



Biology 3594B - COURSE OUTLINE
Genome Organization, Mutagenesis and DNA Repair
(Half course Winter 2023) In-person lectures and tutorials
Blended Course Run Through the OWL course site
Blended refers to occasional [help sessions/office hours] online
synchronous sessions

An OWL email [January 10, 2023] welcoming students to the course will announce the posting of this course outline.

Course outline/syllabus to be posted to OWL date:
January 10, 2023 [date of first lecture/class]

Course outline presentation in person on campus in WIRB-1170:
Week 1: Tuesday January 10, 2023 @ 12:30 pm

Tutorials begin the following week January 16, 2023

Questions regarding the outline will be addressed in our first lecture and via the 3594B - OWL Forum – General Discussion.

Key Sessional Dates

| | |
|----------------|--|
| Jan 10 | Our first class – Delivery of Course Outline in person, WIRB-1170 <i>No tutorials Week 1; Tutorials begin January 16, 2023</i> |
| Feb 20-24 | Reading Week – <i>no classes</i> |
| March 7 | Deadline to drop a second-term course without academic penalty |
| April 10 | Last Day of classes |
| April 11,12 | Study Days |
| April 13 to 30 | Final Exams |

3594B Comprehensive Final Exam [3 hours; Mixed format: multiple choice, matching, True/False, short answer and long answer; in person, on campus]: Date, time, location TBA

****A passing grade on the final examination is a requirement to pass the course; Certain of the learning objectives are only covered by the final examination and are not included in other assignment and assessment.**

EVALUATION

| Course Milestone | % Final Grade | Due Date |
|---|------------------|-----------|
| OWL-delivered Weekly Quizzes | | |
| [dates to be posted in OWL] – topics drawn from Lecture and Tutorial <i>The best 8 of 10 Quizzes are used in determining the final Quiz grade.</i> | 15 | Thursdays |
| <i>Class engagement - OWL forum posts</i> | 3 | on OWL |
| Weekly Assignments in Packback [starting Week 2] [Design and post 1 Question and 2 Responses to Peer Posts] <i>The best 8 of 10 Packback weeks are used in determining the final Packback grade.</i> | 8 | Mondays |
| Mutagen or Antimutagen News Brief | 10 | Feb 16 |
| Mutation Report Assignment | 14 | March 20 |
| ‘Required Readings’ Descriptive Synopses | 10 | April 3 |
| *Final Examination | 40 | TBA |

Deadline date with time will be posted in OWL for each course milestone.

***A passing grade on the final examination is required to pass the course.**

Special exam default date May 2

March 7 Deadline to drop a second-term course without academic penalty

April 10 Last Day of classes

April 11,12 Study Days

April 13 to 30 Final Exams

- All assignments are due at the due day/date/time specified for each assignment in OWL.
- Written assignments will be submitted to Turnitin [only one submission is permitted].
- Rubrics will be used to evaluate assessments and will be posted with the instructions.
- After an assessment is returned, students should wait 24 hours to digest feedback before contacting the course instructor; to ensure a timely response, reach out within 7 days.
- Questions concerning evaluations are directed to the course instructor [not to teaching assistants and not using the OWL forum]. Please use email [khill22@uwo.ca] for questions regarding evaluations.

Western’s Important Information for ‘in-person’ lecture and tutorial attendance

Western University Classroom Expectations

Masking: Starting September 1, 2022, Western requires medical-grade (ASTM level 3) masks indoors in instructional spaces for degree credit courses such as classrooms, labs, and seminar rooms, and may be required for large indoor events. [Sept 6, 2022 important update](#)

Up-to-date Western TakeCare information: Please review and adhere to the following from the Western TakeCare Website: <https://takecare.westernu.ca/>

Medical-grade (ASTM level 3) masks remain available for pick up at all Western library locations using your Western ONECard and will be available at some building entrances.

While in the classroom, students can remove their mask temporarily to take a drink. **Eating should only take place outside of the instructional space in the eateries and common spaces.** Students unwilling to wear a mask as stipulated by Western policy will be referred to the Dean/Associate Dean, and such actions will be considered a violation of the student Code of Conduct.

COVID-19 Self-Assessment and Absence Notification: All students and employees are encouraged to complete the [provincial COVID-19 self-assessment tool](#) before they return to campus each day.

