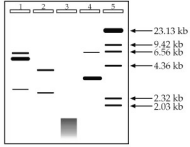


BIOLOGY 3596B – GENOMICS AND BEYOND – WINTER 2021



Welcome to Bio 3596! My goal is to help you learn and be successful!

Please, read and keep this course outline handy, because it is an official document that contains important course information.

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1. GENERAL COURSE INFORMATION

1.1. COURSE INFORMATION

COURSE DESCRIPTION

A practical introduction to modern experimental approaches in genetics and molecular biology as applied to such topics as genomics (gene identification and classification), functional genomics (genome expression profiles) and bioinformatics (computational genomic analysis).

This year, the goal of this online course is to give you experience with understanding and evaluating genetics laboratory techniques, and writing lab reports following primary literature formats.

LIST OF PREREQUISITES

Restricted to: students with a min of 70% in Bio 2581B and Bio 2290F/G.

AND to yrs 3 & 4 students in HSP genetics, HSP genetics & biochem, major or minor in genetics.

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.

MODE OF DELIVERY

This course will be delivered completely online. Virtual sessions will be a combination of synchronous (live) and asynchronous (recorded). Students could be expected to complete work prior to attending sessions. Timetabled sessions will be used for discussions, and office hours. Below are details about the sessions.

| Mode | Dates | Time EST – EASTERN STANDARD TIME | Frequency** | Attendance |
|---|-------|---|-------------|--|
| Virtual synchronous* Using Zoom in OWL | M | 3:30 – 4:30 pm – lecture content | weekly | Attending at least 50% of synchronous sessions is mandatory – but highly recommended to attend all NOT POSTED |
| | Tu | 11 am – noon - Section 002 – will be updated based on poll 2 – 3 pm - Section 003 | | |
| | Wed | 11 am – noon - Section 004 2 – 3 pm - Section 005 | | |
| Virtual asynchronous | N/A | 4-8 hours /week | weekly | Yes |

* the recorded synchronous sessions will NOT be shared on owl, for privacy reasons, as they will mostly be office hours

** a schedule will be provided

TECHNICAL REQUIREMENTS:



Stable internet connection



Laptop or computer



Working microphone



Working webcam

If you need assistance, you can seek support on the OWL Help page. Alternatively, you can contact the Western Technology Services Helpdesk: 519-661-3800 or ext. 83800.

1.2. ONLINE PARTICIPATION AND ENGAGEMENT: CONTRIBUTION TO COMMUNITY LEARNING

- Students are expected to participate and engage with content as much as possible
- Students are expected to use Zoom for the synchronous sessions
- Students have to participate using VoiceThread after watching the weekly content, no later than 24 hours before their scheduled lab session.
- Students can also participate by interacting in the forums with their peers and instructors
- Students are expected to fill in the weekly checklists to keep track of their tasks
- Students are expected to attend to a minimum of 50% of the TA-led lab sessions at their scheduled time.

1.3. KEY SESSIONAL DATES

Classes begin: January 11
Reading Week: February 13-21
Classes end: April 12

1.4 WHO ARE WE?

INSTRUCTOR: DR. ANNE F. SIMON

(She/ Her) Working from home this year - Email: asimon28@uwo.ca

TEACHING ASSISTANTS

| | |
|---|-------------|
| Carly Charon (She / Her) ccharro5@uwo.ca | Section 002 |
| Josh Isaacson (He / Him) jisaacson@uwo.ca | Section 003 |
| Olivia Siemons (She / Her) osiemons@uwo.ca | Section 004 |
| Wes Robinson (He / Him) jrobi8@uwo.ca | Section 005 |

LAB SUPERVISOR

Ms. Kim Loney (She / Her) kgrant4@uwo.ca

HOW TO CONTACT THE TAS OR THE INSTRUCTOR

I encourage you to come to the TAs or myself with questions and/or comments. This can be done by appointment, or during in-person sessions, or finally by e-mail (see details below and on owl), or by posting on the discussion boards on Owl (your peers may also be able to answer your question). Please do not leave me phone messages.

EMAIL POLICIES + FORUMS

Email hours: We usually check emails once a day, except for weekends and holidays. We try to answer within 24 hrs, with the following limitations:

Your instructor's and TAs' emails should only be used for administrative purposes.

- To discuss grades or accommodation, please send an email to make an appointment
- If you email your instructor or TAs, you must use your Western email address and include *Bio3596* in the subject line. Messages from a non-Western account or those that do not include *Bio3596* may be blocked by the university's anti-spam system.
- Emails from non-UWO addresses or without *Bio3596* in the subject line **will be deleted**, as will emails that are impolite or written in the manner of a text message.

