UNIVERSITY OF TORONTO SCARBOROUGH

BIOC15H3
Genetics

Course Instructor
Dr. Tae Joon Yi: taejoon.yi@utoronto.ca

Office Hours
Wednesdays 10am-11am via Blackboard Collaborate

Course Coordinator
Jennifer Campbell: jac.campbell@utoronto.ca

Teaching Assistants
Aeen Ebrahim Amini: aeen.ebrahimamini@mail.utoronto.ca
Carina Carianopol: carina.carianopol@utoronto.ca
Jenan Noureddine: jenan.noureddine@mail.utoronto.ca
Marc Shenouda: marc.shenouda@mail.utoronto.ca
Mahbobeh Zamani: mahbobeh.zamani@utoronto.ca

Lectures
Pre-recorded and posted on Quercus weekly before noon on Wednesdays.
However, you must be available for the lecture (9am-11am) on October 7 for the midterm. Having a conflict with another class is NOT a valid reason.

Textbook
Genetics from Genes to Genomes, 2nd Canadian Edition
Solution manual bundle highly recommended!
Alternatively, you can go to : https://connect.mheducation.com/class/t-yi-bioc15 and sign up for the Connect system and purchase the e-book here. This option does have an expiry date and you cannot purchase the solution manual in this case.

Course Description
Topics for this lecture and laboratory (or project) course include: a brief review of DNA structure, transcription, and translation; inheritance and its chromosomal basis; gene interactions; sources and types of mutations and the relationship of mutation to genetic disease and evolution; genetic dissection of biological processes; genetic technologies and genomic approaches.

Course Learning Outcomes
Learning objectives for this course include a greater appreciation and understanding of:
- The significances of Mendelian laws and how they shaped genetics as we know today
- Chromosomes and their role in inheritance: segregation of alleles, independent assortment, sex linkage and linkage
- Using pedigree analysis to predict genetic outcomes and how phenotypic ratios can be used determine genotypes of parents
- DNA damage and replication mechanisms

- Technological advances that led to the sequencing of the human genome and current genetic techniques

Course Prerequisites

BIOB11H3 or BIOB10Y3 and PSYB07H3 or STAB22H3

Evaluation Scheme & Course Assessments

Assessment	% of Grade	Info
Midterm	25%	Lectures 1-4 October 7
Formal Lab Report	15%	Details provided on October 21 Due: November 4
Labster	5%	5 modules 1% each
Labster Assignment	20%	Details provided on November 11 Due: November 18
Final Exam	35%	Lectures 1-11

Midterm (25%)

Midterm will be held during in-class time (9-11am) on October 7. Having a conflict with another class is **NOT a valid reason** to miss the midterm.
The midterm will cover lectures 1-4.

Formal Laboratory Report (15%)

Students will be provided with hypothetical results. You will be writing a lab report based on your interpretation of the results. The details of this report will be provided on the week of **October 21** and the report will be due **November 4**.

Labster (5%)

There are 5 Labster modules throughout the course and each module is worth 1%. You must complete the module (100%) and receive a grade of 70% or greater to receive a full 1% per module.

If the module is NOT completed by 1pm on the due date, you will receive zero

Modules and due date:
Medical Genetics – **Sept 23 at 1pm**
Monogenic Disorders – **Sept 30 at 1pm**
Cytogenetics – **Oct 21 at 1pm**
Gene Regulation – **Oct 28 at 1pm**
Gene Expression Unit – **Nov 4 at 1pm**

Labster Assignment (20%)

Labster assignment will be based on the five modules mentioned above. More details will be provided on the week of **November 11** and the assignment will be due **November 18**.

Final Exam (35%)

The final exam will cover all lecture topics.

Tentative Class Schedule

The tentative schedule for the course is shown below. Some adjustments may be made as the course progresses.

Date	Class Topic	Textbook Reference
Sep 9	**Lecture 1** Introduction, Modern Genetics, Mendel's Laws	Chapters 1 & 2
Sep 16	**Lecture 2** Extension of Mendel's Laws	Chapter 2
Sep 23	**Lecture 3** Extension of Mendel's Laws, Chromosomes, Mitosis, Meiosis Due: Labster – Medical genetics	Chapters 2 & 3
Sept 30	**Lecture 4** X-linkage, Exceptions to Mendel's Laws Due: Labster – Monogenic disorder	Chapters 3 & 4
Oct 7	**Midterm**	
Oct 14	**Reading Week**	
Oct 21	**Lecture 5** Recombination, Mapping Genes, Chi-Square Test Due: Labster – Cytogenetics	Chapter 4
Oct 28	**Lecture 6** Chromosome Mutations Due: Labster – Gene regulation	Chapter 9
Nov 4	**Lecture 7** Chromosome Mutations, DNA Damage & Repair Due: Labster – Gene expression unit Due: Formal lab report	Chapters 8 & 9
Nov 11	**Lecture 8** Molecular Biology and Recombinant DNA Technology	Chapters 14
Nov 18	**Lecture 9** DNA Technology & Human Genome Sequencing Due: Labster Assignment	Chapters 20
Nov 25	**Lecture 10** Genetic Variants and Molecular Techniques	Chapters 15 & 19
Dec 2	**Lecture 11** Undergraduate Professional Development	