- **Undergraduate students:** If you are required to self-isolate as a result of direction obtained from a [COVID-19 Self-Assessment](#), please do so. If you are not able to complete your remote learning or attend campus for an in-person assessment or final exam, please contact your home [Faculty Academic Counselling Office](#) to request academic considerations.

Dr K. Hill will continue to monitor departmental, faculty and university level instructions regarding ‘in-person’ instruction. Any changes or further instructions will be communicated through **OWL announcements**. Student questions may be posted to the OWL forum – **General Discussion** – and will be addressed by Dr Hill in that forum. For individual-specific queries, these may be emailed to khill22@uwo.ca

1. General Course Information

Course Calendar Description

This course [Biology 3594b] will cover concepts related to DNA organization, replication, mutagenesis and repair in both prokaryotic and eukaryotic organisms. Lecture topics will include current literature in DNA mutagenesis and repair designed to permit direct examination of concepts, experimental design, methodology, data analysis and future trends. **Prerequisite(s):** [Biochemistry 2280A](#); [Biology 2581B](#). Extra Information: 2 lecture hours, 1 lecture/tutorial hour, 0.5 course.

“Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.”

Lectures

Professor [Lecturer and Course Co-Ordinator]:

Dr Kathleen Hill, khill22@uwo.ca Associate Professor in Biology

Lectures: Lectures are delivered in person on campus [WIRB 1170]. The lectures are delivered by the Professor and TAs. Occasional zoom synchronous help sessions are moderated by the teaching team and are recorded [Date/time to be announced through the OWL course site]. The teaching team will endeavour to record lectures and post recording to the course OWL site.

Lectures will be held during the registrar listed ‘lecture’ time slots Tuesdays and Thursdays 12:30 to 1:20 pm. Lecture slides can be found in the weekly sections of the course content tab of the OWL site

Online office hours: There is daily [9 am to 5 pm] monitoring of the **OWL forum**; please direct your questions regarding course content to the forum so that everyone benefits from the Q&A. We will aim to respond within 24 hours and on Monday for any weekend posts.

Help Sessions will be held online and announced in advance through the **weekly OWL newsletter emails** that start each week. **Help Sessions** are optional synchronous (Zoom) online sessions with short talks and Q&A using the Zoom chat feature. The sessions are attended/led by Dr Hill, with the members of the teaching team and all zoom sessions are moderated with members of the teaching team. The content of the optional synchronous sessions will either be recorded, or a transcript posted to the OWL forum to be made available in OWL.

Tutorials

Teaching Team

Teaching Assistants [TAs]: Paul Wan & Jordan VanderBurgt

Instructor: Kathleen Hill

Tutorials start date: Week 2 [week of Jan 16, 2023] – Tutorial materials are posted as asynchronous OWL content [slides, resource documents, video files with CC]. Slide presentations and recorded videos of the tutorials can be previewed in OWL. Tutorial material is then covered using in person teaching during the tutorial times.

Required Readings: There is no textbook for this course; the **required readings** are provided through the OWL course site. The course is driven by recent peer-reviewed published primary research articles. The pdf files for the readings are posted at the **Course Content** tab collectively in a **Required Readings** tab. A link to the article is also available at the tab for the week the article is covered in the associated lectures.

Office Hours/Help Sessions: Office hours will be provided using synchronous sessions with TAs and the instructor during times that will be preannounced through OWL site emails; questions for help sessions can be submitted using the Zoom chat function and instructors will use audio/video/softboard software to address comments and questions. The content of these optional synchronous sessions will either be recorded or a transcript posted to the OWL forum to be made available in OWL. These sessions will be pre-announced using the weekly OWL announcement email containing the weekly 3594B newsletter of the upcoming week’s events.

Course OWL Website: <https://owl.uwo.ca/portal>

To access course content: Enter your Western username and password; Biology 3594b should be a selection in your class list. Students should check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

Zoom - Completion of this course will require you to have a reliable internet connection and a device that meets the system requirements for Zoom to participate in synchronous course online components. Information about the system requirements is available at the following link: <https://support.zoom.us/hc/en-us>. Students must use their Western email to gain access to Zoom class sessions.