In order to maximize efficiency and to allow your instructor and TAs to respond to legitimate concerns as quickly as possible, **use the forum** or **attend synchronous sessions** for issues of the following nature:

- Questions about course material or on how to prepare for laboratories or assignments. Such questions should be taken to the synchronous time on Mondays, or the lab sections synchronous times, as they are typically answered far better and quicker in person.

Avoid the following type of questions, they will not be answered by the teaching team:

- Questions that can be answered based on the information found in this course outline. Being able to find information yourself is an important soft-skill and an employability outcome.

2. COURSE STRUCTURE

Biology 3596 is a lab-based course that meets twice per week: once for 1-hour concept-based discussions and again for a 1-hour technical lab discussion during the time specified for each section. Students are expected to read the lab manual in advance, and arrive to discussions fully informed about the week's experiments.

The course is divided into five main experiments. Each main experiment contains a series of steps that typically run over several weeks. This year, each experiment will be presented independently, over 2 weeks. At the end of each main experiment a report summarizing and integrating the results and interpretation of experiments from that main experiment will be due.

You are expected to attend at least 50% of all the synchronous sessions. Additional absences, with or without justification, will lead to deductions toward your participation grade.

This course is challenging and fast paced. To be successful, you must engage, read the assigned material and perform the required tasks. Do not fall behind! Use the checklists to help in your work organization.

If after you study, you do not understand something, please see the instructor or TAs for clarification, ideally during the synchronous sessions, or ask questions on the appropriate owl forum section for faster answers by your peers.

The OWL weekly content, readings and videos, will provide background information on laboratory techniques. There is no text in this course and notes will not be distributed. Although some lecture material will be made available, this material cannot be considered to represent lecture notes. Therefore, it is imperative that students attend all lectures and construct their own set of notes.

It is your responsibility to gather and review the information and to ask questions.

2.1. LABORATORIES TECHNIQUES

You will learn the theory, and be able to understand through video demonstrations, how to perform a series of Genetic and Molecular Biology Techniques:

Polymerase Chain Reaction (PCR)
Restriction Enzyme Digestion
Agarose Gel Electrophoresis
Polyacrylamide Gel Electrophoresis (PAGE)
DNA extraction

Cloning
RNA isolation
Reverse Transcription (RT-PCR)
Yeast Genetics
Genetic Complementation

2.2. COURSE MATERIALS

LAB NOTE-BOOK

YOU NEED: an account on Benchling.com (free). An explanatory video can be found on owl:

LABORATORY MANUAL AND VIDEOS

A laboratory manual outlining all experiments is available through the Biology 3596 OWL website (<https://owl.uwo.ca/x/Rrrpx7>), in pdf format. Students are expected to read the labs description and protocols in advance and be ready when lab starts. A hard copy of the procedures is required to be pasted in the lab notebook.

In addition, there are videos demonstrating the lab techniques, accessible weekly on the owl website.

COURSE WEBSITES:

All course material will be posted to OWL: <https://owl.uwo.ca/x/Rrrpx7>.

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.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their Internet speed, please click [here](#).

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. The missing of critical information due to your failure to check OWL cannot be used as a basis for appeal. Announcements about the course will be sent to your UWO email address.

