed in person will not receive an email response. However, email is encouraged for urgent issues (e.g., medical or other personal emergencies, broken/incorrect website links, and other time-sensitive issues).

For Interactions

This course will also student-led activities that may require communication outside the classroom. You are responsible for maintaining contact and collaborating with all members of your group in a respectful and timely manner. Remember that other members of your group may not have the same resources or

privileges and may need some flexibility or accommodation. **Developing skills to collaborate effectively within a diverse group of peers is an important for your future success.**

Technology Requirement

You must have a laptop computer with internet access to participate in this course. Be sure to charge the battery as plugs may not be available for all students. Before attending the first lecture, you should install the following software:

- The R programming environment (free): https://www.r-project.org/
- Positron (the successor to Rstudio): https://positron.posit.co/
- Open Positron and run the following lines in the terminal and press enter after each. NOTE: this will install some of the R packages that we use in the course. It may take several minutes to install each one. Be sure to type each line EXACTLY:

```
install.packages("tidyverse")
library(tidyverse)
install.packages("remotes")
remotes::install_url("https://quantitative.bio/downloads/positpal.tar.gz")
library(positpal)
```

Suggested Time Commitment

Each week, budget 2 to 4 hours to read the assigned readings(s), complete the setup instructions, and write your peer evaluations, in addition to the 3-hour class session. In the weeks leading up to your own tutorial, budget an additional 15 to 25 hours across 2 to 3 weeks for preparation with your partner. Budget normal exam-review time for the midterm test and final exam; if you have engaged with the tutorials all term, little extra preparation should be needed.

Support for Success

This course is led by students, based on guided tutorials and paper discussions. When presenting, please be mindful of the diverse training backgrounds and learning styles that may be represented among your peers.

Learning Tips

Coding involves a lot of trial-and-error that can be frustrating for students new to the discipline. First, know that this is completely normal, even to seasoned data scientists. A very common and effective approach to solving errors or other problems is to search Google or Stack Overflow. Often, simply copying and pasting an error into an online search will produce a helpful link. **Very often you can just type 'How do I X in R' (or the R package name like ggplot2, dplyr) into a search engine and look for links to similar questions answered on the Stack Overflow website**.

In addition, we will generally leave ample time at the end of weekly sessions to address questions or concerns. You are strongly encouraged to ask the question in lecture or tutorial so that all students can benefit from the answer. Any private questions or issues can be discussed during weekly scheduled office hours (no appointment necessary). Email is usually not an effective mode of communication in this course, except for time-sensitive issues.

Topics

Week 01	Course Introduction and Presentation Schedule Sign-up

Weeks 02 to 06	Tutorial Presentations
Weeks 07 to 11	Paper Discussions
Week 12	Short (~1hr) test covering weeks 02 to 11

The weekly schedule varies with topics chosen by students enrolled in the class. In general, we cover hands-on coding tutorials in the first half of the class and review papers in the second half.

Papers may come from any area of biology, including molecular genetics, cell biology, physiology, ecology, population genetics, molecular evolution, and conservation biology. The constraint is not the topic but the archive: if the data or code are missing, undocumented, or impossibly large, choose a different paper.

Course Learning Outcomes

Learning in this course is cumulative, meaning that content from early weeks is still relevant to later weeks. Therefore, assessments of the course are scaffolded to help you achieve the learning outcomes.

All students may opt to remove the two lowest assignment scores before calculating the final grade. This includes incomplete or late assignments that receive a 0 mark. However, due to the cumulative nature of this course, the information on incomplete assignments should be reviewed as they will be relevant to future assignments and the final exam.

On successful completion of this course, students will be able to:

1. Locate, download, and evaluate archived data and code associated with published research (e.g., Dryad, Zenodo, NCBI/SRA, GitHub), and judge the completeness and reusability of a research archive.
2. Interpret common 'big data' file formats in biology (e.g., CSV, FASTA, FASTQ, VCF, BED) and the metadata needed to make sense of them.
3. Reproduce a published bioinformatic or statistical analysis from archived data and code, documenting where reproduction succeeds, fails, or requires undocumented decisions.
4. Critically evaluate the bioinformatic and statistical methods of a published study, including study design, analytical choices, and the strength of the link between analysis and conclusions.
5. Teach a technical analysis to a mixed audience through a tutorial-style presentation with a live, guided code walkthrough.
6. Provide honest, specific, and constructive written feedback on peers' technical presentations, and use peer feedback to improve their own work.
7. Reflect on reproducibility, open science, and the role of generative AI in modern data analysis, including systematic biases in datasets and algorithms and strategies to detect and account for them.