Packback –Packback is an online platform for student engagement in the art of designing open ended questions. **Packback is used in 3594B to engage with the scientific literature covered in the course.** Use of Packback provides training in written science communication, citation of peer-reviewed literature, writing for technical and lay audiences, engaging with course content and networking with the teaching team and peers in the course. **Separate documentation appended to this course outline [last page] will direct students to the purchase and use of Packback in this course. Packback may require a paid subscription. Refer to www.packback.co/product/pricing for more information.**

2. Instructor Information

Dr. Kathleen A. Hill - khill22@uwo.ca

Students must use their Western (@uwo.ca) email addresses when contacting instructors and teaching assistants, and when accessing synchronous online zoom sessions.

OWL forum online “office hours”: daily monitoring of the OWL forum; please direct your questions to the OWL forum so that everyone benefits from the Q&A content.

Help Sessions will be held online and announced through the weekly OWL news emails that start each week. These sessions are synchronous (Zoom) online sessions with short talks and Q&A using the Zoom chat feature. The sessions are attended/led by Dr Hill with moderating and teaching contributions from the teaching team members.

3. Course Description/Syllabus, Schedule, Delivery Mode

Antirequisite(s): None

Prerequisite(s): **Biochemistry 2280A; Biology 2581A/B.**

Corequisite(s): None

Pre-or Corequisite(s): None

Extra Information: 2 lecture hours, 1 lecture/tutorial hour, 0.5 course.

Delivery mode for Winter 2023: “Blended”

Synchronous delivery will be carried out using the weekly two lecture units and one tutorial unit. These sessions will be in-person on campus or online. Delivery mode of asynchronous content will be via the 3594B OWL course site. Synchronous online sessions will be used for office hours/help sessions. These sessions will be announced through the OWL course site.

The break-down of course topics is best viewed using the lecture and tutorial schedules posted to the OWL course site.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently.

Online Participation and Engagement

Critical to benefiting from and exceling in learning is consistent engagement with course material, instructors, teaching assistants and fellow students.

- Students are expected to participate and engage with content as much as possible.
- Students will be given opportunities for participation during sessions and to post on OWL forum discussions and through submission of synopses on lecture content.
- Students will also participate by interacting with peers and instructors using OWL forums and Packback.

Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will not change. Any remaining assessments will also be conducted online as determined by the course instructor.

Remote Proctoring Software may be used in this course in the event of health lock-down

Tests and examinations in this course may in the course of contingency plans be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western’s Remote Proctoring website at: <https://remoteproctoring.uwo.ca>

Biology 3594b Course description: This course is designed to build upon principles and concepts covered in Introductory Genetics Biology 2581b. Biology 3594b will cover concepts related to **DNA: Genome organization, replication, mutagenesis and repair** in viral, prokaryotic and eukaryotic organisms. Lecture topics will use primary research articles to present key concepts, experimental design, methodology, data analysis, current controversies and future trends. Mechanisms, methods of detection and consequences of mutations will be covered. Molecular approaches for the analysis of DNA at the level of primary sequence, gene, chromosome, and genome will be examined. Tutorials will aim to develop skills in studying primary research articles, investigating the origins, mechanisms, and consequences of mutations, and writing reports effectively. The tutorial sessions, assignments, and discussions will allow students to apply the concepts and principles to a variety of biological problems. **Evaluation is based on OWL forum participation, Packback participation, online quizzes, assignments and a final exam.**

Key Topics in 2023:

- Genotoxicity testing
- Copy Number Variation
- Hypermutation
- Genome origin and evolution
- Alcohol: DNA damage and mutations
- Mutagenesis and Cancer
- Environmental Mutagens
- Viruses: Mutagenesis
- Extinct Genomes
- Acrylamide: DNA damage and mutations
- Origins and mechanisms of mutation
- Mutation Signatures in Cancer
- DNA editing
- Molecular techniques for analysis of DNA organization, mutation and repair
- TwinStrand Duplex Sequencing for mutation profiling

Applied topics: politics, ethics, genetic testing, information privacy, synthetic biology

Required Reading is posted on the Biology 3594b OWL website Course Content tab and Required Reading tab and within the tab for the week the paper is covered:

<https://owl.uwo.ca/portal>

Study Strategy for Lectures: Prior reading of the associated research article is recommended. Copies of the required and background course readings are available from the Biology 3594b OWL website. Background readings may also be provided to assist in understanding the required readings.

