Syllabus for Biology 2581: Genetics
January – April 2018

Course Instructors: Dr. Amanda Moehring (Instructor & Course Chair)
Dr. Patrick McDonald (Instructor)

Office Hours: Moehring: Thurs. 2:30-3:30, BGS 2080
McDonald: Tues. 3:00-4:00, Collip 309

Course Summary: In this course, students learn key concepts and theories in molecular and evolutionary genetics. These concepts and theories can be used to understand genetics in everyday life. They also serve as the basic building blocks for understanding more advanced theories and fields in genetics.

Course Textbook: Pierce BA. 2017 "Genetics: A Conceptual Approach," 6th Ed., Macmillan.

Course e-mail: **bio2581@uwo.ca**

The following guidelines allow us to best respond to the large number of students in the class – please respect these guidelines. Only emails that follow the guidelines will be answered.

1. Do not write instructor individual email accounts – only email bio2581@uwo.ca
2. Only send emails from your uwo email account.
3. Must include one of the following in the subject line:
   Prof Moehring lecture material
   Prof McDonald lecture material
   TA *[NAME]* tutorial question (*insert your TA name where "[NAME]"*)
   Accommodation
   Other Question for Bio2581 (*only use if none of the above applies*)
4. Do not send the same email again within 48 hours.
5. Do not email within 24 hours of taking an exam or receiving an exam mark.

Course Website: https:/owl.uwo.ca/portal
The 2581B OWL site contains all of the course information.

Syllabus quiz: The syllabus and quiz are both available on OWL. The online quiz on the syllabus material must be passed with 100% in order to access the lecture powerpoints after the first week. Students can take the quiz as many times as necessary to achieve this score.

Instructor Office Hours: Office hours and locations will be posted on OWL.

Recordings: Electronic recordings of lectures may be made for personal use only. Recordings of tutorials may only be made with the express permission of the TA for that section. Any and all recordings may not be shared or distributed to others in any form. All recordings must be destroyed at the end of the current semester.

Lectures: Mon & Wed 9:30 a.m.,
or Tues & Thurs 1:30 p.m. ONLY ATTEND YOUR SECTIONS

Tutorials: Bi-weekly, 2hrs long
Begins the week of Jan 22 / Jan 29 ONLY ATTEND YOUR SECTION

Tutorial material is largely not from the lecture or textbook. It will be posted on OWL the Thursday before the tutorial. You may be required to pass a quiz on OWL on assigned material in order to access the powerpoint slides for tutorial.

Students must attend the tutorial section in which they are registered. If you are going to miss a tutorial, please email **bio2581@uwo.ca** as soon as you can with "Accommodations" in the subject line and a description in the text. When there is an absence, you are expected to attend another section of tutorial if possible, and thus not miss the material. Only absences approved for accommodation (see below) will have the in-class quiz/assignment points count from a section other than the one registered.

Important Dates:

First tutorial:	Week of Jan 15 or Jan 22	(depending on section registered)
First mid-term exam:	Saturday, Jan 27, 10-11:30am	(location TBD)
Second mid-term exam:	Saturday, March 3, 10am-12pm	(location TBD)
Final Exam:	3 hours; date/time/locations TBD	

Grading:

15%	First midterm exam
30%	Second midterm exam
45%	Final exam
10%	Tutorial quizzes / assignments

No marks will be awarded for arbitrary reasons. The total mark for the course will be rounded to the nearest whole number, and there will be no additional changes (e.g. of 69 to 70%). You must pass either the second midterm or the final exam to pass the course.

Exams:

Midterms and the final exam are multiple choice. The exams can be cumulative, and may test on preceding material, including lectures, tutorials, and assigned reading. YOU MUST PASS EITHER THE SECOND MIDTERM OR THE FINAL EXAM TO PASS THE COURSE. This course uses cheating detection software for analyzing multiple choice exams. Use of any form of electronic device is neither necessary nor allowed during exams.

Make-up exams will only be allowed for those students receiving accommodation (see "Accommodations," below). Without accommodation, the missed exam will receive a score of 0. Midterm & final exams have ONLY ONE make-up session. If a student receives accommodation for both an original midterm and the make-up midterm, the grading for that midterm will be re-weighted onto the final exam. If a student receives accommodation for both the original final exam and make-up final exam, the student will have to write the final exam during the scheduled final exam time for the course the following year.

Accommodations:

If you are going to miss a tutorial, please email **bio2581@uwo.ca** as soon as you can with "Accommodations" in the subject line and a description in the text, as you are expected to attend another section of tutorial if possible, and thus not miss the material. Only absences

approved for accommodation (see below) will have the in-class quiz/assignment points count from attending a section other than the one registered.