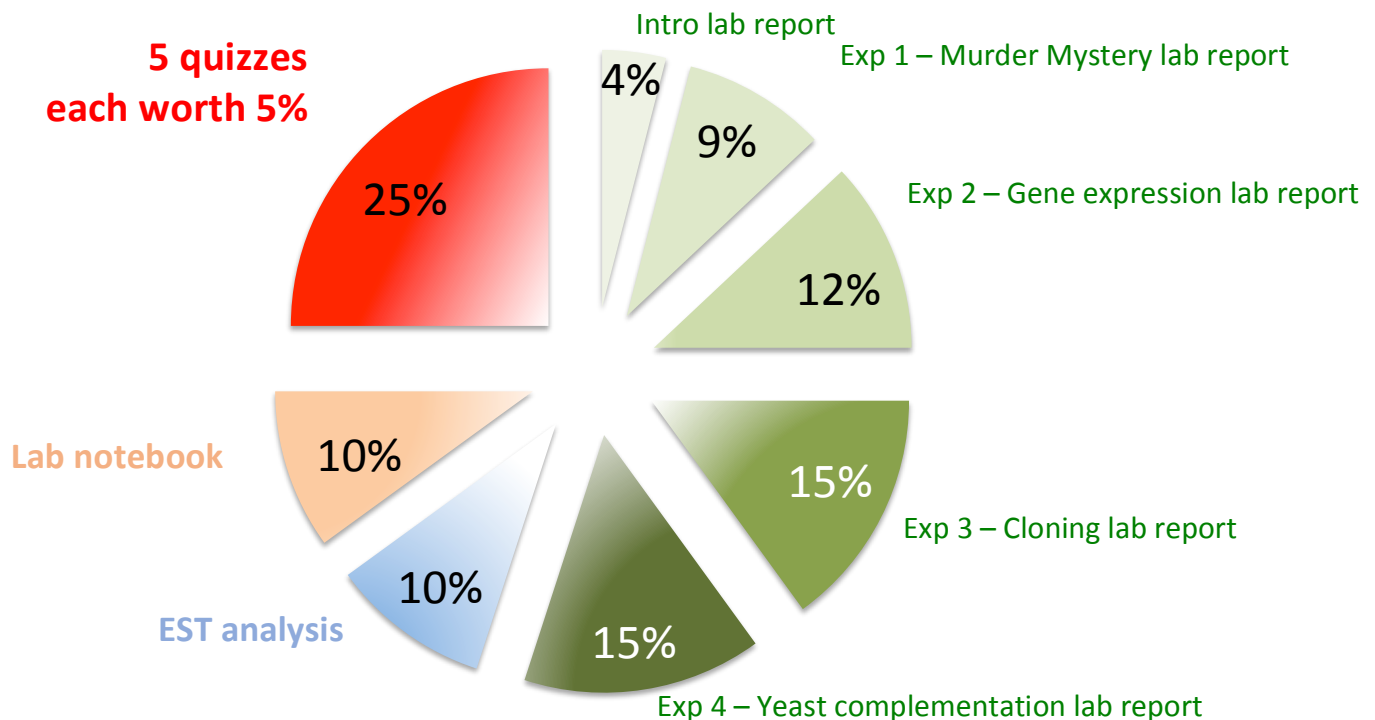
It is your responsibility to keep this account in a state that allows you to receive email, and to check it regularly. As above, a failure to check your UWO email cannot be used as a basis for appeal.

2.3. COURSE-LEVEL LEARNING OUTCOMES

| COURSE OBJECTIVES | Specific Learning Outcomes Students will: | Assessment Methods |
|--|--|--|
| Independent learning | <ul style="list-style-type: none">Access material on their own:<ul style="list-style-type: none">Reading the resourcesProtocols and primary scientific literatureVideosAssess their understanding independently | Quizzes VoiceThreads Forums Weekly meetings |
| Learn Molecular Biology and Genetic technical bench skills | Learn the theory, and be able to understand through video demonstrations, how to perform a series of Genetic and Molecular Biology wet bench Techniques | Quizzes Lab Reports |
| Learn basic DNA analysis skills | Learn the theory, and be able to understand through a video demonstration, as well as through their own <i>rumblings</i> some basic ways how to analyse a DNA sequence | EST sequence analysis and report |
| Learn to set up protocols | Calculate the proper concentrations and volumes necessary to perform enzymatic experiments | Quizzes |
| Record data | Allow someone else to reproduce the experiments performed | Lab notebook |
| Evaluate results | Troubleshoot, Interpret real results obtained and assigned randomly through the semester | Lab notebook Lab reports |
| Report your lab results | Be able to write lab reports in the format of a research article | Lab reports |

2.4. METHODS OF EVALUATION

Marks will not be “rounded” or “curved”. Your grade is your grade.
Details of how each assignment is scored will be posted on OWL.



1. Lab preparation Quizzes: 5 quizzes for 5% each → 25% of your grade.

5 quizzes to be taken before each of the 5 lab experiments videos are visible (pre-requisite to access lab videos).

You can be excused for 2, need to have taken 3 to pass this class.

2. Laboratory notebook → 10% of your grade.

You will need to get a lab notebook that will contain your protocols, and lab results (as explained in the lab notebook guidelines on owl). The grade will be based on your ability to keep track and properly label the results, the quality of your presentation and organization, and figure labeling.

You need to submit your lab notebook for evaluation to pass this class. ONLINE benchling

3. Lab Reports: 5 reports with incremental weight from 4-15% → 55% of your grade.

You NEED to submit ALL of five assignments to pass the class.

Put the experiment into context – evaluate results – explain trouble-shooting – interpret your lab results for each of the five experiments. The marks for each assignment are increasing throughout the term, based on length and difficulty of the experiment and your increased experience.