Learning Objectives and Course Outcomes:

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

- Complete a Mutation Report
- Design a Graphical Abstract
- Write a brief evaluation of evidence supporting mutagenicity of an environmental agent
- Write effectively
- Perform effective searches in reputable internet sources
- Use Zotero software for citing literature and preparing a reference list
- Work effectively in a team
- Teach the anatomy of a eukaryotic gene
- Teach The Central Dogma

- Describe and illustrate a diagram for common methods for DNA damage assays, mutation detection assays and gene/genome sequence analysis techniques
- Join the conversation and identify ethical challenges presented by advances in human genetics/genomics research and its translation to the clinic and marketplace
- Identify the science, technology, stakeholders and issues in current bioethics challenges
- Understand, discuss and debate current topics in bioethics associated with genetic/genomic technologies
- Describe different forms of genomic instability

SKILL SET ACHIEVED

- **Knowledge:** Understand fundamental principles in genomics, mutagenesis and DNA repair
- **Awareness:** Follow current topics in environmental mutagenesis and mutation research
- **Application:** Analyze mutation data; Generate a mutation report
- **Communication:** Write effectively for your audience; Pitch new technologies and methods
- **Research:** Perform effective searches in Advanced PubMed, Advanced WOS, Scopus, Google Scholar, SciFinder, OMIM
- **Discuss and debate:** Join the dialogue concerning current controversial issues stemming from gene editing, genetic testing and genome sequencing

Where to get HELP

Study Strategy: Aim to tackle course content on a week by week basis. It is helpful to read the research articles [Required Readings] prior to viewing the lecture content. Take advantage of OWL forum Q&A and synchronous Q&A sessions either through attendance or by viewing the transcript/recording posted to OWL. Additional Background readings may also be provided to assist in understanding the required readings.

*****Use and Follow the OWL course site Forum for Q&A*****

Background Material Helpful to Review [optional materials]

Helpful Textbooks:

Biology 2581b text: *Genetics: from Genes to Genomes* Hartwell et al.; Jones and Bartlett Publishers; Copies are on reserve in the Taylor Library

Genes X [Lewin] is on reserve in the Taylor library (2 hour loan)

Genes IX [Lewin] is on reserve in the Taylor library (2 hour loan)

Previous editions of Genes are in the Taylor library (2 hour loan)

Helpful online resources [optional]:

Genomes [2nd Ed] available online: <https://www.ncbi.nlm.nih.gov/books/NBK21128/>

Relevant chapters recommended: Chapters 1, 2, 4-8, 14.

There are several online texts that contain helpful information and explanations for the fundamental principles taught in this course. The online books have a nice search tool so you can rapidly find text relevant to the course topics. I recommend using this search tool for concepts mentioned in the readings and lectures to help find definitions and helpful figures to explain basic concepts and fundamental principles.

Modern Genetic Analysis

An Introduction to Genetic Analysis, 7th edition

Writing Support Centre – Student Development Centre

Home page: <http://sdc.uwo.ca/writing/>

Writing Support Centre Services available:

Writing Resources: Writing Support Handouts in Word and pdf format ready for download

http://www.sdc.uwo.ca/writing/undergrads/writing_resources.html

Online Writing Help: http://www.sdc.uwo.ca/writing/undergrads/online_writing_help.html

Weldon Drop-in Services: http://www.sdc.uwo.ca/writing/undergrads/dropin_services.html

One-to-one Appointments with a writing advisor:

<http://www.sdc.uwo.ca/writing/undergrads/appointments.html>

Online Writing Help:

http://www.sdc.uwo.ca/writing/undergrads/online_writing_help.html

4. Course Materials

There is no textbook for this course

Instead of a course textbook ‘**Required Readings**’ are used. These readings are recent published primary research articles. The ‘Required Readings’ are posted to the OWL course site.

Students should check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates.

This is the primary method by which information will be disseminated to all students in the class.

Students are responsible for checking OWL on a regular basis. **A weekly OWL announcement will be sent out to alert to the upcoming week’s events.**

All course material will be posted to OWL: <http://owl.uwo.ca> .

