

advanced genetics

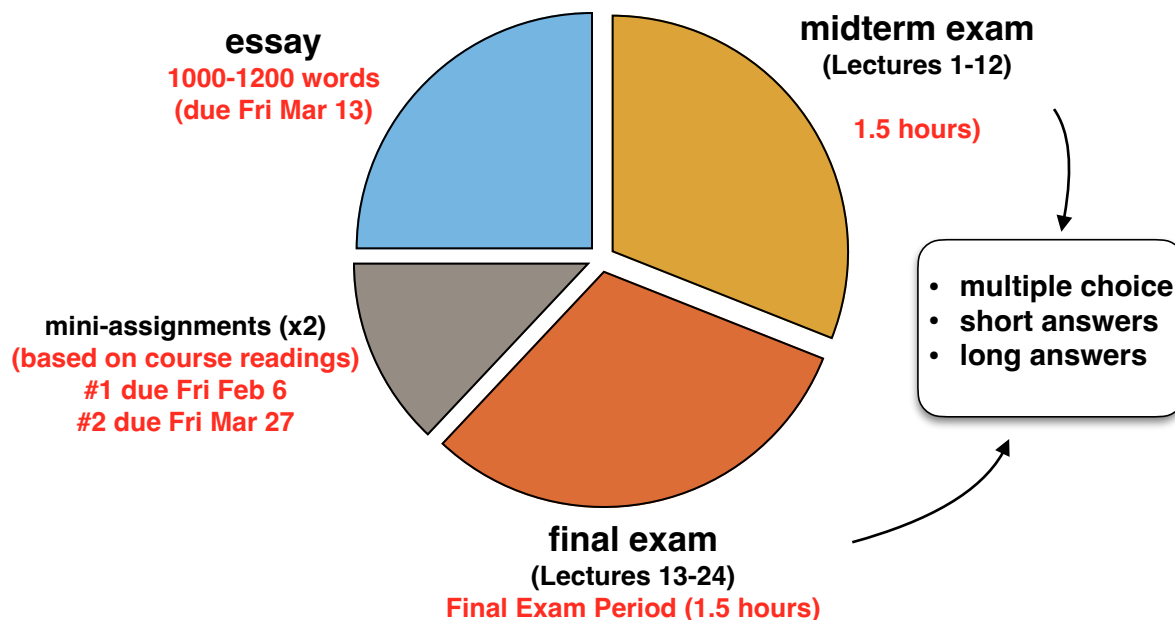
Course TA: To be determined | email: pending

About the class: The fields of genetics and genomics are becoming more and more important and integral to science, health, and public life. Dramatic leaps forward in DNA sequencing technologies, bioinformatics, and machine learning have brought the power of genomics to the scientific masses, and society as a whole. In turn, genetic research is progressing at a startling pace, raising hopes for improvements in quality of life as well as bringing ethical and environmental concerns. This course focuses on the changing landscape of advanced genetic research, with a focus on genomics, bioinformatics, molecular evolution, and the underlying motives driving scientists. Through lectures, workshops, discussions, and visiting experts, we will try to put our fingers on the ever-changing pulse of contemporary genetics.

Text: All materials will be provided online via OWL.

Course website: Brightspace will be the central location for materials relating to 3595B.

Evaluation:



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ASSIGNMENTS & GRADING

1. Mini-assignments / engagement.

There are two small assignments in this course: “**Mini-assignment 1 - peer review**” and “**Mini-assignment 2 - personal reflection on Junk DNA**”. The peer review assignment is due on **Fri Feb 6 (11:59 pm EST)** (please upload to Brightspace via the assignment section). The personal reflection piece is due on **Fri Mar 27 (11:59 pm EST)** (again, upload to Brightspace via the assignment section). The instructions for these two assignments, which together represent **13% of the course** (6.5% each), will be provided in class and on Brightspace.

2. Essay Assignment.

A detailed description and summary of this assignment will be provided during the Writing in Genetics lecture on Fri Jan 16. **Point-by-point instructions are posted on Brightspace** (see the “Essay Instructions” tab; they are also found in the assignment section).