Course Communications

Content-related questions should be asked during a scheduled office hour appointment with Professor Yi, or on the class discussion board on Quercus. No content-related questions will be answered over email. For help with Quercus specifically, please contact student-helpdesk@utsc.utoronto.ca or visit https://www.utsc.utoronto.ca/projects/quercus/student-help/

Accessibility Accommodations

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible.
AccessAbility Services staff (located in Rm AA142, Arts and Administration Building) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email ability@utsc.utoronto.ca. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Academic Integrity

The University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (http://www.governingcouncil. utoronto.ca/policies/behaveac.htm) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences.
Potential offences in papers and assignments include using someone else's ideas or words without appropriate acknowledgement, submitting your own work in more than one course without the permission of the instructor, making up sources or facts, obtaining or providing unauthorized assistance on any assignment.
On tests and exams cheating includes using someone else's ideas or words without appropriate acknowledgement, using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

Turnitin

Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

Recording Lectures and Sharing Notes

Students are permitted to use the recorded lectures for personal use. Students are instructed to not upload the recordings to a shared drive or folder or hosted on a video service platform such a YouTube or Facebook messenger. Students are reminded that lectures are the intellectual property of the instructors, and the recordings should be respected thus. Students are further reminded that the Academic Handbook states: "It is absolutely forbidden for a student to publish an instructor's notes to a website or sell them" (section 4.5)" Any student found violating this rule will be brought into the Office of Student Academic Integrity.

Missed Test Policies

Advance conflict: If you know in advance that you cannot write the midterm at the scheduled time because it conflicts with some other valid activity, please notify the course instructor as soon as possible so that we

can try and make arrangements for you to write the tests. If an arrangement cannot be made, it will count as a missed test.

Medical illness: If you miss a test you must provide the UTSC Verification of Illness Form within 3 days of the term test to Jennifer Campbell (jac.campbell@utoronto.ca) Course Coordinator in Biological Sciences. You must see a doctor on the day of the test, notes that are dated before the test or after the test are will not be accepted. The UTSC Verification of Illness Form can be found here: http://www.utsc.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf

Other valid reasons: If you miss the tests/midterm for any other valid reason, please consult with the Course Coordinator (Jennifer Campbell) as soon as possible. The Course Coordinator will determine whether the reason given for the missed term tests is valid in accordance with university policies. Also, the Course Coordinator may ask for any documentation required to verify the reason given.

Invalid reasons: Students who miss the midterm/tests for any invalid reason will receive a grade of zero. Having a class conflict is an invalid reason.

Make-up midterm: There will be one single make-up midterm only for those who have **missed with a valid reason.** The make-up midterm may differ in format than the original midterm. Missing the make-up midterm will result in transfer of all midterm exam grades onto the final exam weighting (ex. final exam worth 60% of your grade).

**Disclaimer: The above schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances.

Submission of Assignments

All written assignments should be submitted **electronically** via Quercus.

Penalty for Late Assignments

Late submissions of ALL assignments are subject to a late penalty of 10% per day unless an extension has been granted by the course instructor, with no late assignments allowed after **7 calendar days**. For example, if your essay receives a grade of 85, and it was two days late, with a 10% late penalty per day, your final grade is 65.

Requests for extensions will only be considered on a case-by-case basis if Dr. Yi is contacted by email to request the extension at least ONE WEEK prior to the due date. Extensions will not be granted if this step is not followed.

Marking Concerns with Assignments

Any requests to have an assignment re-graded must be made in writing to your TAs **within one week** of the date the marks were posted on Quercus. To be considered, your message must clearly identify your concern, contain a detailed justification for your concern and make specific references to the relevant course material. Keep in mind that it is possible for your assignment grade to go down if the re-graded mark is lower than your original assignment grade.

Health and Wellness

The university experience can be a challenging one, there is no need to go about it alone. If you or anyone you know could use someone to talk to (or text with), here are some resources in addition to your instructors, program coordinators, and TAs:

- Your **college registrar** and **office of residence of student life (ORSL)**

- **MySSP** [24/7, talk in 146 languages & text in 35 languages]: available on Apple App Store and Google Play Store.
- **Good 2 Talk Student Helpline** [24/7]: 1-866-925-5454
- **Gerstein Centre** [24/7]: 416-929-5200