Assignments will be submitted on **OWL** through **Turnitin** for plagiarism evaluation, and graded on **Gradescope** (www.gradescope.com).

4. EST analysis: 10% of your grade.

You need to submit this analysis to pass this class.

You will be given a unique EST sequence to analyze. Details will be provided in class and online.

EST analysis will be submitted on OWL through **Turnitin** for plagiarism evaluation.

Contribution to community learning: can lose up to 10%

Contrarily to the other rubrics, in which you need to earn points, here we are assuming good intentions, and up to 10% of your course grade can be lost for poor performance.

Assumes: respectful forum, at least 50% attendance to synchronous sessions (1% per missed session, after 50% of them were attended AND 5% course grade lost per events displaying lack of respect for your peers or instructors/TA), 1% lost per lack of VoiceThread contribution.

Exception: recurrent disrespectful events might lead to more than a 10% loss in course grade.

All marks will be posted regularly to the class OWL website. **All appeals** must be submitted in writing to the instructor **within two weeks of the mark being posted** with a clear explanation of the reason for the appeal. Marks for the lab notebook written in pencil may not be appealed. *The instructor may re-grade all or part of the exam or assignment to look for additional errors which may lower or raise the final mark.*

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

| | | |
|----|----------|---|
| A+ | 90-100 | One could scarcely expect better from a student at this level |
| A | 80-89 | Superior work which is clearly above average |
| B | 70-79 | Good work, meeting all requirements, and eminently satisfactory <i>EXPECTED FROM YOU</i> |
| C | 60-69 | Competent work, meeting requirements |
| D | 50-59 | Fair work, minimally acceptable |
| F | below 50 | Fail |

4.1. ACCOMMODATED EVALUATIONS

LATE SUBMISSIONS OR MISSED EVALUATIONS

- All assignments are due at 11:55 pm Eastern Time unless otherwise specified
- If you choose to submit your assignment late, without a self-reported absence (SRA) or an approved request for accommodation, you also choose to lose -20% per late day
- Late assessments with self-reported absences should be submitted within 24 hours of the end of the 48-hour period.
- Essential requirement:** you need to submit ALL of the assignments to pass the class, even after 5 late days (and a grade of 0 for that assignment). Failure to pass or non-completion of the assignments component of the course is an automatic failure of the course
- Missed quizzes **without** self-reported absences (SRA) cannot be accommodated. Students will receive 0% (out of 5%) for each missed quiz.
- Missed quizzes **with** self-reported absences (SRA) or approved request for academic consideration will be accommodated. The weight of each missed quiz (5%) will be transferred to the weight of the overall quiz weight (e.g., one missed quiz means that the weight of the each quizzes will still be 25%, but each quiz's weight will shift from 5% to 6.25%). **However, students must have completed at least 3 of the 5 quizzes to pass the course.**
- Students who miss more than 6 Monday sessions, or more than 6 lab sessions, **with or without** a self-reported absence (SRA) will receive 1% course grade penalty for each missed session.
- Missed synchronous sessions cannot be rescheduled, and will not be posted.

Also see section 5.1 on [ACADEMIC CONSIDERATION FOR STUDENT ABSENCE](#).

4.2. EQUITY, DIVERSITY & INCLUSION (EDI) STATEMENT

In keeping with our shared values and based on the principles of diversity and equity defined in the policies of Western University (<http://www.uwo.ca/hr/diversity/index.html>) we have adopted a definition of diversity that includes all facets and any differences that define how individuals perceive themselves.

4.3. 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.

More information about Indigenous Services (<https://indigenous.uwo.ca/>) and this Land Acknowledgement (<https://communications.uwo.ca/comms/land-acknowledgement/>) are available.

5. IMPORTANT LEGALITIES

5.1. ACCOMMODATION AND ACCESSIBILITY

ACCOMMODATION POLICIES

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at:

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

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/>

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

ACADEMIC CONSIDERATION FOR STUDENT ABSENCE

Self-Reported Absence (SRA): 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.**

5.2. ACADEMIC POLICIES

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. 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.

ONLINE REQUIREMENTS

Completion of this course will require you to have a reliable internet connection and a device that meets the system requirements for Zoom. It is your responsibility, as a student to ensure that your system is working properly. Information about the system requirements are available at the following links: <https://support.zoom.us/hc/en-us>

Zoom best Practices: https://wts.uwo.ca/zoom/best_practices/index.html

Please note that Zoom servers are located outside Canada. If you would prefer to use only your first name or a nickname to login to Zoom, please provide this information to the instructor in advance of the session.