Only absences approved through Faculty Academic Counselling will be accommodated. If you miss an exam or tutorial because of genuine circumstances, please take appropriate documentation to Faculty Academic Counselling. A counsellor will contact Course Instructors directly. Note that you should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in Faculty Academic Counselling) for visits to Student Health Services.

www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

Accommodation for Religious Holidays:

www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Registrar Services: http://www.registrar.uwo.ca

Services provided by the University Students' Council: http://westernusc.ca/services/

Students who are in emotional/mental distress should refer to Mental Health@Western for a complete list of options about how to obtain help:

http://uwo.ca/health/mental_wellbeing/index.html

Academic Integrity:

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically the definition of what constitutes and Scholastic Offence, at the following website: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf. Cheating on quizzes or exams will be viewed as academic offenses and dealt with as such. Penalties range from severe mark reduction, to failure of the course, or expulsion from the University.

Prerequisites:

You must have received all of the following prerequisites to remain enrolled in this course: a minimum mark of 60% in either Biology 1001A or 1201A; a minimum mark of 60% in either Biology 1002B or 1202B or Integrated Science 1001X; a passing mark in Biochemistry 2280A. 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 prerequisite.

UWO 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
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Overview of course dates, 2018

Note that these may change, and students should check OWL for whether there have been modifications to these dates. (TBD = to be determined).

Date	Day(s)	Item
Jan 8/9	Mon/Tues	Lecture 1
Jan10/11	Weds/Thurs	Lecture 2
Jan 15 - 19	Mon-Fri	Tutorial 1, week 1 (sections 003-021)
Jan 15/16	Mon/Tues	Lecture 3
Jan 17/18	Weds/Thurs	Lecture 4
Jan 22 - 26	Mon-Fri	Tutorial 1, week 2 (sections 022-040)
Jan 22/23	Mon/Tues	Lecture 5
Jan 24/25	Weds/Thurs	Lecture 6
Jan 25	Thurs	Midterm #1 review, NCB101, 3:30-5:00pm
Jan 27	Sat	**MIDTERM #1**, room TBD, 10-11:30am
Jan 29 - Feb 2	Mon-Fri	Tutorial 2, week 1 (sections 003-021)
Jan 29/30	Mon/Tues	Lecture 7
Jan 31/Feb 1	Weds/Thurs	Lecture 8
Feb 5 - 9	Mon-Fri	Tutorial 2, week 2 (sections 022-040)
Feb 5/6	Mon/Tues	Lecture 9
Feb 7/8	Weds/Thurs	Lecture 10
Feb 12/13	Mon/Tues	Lecture 11
Feb 14/15	Weds/Thurs	Lecture 12
Feb 19 - 23	Mon-Fri	Reading week - no class
Feb 26/27	Mon/Tues	Lecture 13
Feb 28/Mar 1	Weds/Thurs	Lecture 14
Mar 1	Thurs	Midterm #2 review, NCB101, 3:30-5:00pm
Mar 3	Sat	**MIDTERM #2**, room TBD, 10am-12pm
Mar 5 - 9	Mon-Fri	Tutorial 3 week 1 (sections 003-021)
Mar 5/6	Mon/Tues	Lecture 15
Mar 7/8	Weds/Thurs	Lecture 16
Mar 12 - 16	Mon-Fri	Tutorial 3, week 2 (sections 022-040)
Mar 12/13	Mon/Tues	Lecture 17
Mar 14/15	Weds/Thurs	Lecture 18
Mar 19 - 23	Mon-Fri	Tutorial 4, week 1 (sections 003-021)

Mar 19/20	Mon/Tues	Lecture 19
Mar 21/22	Weds/Thurs	Lecture 20
Mar 26 - 30	Mon-Fri	Tutorial 4, week 2 (sections 022-040)
Mar 26/27	Mon/Tues	Lecture 21
Mar 28/29	Weds/Thurs	Lecture 22
Apr 2/3	Mon/Tues	Lecture 23
Apr 4/5	Weds/Thurs	Lecture 24
Apr 9/10	Mon/Tues	Final exam review
April 14-30		Final exams, date/time/room TBD

Learning Outcomes: Bio2581 - Genetics

Bio2581 Genetics is the second-year gateway into undergraduate Genetics.

Through lectures, tutorials and assigned readings, students learn key concepts and theories in molecular and evolutionary genetics. These concepts and theories can be used to understand genetics in everyday life. They can also be used as the basic building blocks for understanding more advanced theories and fields in genetics, particularly those described in third- and fourth-year undergraduate genetics and evolution courses. Upon successful completion of this course, students will be able to:

- understand, recognize, and describe different types of mutations (from single base-pair substitutions to large genome rearrangements), how they are generated, how they can be detected and how the study of mutations underlies many fundamental genetic analyses, techniques, and evolutionary theories.
- understand common modern molecular techniques, and use these learned concepts to solve straightforward genetic problems.
- understand the basic principles of evolutionary genetics, such as natural selection, random genetic drift, and mutation, and how they influence genetic diversity, genomic architecture, and genetic relatedness among organisms.
- understand the basic genetic principles that have shaped the tree of life, including the central roles of endosymbiosis, lateral gene transfer, and gene duplication.

The lectured are accompanied by tutorials. Tutorials serve two purposes: being a very large class (>1000 students), tutorials allow for the formation of smaller groups, providing a forum where students can ask questions. Furthermore, tutorials are designed to guide students to solve genetic problems based on the concepts introduced in lecture.