Important University Dates

Please visit the Faculty of Arts and Sciences Sessional Dates website for all academic deadlines.

Inclusion

Land Acknowledgement

As a descendant of uninvited colonists, I feel tremendously privileged to live, learn, work, and play on these lands. As Queen's University is situated on traditional lands of the Anishinaabe and Haudenosaunee, I invite you all to be mindful with me about the many lessons we learn while on these lands, and how we might apply our newfound skills and knowledge for the benefit of all.

Even as a well-established scientist, I admit I have much to learn from the teachings and traditions of the Anishinaabe and Haudenosaunee, who have lived on these lands since time immemorial. While researching some of this history, I was moved to learn about the Seven Grandfathers in the Anishinaabe tradition, which, as I understand, demonstrate principles for living a "good" life. These include Dabaadendiziwin (humility/compassion/patience), Gwayakwaadiziwin (bravery to be honest), Minaadendamowin (respect for all creation), Nibwaakaawin (wisdom/knowledge to help people) and Zaagi'idiwin (unconditional love given and received). It is worth reflecting on how well these principles resonate with other cultures and traditions around the world, suggesting a deep truth.

This is especially important for those of us who analyze and interpret data to inform decision-making. Reflecting on the way that cultural biases influence the questions we ask, and the answers we provide, can only improve our contributions as scientists and community members.

Moreover, it can be difficult and even overwhelming as a student to struggle through the stresses and demands of a university degree and life more generally. When you feel this way, I encourage you to learn or return to these Indigenous teachings, and/or teachings from your own cultural traditions, to recall what really matters in life, and to let these insights guide you through difficult decisions.

Equity, Diversity, and Inclusivity Statement

Equity and diversity are central to our educational mission and standards of excellence in this course and at Queen's University. It is critical that we work together to dismantle direct, indirect, and systemic discrimination that still 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 defined by race, ethnicity, disability, gender identity, sexual orientation, faith and socioeconomic status, among other factors. As students and educators, we all have important roles to play to identify and address systemic discrimination for the benefit of science and society.

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 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 Materials & Technologies

Material costs

Required Course Textbooks

Course Textbooks	Edition(s)	Publisher	For Purchase	Cost	At Queen's Library?
None					

Other Required Materials

Resource	Resource Type	Access	Cost	Further Information
Laptop	Other	Borrow or purchase new or used	$0-$1000	Must be capable of running Windows, MacOS, or Linux
R	Other	Free online download	$0	https://cran.r-project.org/
Positron	Other	Free online download	$0	https://positron.posit.co/downloads/
Positpal	Other	Free online download	$0	In the R Console, type: install.packages("remotes") remotes::install_url("https://quantitative.bio/downloads/positpal.tar.gz") library(positpal)

Supplemental Materials – All other material available through the course website via OnQ

Educational Technologies, Help, Privacy, and Accessibility

This course makes use of the following website(s), program(s), and/or application(s) for specific educational use/purposes.

Privacy: Be aware that your independent use of the website(s), programs, and/or application(s) used in this course*, beyond what is required,* is subject to their terms of use and privacy policy. You are encouraged to review the applicable privacy statements before using the site. Please see below.

Accessibility: Queen's University is committed to developing courses that are accessible. For further information on accessibility compliance of the website(s), program(s) application(s) used in the course, please consult the links below.

Software	Use	Support	Privacy	Accessibility
onQ	Accessible learning			

Notice of Recording

Synchronous (live) classes will be delivered in this course through Zoom and/or Teams, video conferencing platforms supported by the University. Steps have been taken by the University to configure these platforms in a secure manner. Classes will be recorded with video and audio (and, in some cases, transcription) and will be made available to students in the course for the duration of the term. The recordings may capture your name, image or voice through the video and audio recordings. By attending these live classes, you are consenting to the collection of this information for the purposes of administering the class and associated coursework. If you are concerned about the collection of your

name and other personal information in the class, please contact the course instructor to identify possible alternatives.

To learn more about how your personal information is collected, used and disclosed by Queen's University, please see the Notice of Collection, Use and Disclosure of Personal Information.

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.

Communication

Questions about the Course and Contacting the Teaching Team

Questions about the course can be addressed in person during weekly meetings and office hours (see OnQ).