The inspiration for this assignment came from the journal *Evolution* (<https://onlinelibrary.wiley.com/journal/15585646>), a top-tier academic publication, focusing on evolutionary genetics. In January 2017, *Evolution* started publishing “Digests” (<https://sites.duke.edu/evodigests/>), which are short, editorially reviewed essays highlighting specific research papers in the journal. Digests serve “to improve the accessibility of research published in *Evolution* to biologists outside of the original article’s subfield of specialization.” They are typically written by graduate students (as opposed to PIs) and are formally published in the journal and indexed in PubMed. In short, they are an excellent avenue for students and aspiring scientists to publish in a major journal.

For the Biology 3595B essay assignment, I wanted to follow the same general format as a Digest for *Evolution*, with the hope of potentially inspiring students to get published in *Evolution* (or any other journal/magazine that publishes highlights); note previous students have had their digests published. The instruction for how to write a Digest can be found here: <https://sites.duke.edu/evodigests/writing-instructions/>.

For the assignment, please follow the point-by-point instructions that I have posted on Brightspace. You are welcome to write your Digest on one the available articles listed in *Evolution* (<https://sites.duke.edu/evodigests/accepted-articles/>), provided it deals with a topic in genetics. You can also choose to write a Digest on a genetics article from another peer-reviewed journal, provided it was published in **2024 or later**. Be sure to clearly indicate the research article you are highlighting in the essay.

Grading: Each essay will be given a mark out of 25 based on style and grammar (5), scientific content (10), persuasiveness (5), and the figure or graphic component (5). **The essay represents 25% of the final grade.**

Due date: Completed essays must be uploaded to Brightspace (via the assignment section) by **Fri Mar 13 (11:59 pm EST)**.

3. Midterm exam.

The midterm exam will be based on the material and readings covered in the lectures, including workshops and Q&A sessions, from **Jan 7 to Feb 13**. The exam will be an in-class/in-person test (1.5 hours) on ... The exam will include a mix of multiple-choice questions as well as short and long answer questions.

Grading: The midterm exam represents 31% of the final grade.

Make-up final exam: Date and time TBD.

4. Final exam.

The final exam will be based on the material and readings covered in the lectures, including workshops and Q&A sessions, from **Feb 25 to Apr 8**. The exam is a in-class/in-person (1.5 hour) test **during the final exam period (date and time TBD)**. The exam will include a mix of multiple-choice questions as well as short and long answer questions.

Grading: The final exam represents 31% of the final grade.

Make-up final exam: Date and time TBD.

TENTATIVE COURSE SCHEDULE (SUBJECT TO CHANGE)

(Note: the most up-to-date version is posted on OWL under the “Course Schedule” tab.)

Key dates

Feb 6 (Fri) Peer-review assignment deadline (submit via Brightspace).

Feb 27 (Fri)

Mar 13 (Fri) Essay assignment deadline (submit via Brightspace).

Mar 27 (Fri) Personal-reflection assignment deadline (submit via Brightspace).

April Final exam (date and room TDB).

ADDITIONAL STATEMENTS

1. Student absences:

Please familiarize yourself with the University Policy on Academic Consideration – Undergraduate Students in First Entry Programs, posted on the Academic Calendar: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf

This policy does not apply to requests for Academic Consideration submitted for attempted or completed work, whether online or in person. The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult Accessible Education.

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage: https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

2. Accommodation, accessibility & acknowledgments:

Religious Accommodation

When conflicts arise with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible, but not later than two weeks prior to the writing of the examination (or one week prior to the writing of the test). Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays - <https://www.edi.uwo.ca>

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_disabilities.pdf

3. Academic Policies

The website for Registrar Services is <http://www.registrar.uwo.ca>. Use of @uwo.ca email: In accordance with policy, https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf, the centrally administered e-mail account provided to students will be considered the individual's official university email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as "appeals")

Procedures on Request for Relief from Academic Decision (Undergraduate): https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

Scholastic Offences

Procedures on Scholastic Offences (Undergraduate): https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

4. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at: https://www.uwo.ca/health/student_support/survivor_support/get-help.html. To connect with a case manager or set up an appointment, please contact support@uwo.ca.

5. Equity, Diversity, Inclusion and Decolonization (EDID)

Land Acknowledgement: We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak, and Chonnonton Nations, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. This land continues to be home to diverse Indigenous peoples (First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society. Throughout Canada, North America, and the world, Indigenous Peoples are vital contributors to their communities, and we greatly value their presence, knowledge, and wisdom.

The pronouns used by instructor are he/him.

The pronoun used by the TA are (pending on TA assignment)