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 be disposed within one week – if no incident took place

ALL OF THE REMOTE SYNCHRONOUS SESSIONS FOR THIS COURSE WILL BE RECORDED.

Synchronous sessions: synchronous sessions in this course will be conducted using **Zoom**. You might be required to turn your camera on at some point during the entire session; your microphone should be muted until it is your turn to speak. The sessions will be recorded*, for evaluation purposes, but not posted. Only participants using their UWO credentials will be permitted to access the sessions.

Netiquette: The synchronous component 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:

1. please “arrive” to the sessions on time
2. please use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
3. 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
4. to minimize background noise, kindly mute your microphone for the entire class until you are invited to speak, unless directed otherwise
5. please be prepared to turn your video camera off at the TA’s request if the internet connection becomes unstable
6. unless invited by your TA, do **not** share your computer screen in the meeting. The TAs 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 TA to acknowledge you before beginning your comment or question
 - remember to unmute your microphone before speaking
 - self-identify when speaking.
 - remember to mute your mic 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 TA, 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. 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.

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

General discussion forum: Students are encouraged to post course-related questions in a timely manner, the sooner the better. Students cannot expect their TA to answer quiz-related questions in less than 24hrs. Students are encouraged to help one another by posting answers to other students’ questions.

*This link provides an excellent overview of good ‘Netiquette’: <https://coursedesign.colostate.edu/obj/corerulesnet.html>

SCHOLASTIC OFFENCES

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_undergrad.pdf.

Review Biology 2290 learning outcomes. You are expected to know what plagiarism is at this stage of your programme.

Turnitin **aids** in identifying plagiarism. All required papers and quizzes 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>).

5.3. SUPPORT SERVICES

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

The policy on Accommodation for Students with Disabilities can be found here:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_disabilities.pdf

LEARNING-SKILLS

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.

EMOTIONAL/MENTAL DISTRESS

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.

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/>.

ADDITIONAL SUPPORT

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

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

The following links provide information about support services at Western University:

[Appeal Procedures](#)

[Student Development Services](#)

[Student Health Services](#)

6. ANTICIPATED LECTURE TOPICS, AND FIRM DEADLINES

| Week # Date | Content | Assignments | Lab | Novel Experimental technics |
|----------------|---|-----------------------|------------------------|---|
| 1/ Jan 11 | Introduction | Quiz Entry Test | Introduction to labs | Do's and don't Lab safety |
| 2/ Jan 18 | How/when to do most common techniques? PCR, RE, agarose, gel imaging, CRISPR | Quiz plagiarism | Intro lab | Pipette test PCR, Digest Agarose Gel |
| 3/ Jan 25 | How to do forensic genotyping? (DNA extraction, Polymorphic markers, PAGE gels) | Quiz intro lab | Exp 1: Murder mystery | Swab DNA extraction |
| 4/ Feb 1 | Discuss Intro lab assignment | Intro lab report | Exp 1: Murder mystery | PAGE |
| 5/ Feb 8 | What are ESTs? Where is the sequence from? EST assignment | Quiz Exp 1 | EST sequence received | Flybase BLAST OMIM |
| Feb 15 | READING WEEK | | | |
| 6/ Feb 22 | Research: Using model systems Light-sensitive pathway in Arabidopsis | Exp 1 report | Exp 2: Gene expression | RNA extraction Plant pictures |
| 7/ March 1 | How tell gene expression? Phenotype due to mutation in light-response genes? Discuss Exp 1 report | EST sequence analysis | Exp 2: Gene expression | cDNA synthesis RT-PCR |
| 8/ March 8 | How/why to do cloning? (plasmids, vectors, cloning, etc.) | Quiz Exp 2 | Exp 3: Cloning | Agarose Isolation Ligation |
| 9/ March 15 | Cloning continued Discuss EST assignment | Exp 2 report | Exp 3: Cloning | Transformation Miniprep DNA |
| 10/ March 22 | How can we tell if a mutation is in a known gene? Yeast experiment, genetic screens | Quiz Exp 3 | Exp 4: yeast | Pick and re-streak colony Pick a colony |
| 11/ March 29 | Yeast complementation | Exp 3 report | Exp 4: yeast | Yeast mating Complementation analysis galactosidase assay |
| 12/ April 5 | Guest presentation and discussion panel: Patricia Mason and Lauren Starr "careers in science" | Quiz Exp 4 | | |
| April 12-17 | | Exp 4 report | | |