If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Technical Requirements

This course requires a stable internet connection and computer to enable **Zoom** synchronous lecture attendance. This course requires a stable internet connection and a computer with working microphone and webcam with specifications to enable **Proctortrack** [the remote proctoring platform used in the event of a COVID-19 resurgence during the course that prevents face-to-face interaction and necessitates online delivery of the final examination and/or special examination].

5. Methods of Evaluation

ASSIGNMENTS AND EVALUATION

Assignments are delivered and submitted through OWL Assignments. **The description, instructions, guidelines and rubric will be provided with each Assignment in OWL.**

For all assignments, the electronic copy is submitted online by the OWL course website deadline [due day/date/time]. **The late penalty deduction** is 2% of the final course mark for each day [24 hour period] an assignment is late.

Student Engagement: Students are encouraged to read the required readings prior to attending/viewing the lectures, and it is expected that all students review all readings, lectures and tutorials in addition to all OWL posted resources for the course. Engagement is evaluated indirectly and periodically throughout the course through completion of **Packback questions and responses** and **OWL-based quizzes** which demonstrate use of course tools and understanding of course content. **Quizzes** are timed multiple-choice, true false, matching questions based on tutorial and lecture content. Quizzes are delivered through the OWL course site [30 minutes for 10 to 12 questions]. **The Packback and Quiz schedules will be posted to OWL; reminders to the Packback and quiz deadlines will be contained in the weekly OWL announcements.**

News Brief: Students will identify a 2022 or 2023 online news report associated with discovery related to a mutagen or antimutagen. **Instructions for writing a news brief will be posted in OWL.**

Readings Summaries: After reading each of the required readings, students will answer key questions about each paper using the provided template of questions. Answers to these core questions provides a summary of novel contributions, motivation, technology, method, approach, impact and relevance of the published research.

Mutation Report: Each student will be given a short DNA sequence. In a tutorial on mutation reporting students will be introduced to online databases to identify the DNA sequence, identify any mutation in that sequence and complete a report to provide a comprehensive investigation of the possible mutagens and mutational mechanisms leading to that mutation and the functional relevance and phenotype of the organisms carrying the mutation. As part of the report students will be asked to complete a questionnaire/survey regarding the mutation. Students will submit the completed electronic mutation report form through the OWL course website by the deadline posted on the OWL site.

Final Examination: The final examination [three hours, proctored, in person on campus] is comprehensive by including all lecture and tutorial material. The examination is in three parts: 1] multiple choice, true/false, matching questions, 2] short answer questions and 3] longer answer questions. Short answer questions can be answered using one or a few sentences. Longer answer questions may include a well-labelled diagram and full sentence answers of multiple paragraphs. A practice examination is provided with sample questions and the final week of the course uses the two lecture slots and the tutorial session that week for review of lecture and tutorial material.

Plagiarism

Students must write their essays and assignments in their own words. Whenever students take an idea or a passage from another author, they must acknowledge their debt using proper referencing such as footnotes or citations. This credit includes all images used and all websites consulted.

Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar). Plagiarism Checking: The University of Western Ontario uses software for plagiarism checking. Students will be required to submit their written work in electronic form for plagiarism checking. Turnitin will be used for all assignments. **Students will be given one submission to Turnitin for each assignment and students will be able to view the Turnitin report.**

This course will teach use of Zotero and in-text citation and reference management.

Student work will be evaluated on proper use of reference management software for in-text citation and references.

Code of Student Conduct: To foster a supportive and enriching academic environment that is conducive to learning and free inquiry, Western has a Code of Student Conduct, which is available at: <http://www.uwo.ca/univsec/pdf/board/code.pdf>

Academic Offences

“Scholastic offences are taken seriously and students are directed to read the policy at: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf
The following penalties will be enforced: If you do not hand in assignments on time: 2% of the course final mark is deducted per day until the assignment is handed in. Each assignment has an associated day, date and time deadline/cut off for submission posted in OWL.

Accommodated Evaluations

The best 8 of 10 Quizzes are used in determining the final Quiz grade.

The best 8 of 10 Packback weeks are used in determining the final Packback grade.

A late penalty of 2% of the final course grade is applied for each 24-hour period an assignment submission is past the due day/date/time. This penalty is applied in the case of no approved accommodation.