Queen's Email

The university communicates with students via Queen's email. Please check your email regularly to ensure you do not miss important information related to your course.

Course Feedback

At various points during the course, you may be asked to take part in a variety of feedback activities, such as surveys and questionnaires. This feedback enables the teaching team to improve the course. All surveys are anonymous and are directly related to activities, assessments, and other course material.

Assessments

Weighting and Alignment with Course Learning Outcomes (CLOs)

Assessment	Alignment with CLOs	Weighting
Tutorial Presentation	2,5,7	35%
Paper Presentation	1-5	35%
Participation	2,4,6	10%
Final Exam	1-4,7	20%
Total		100%

All students may opt to remove the two lowest assignment scores before calculating the final grade. This includes incomplete or late assignments that receive a 0 mark. However, due to the cumulative nature of this course, the information on incomplete assignments should be reviewed as they will be relevant to future assignments and the final exam.

Assessment Flexibility

As student-led discussions course, assessments and scheduling are set in the first week. Students are encouraged to discuss any concerns or potential issues with the instructor at that time.

Descriptions of Learning Activities and Assessments

Tutorial Presentation (35%)

- Present an assigned tutorial to the class. Tutorial topics are decided in week 1 in consultation with the class. All students read the tutorial before coming to class.

Paper Presentation (35%)

- Present a published paper to the class as a ~60-minute tutorial as assigned in week 1.
- If the paper's archive turns out to be partly broken, treat it as an important finding, not a failure. Document the problem, work-arounds you tried, show how far you got, and build your critique around it. Tutorials that honestly dissect a reproducibility failure can earn full marks.

Participation (10%)

- The participation grade is designed to motivate attendance and active engagement — the entire course depends on a full, prepared, curious room.
- Participation includes: attending the weekly sessions; completing the pre-class setup and reading; coding along and engaging during tutorials; contributing to question periods and discussion; meeting the presenter deadlines (candidate papers, pre-meeting, setup instructions); and **completing ALL of your peer evaluations** (the Peer Evaluation grade above assesses their quality; completing the full set is part of participation).
- If you must miss a session, contact the instructor in advance where possible; an equivalent engagement activity (e.g., a written review of the recorded tutorials for that week) may be arranged. See Class Attendance and Academic Consideration below.

Final Exam (20%)

- A short, handwritten, closed-book exam during the December examination period that reviews everything covered in the course, including the student-led tutorials. You cannot ask for help from classmates, internet searches, or generative AI.
- Questions are short-answer and concept-focused: the biological questions, data types, methods, and take-home messages of the papers presented, and the toolkit from Part I. Questions are drawn in part from the candidate exam questions submitted by each presenting pair, so every tutorial you attend is direct exam preparation.
- The exam is "small" by design (~1h) — it is not meant to be a memory marathon, but to reward students who paid attention all term and asked about the things they didn't understand. Attending the tutorials and writing thoughtful peer evaluations is the best possible preparation.

Proctored Exams

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.

Policies

Class Attendance

Your presence and participation in class contributes to the knowledge and skills that you will develop throughout this course. I expect that you attend class regularly, participate in class conversations and learning activities. These types of activities provide active engagement, promote a deeper understanding of the course content, and contribute to your success in this course.

You are expected to bring a laptop capable of running Windows, MacOS, or Linux programs, and you must be able to access Queen's wireless network during lecture and tutorial sessions (see also "Technology Requirements").

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

Please note that specific accommodations are available for this course, namely:

1. Weekly assignments can be completed individually instead of in groups, with a deadline extension of up to 48 hours. However, it is strongly recommended that students complete assignments as soon as possible as each week builds on the assignments covered in previous weeks.
2. Up to 5 missing assignments can be dropped before calculating the final grade (top 5 of 10).
3. Supplementary videos are provided via the OnQ course website. These act as guided coding tutorials that cover most of the key content in the written self-tutorials.

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).

Ultimately, 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 integrous 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.

All of these values are not merely abstract but are expressed in and reinforced by the University's policies and practices.

Syllabus statements for Generative Artificial Intelligence (AI) Tools

- **Not permitted**: Using generative AI writing tools such as ChatGPT in your submitted work is not permitted in this class. This type of use constitutes a departure from academic integrity. Original

work, completed wholly by you, is expected to be submitted in this course. Any other use constitutes a Departure from Academic Integrity.

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

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