1. Accommodation and Accessibility

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_Accommodation_disabilities.pdf.

Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student’s final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student’s final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

For work totaling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University's medical illness policy at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

The Student Medical Certificate is available at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

Land Acknowledgment

Please visit the course website for a video presentation by an Indigenous Scholar at Western for Western's Land Acknowledgment and for helpful information in general about Land Acknowledgments. More resources about Indigenous Services are posted to the course website as well.

Western's Land Acknowledgment: We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, 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 (e.g., First Nations, Métis, and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a “Multiple Exam Situation” (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under [Special Examinations](#)).

Note: missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own.

2. Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

The website for Academic Calendar and Academic Rights and Responsibilities is https://westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_12

In accordance with policy, the centrally administered e-mail account provided to students will be considered the individual’s official university e-mail address

[https://wts.uwo.ca/identity/identities_and_access/index.html]. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

All of the remote learning sessions for this course will be recorded. The data captured during these recordings may include your image, voice recordings, chat logs and personal identifiers (name displayed on the screen). The recordings will be used for educational purposes related to this course, including evaluations. The recordings may be disclosed to other individuals participating in the course for their private or group study purposes. Please contact the instructor if you have any concerns related to session recordings.

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undegrad.pdf.

Code of Student Conduct: To foster a supportive and enriching academic environment that is conducive to learning and free inquiry, Western has a Code of Student Conduct, which is available at: <http://www.uwo.ca/univsec/pdf/board/code.pdf>

Students must write their assignments, quizzes and exams in their own words and must not copy other student’s work.

TURNITIN - 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>). **All assignments in 3594B upon submission require students to complete the pledge of honour and TURNITIN procedure for assignment submission.**

SCANEX: Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Zoom - Completion of this course will require you to have a reliable internet connection and a device that meets the system requirements for **Zoom to participate in synchronous course components.**

Information about the system requirements is available at the following link:

<https://support.zoom.us/hc/en-us>

Remote Proctoring Software may be used in this course, including in the event of health lock-down] Tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western’s Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

3. 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/>

Please contact **the course instructor** [khill22@uwo.ca] if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you also may wish to contact: **Student Accessibility Services (SAS)** at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the **Digital Student Experience** website to manage your academics and well-being: <https://www.uwo.ca/se/digital/> .

Learning-skills counsellors at the **Student Development Centre** (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in **Learning Help Centre**, and year-round through individual counselling.

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

Additional student-run support services are offered by the **USC**: <http://westernusc.ca/your-services/> .

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 .

Supplemental Background Material – [optional resources]

Helpful online resources:

Genomes [2nd Ed] available online: <https://www.ncbi.nlm.nih.gov/books/NBK21128/>

Relevant chapters recommended: Chapters 1, 2, 4-8, 14.

There are several online texts that contain helpful information and explanations for the fundamental principles taught in this course. The online books have a nice search tool so you can rapidly find text relevant to the course topics. I recommend using this search tool for concepts mentioned in the readings and lectures to help find definitions and helpful figures to explain basic concepts and fundamental principles. *If the links in this course outline fail to directly open, copy and paste the link into your internet browser.*

Modern Genetic Analysis: <https://www.ncbi.nlm.nih.gov/books/NBK21248/>

An Introduction to Genetic Analysis: <https://www.ncbi.nlm.nih.gov/books/NBK21766/>

Help with Writing - Writing Support Centre – Student Development Centre

Home page: <http://sdc.uwo.ca/writing/> - note Zoom appointments can be made! And there is online assistance!

Writing Resources: Writing Support Handouts in **Video**, Word, and pdf format ready for download

http://www.sdc.uwo.ca/writing/undergrads/writing_resources.html

Online Writing Help: http://www.sdc.uwo.ca/writing/undergrads/online_writing_help.html

Weldon Drop-in Services: http://www.sdc.uwo.ca/writing/undergrads/dropin_services.html

One-to-one Appointments with a writing advisor:

<http://www.sdc.uwo.ca/writing/undergrads/appointments.html>

Professionalism & Privacy:

Western students are expected to follow the Student Code of Conduct. Additionally, the following expectations and professional conduct apply to this course:

- Students are expected to follow online etiquette expectations provided on OWL
- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared
- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed
- Students will be expected to take an academic integrity pledge before some assessments
- All recorded sessions will remain within the course site or unlisted if streamed

General Online Engagement Etiquette

Some components of this course will involve online interactions. To ensure the best experience for both you and your classmates, please honour the following rules of etiquette:

- “arrive” to class on time
- use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
- ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
- to minimize background noise, mute your microphone for the entire class until you are invited to speak, unless directed otherwise
- [suggested for classes larger than 30 students] In order to give us optimum bandwidth and web quality, turn off your video camera for the entire class unless you are invited to speak
- [suggested for cases where video is used] please be prepared to turn your video camera off at the instructor’s request if the internet connection becomes unstable
- unless invited by your instructor, do not share your screen in the meeting

The course instructor will act as moderator for the class and will deal with any questions from participants. To participate please consider the following:

- If you wish to speak, use the “raise hand” function and wait for the instructor to acknowledge you before beginning your comment or question.
- Please remember to unmute your microphone and turn on your video camera before speaking.
- Self-identify when speaking.
- Please remember to mute your mic and turn off your video camera after speaking (unless directed otherwise).

General considerations of “netiquette”:

- Keep in mind the different cultural and linguistic backgrounds of the students in the course.
- Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.

- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. “Flaming” is never appropriate.
- Be professional and scholarly in all online postings. Use proper grammar and spelling. Cite the ideas of others appropriately.

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

Packback

Our online community for asking open-ended questions about Human Genetics

Packback Questions

Participation is a requirement for this course, and the Packback Questions platform will be used for online discussion about class topics. Packback Questions is an online community where you can be fearlessly curious and ask open-ended questions to build on top of what we are covering in class and relate topics to real-world applications.

Packback Requirements:

Your participation on Packback will count toward 8% of your overall course grade.

There will be a Weekly Sunday at 11:59 PM EST deadline for your week’s submissions. In order to receive full credit, you should submit the following per each deadline period:

- 1 open-ended Question every week with a minimum Curiosity Score of 90, worth 33.33% of each assignment grade [Post your Question by Thursday or Friday 11:59 PM]
- 2 Responses every week with a minimum Curiosity Score of 80, worth 66.67% of each assignment grade [Post these prior to the weekly deadline]

How to Register on Packback:

An email invitation will be sent to you from help@packback.co prompting you to finish registration. If you don’t receive an email (be sure to check your spam), you may register by following the instructions below:

1. Create an account by navigating to <https://app.packback.ca> and clicking “Sign up for an Account”
Note: If you already have an account on Packback you can log in with your credentials.
2. Then enter our class community’s lookup key into the “Looking to join a community you don’t see here?” section in Packback at the bottom of the homepage.
The key will look something like this - Community Lookup Key: **99bfec55-33e3-4f6f-a0b5-4288fe1a85ad**
3. Follow the instructions on your screen to finish your registration.

Packback may require a paid subscription. Refer to www.packback.co/product/pricing for more information.

How to Get Help from the Packback Team:

If you have any questions or concerns about Packback throughout the semester, please read their FAQ at help.packback.co. If you need more help, contact their customer support team directly at help@packback.co.

For a brief introduction to Packback Questions and why we are using it in class, watch this video: <https://www.youtube.com/watch?v=OV7QmikrD68>

If you have concerns about course cost, I want you to know that it is important to me to keep learning accessible, both financially and otherwise. Please send an email to me and I will be sure you receive support, no matter the circumstances.

Appendix – General online engagement etiquette

General Online Etiquette:

Some components of this course will involve online interactions. To ensure the best experience for both you and your classmates, please honour the following rules of etiquette:

- “arrive” to class on time
- use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
- ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
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- [suggested for classes larger than 30 students] In order to give us optimum bandwidth and web quality, turn off your video camera for the entire class unless you are invited to speak
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- Please remember to mute your mic and turn off your video camera after speaking (unless directed otherwise).

General considerations of “netiquette”:

- Keep in mind the different cultural and linguistic backgrounds of the members in the course.
- Be courteous toward all including the instructor, the teaching assistants, colleagues, fellow learners, guests, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment.

- Be professional and scholarly in all online postings. Use proper grammar and spelling. Cite the ideas of others appropriately.

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.