



Course Instructor

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

Office Hours

Fridays 10am-11am via Blackboard Collaborate

Course Coordinator

Jennifer Campbell: jac.campbell@utoronto.ca

Teaching Assistants

Aeen Ebrahim Amini: aeen.ebrahimamini@mail.utoronto.ca

Jenan Nouredine: jenan.nouredine@mail.utoronto.ca

Lectures

Pre-recorded and posted on Quercus weekly before noon on Wednesdays

Textbook

Genetics from Genes to Genomes, 2nd Canadian Edition

Solution manual bundle highly recommended!

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 |
|--------------------|------------|--|
| Labster | 5% | 5 sessions 1% |
| Labster Reflection | 5% | 1 reflection report |
| Lab Report | 10% | Details provided on June 17 Due: July 8 |
| Term Tests | 35% | Two term tests |
| Final Exam | 45% | Lectures 1-11 |

Labster (5%) * Tentative – More details will be provided in the lecture

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

Modules and due date:

Medical Genetics – May 27

Monogenetics – June 10

Cytogenetics – June 23

Gene Regulation – July 15

Gene Expression Unit – July 29

Labster Reflection (5%)

Due on August 12, students will be writing a reflection piece on their Labster experience. You will critically analyze the lab modules and reflect on your experience. Details will be provided on June 17 and instructions will be posted on Quercus.

Laboratory Report (10%)

Students will be provided with hypothetical results of a hypothetical experiment. You will be writing a lab report based on your interpretation of the results. The details of this report will be provided to you on the week of June 17 and the report will be due July 8.

Term tests (35%)

There will be two term tests in this course outside of class time. The exact time will be determined by the Registrar's office.

The term tests may cover any materials taught in the course, including Labster. Your term test with the higher mark will be worth 20% with the term test for which you receive a lower mark being 15%. You need to write both term tests to qualify for this 20% and 15% weighting.

Please refer to "Missed term test policies" for more detail.

Final Exam (45%)

The final exam will cover all lecture topics and Labster.

Class Topics

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

| Class Topic | Textbook Reference |
|---|--------------------|
| Introduction, Modern Genetics, Mendel's Laws | Chapters 1 & 2 |
| Extension of Mendel's Laws | Chapter 2 |
| Extension of Mendel's Laws, Chromosomes, Mitosis, Meiosis | Chapters 2 & 3 |
| X-linkage, Exceptions to Mendel's Laws | Chapters 3 & 4 |
| Recombination, Mapping Genes, Chi-Square Test | Chapter 4 |
| Chromosome Mutations | Chapter 9 |
| Chromosome Mutations, DNA Damage & Repair | Chapters 8 & 9 |
| Molecular Biology and Recombinant DNA Technology | Chapter 14 |
| DNA Technology & Human Genome Sequencing | Chapters 14 & 20 |
| Post Sequencing Technologies | Chapter 15 |

Tentative Class Schedule

The tentative schedule for the course is shown below. Some adjustments may be made as the course progresses. **Lecture dates may change depending on the term test date provided by the Registrar's Office.**

| Date | Class Topic | Textbook Reference |
|---------|---|--------------------|
| May 13 | Lecture 1 Introduction, Modern Genetics, Mendel's Laws | Chapters 1 & 2 |
| May 20 | Lecture 2 Extension of Mendel's Laws | Chapter 2 |
| May 27 | Lecture 3 Extension of Mendel's Laws, Chromosomes, Mitosis, Meiosis | Chapters 2 & 3 |
| June 3 | Lecture 4 X-linkage, Exceptions to Mendel's Laws | Chapters 3 & 4 |
| June 10 | Lecture 5 Recombination, Mapping Genes, Chi-Square Test | Chapter 4 |
| June 17 | *First Course Review OR Lecture 6 Chromosome Mutations | Chapter 9 |
| | Laboratory Report / Labster reflection Details | |
| June 23 | Reading Week | |
| June 30 | Presidential Day | |
| July 8 | *First Course Review OR Lecture 6 Chromosome Mutations | Chapter 9 |
| | Laboratory Report Due | |
| July 15 | Lecture 7 Chromosome Mutations, DNA Damage & Repair | Chapters 8 & 9 |
| July 22 | Lecture 8 Molecular Biology and Recombinant DNA Technology | Chapters 14 |
| July 29 | Lecture 9 DNA Technology & Human Genome Sequencing | Chapters 14 & 20 |
| Aug 5 | Lecture 10 Post Sequencing Technologies | Chapters 15 |
| Aug 12 | Second Course Review | |
| | Laster reflection due | |

*June 16th and July 7th lecture will be first course review or Lecture 6 depending on the term test dates provided by the Registrar's Office.

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 as 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 in to the Office of Student Academic Integrity.

Missed Term Test Policies

Advance conflict: If you know in advance that you cannot write the term tests 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 term tests. If an arrangement cannot be made, it will count as a missed term test.

Medical illness: If you miss a term 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.uts.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf

Other valid reasons: If you miss the term tests 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.

Missing one term test due to a valid reason: You will not be able to write a make-up term test. The weight of the written term test will be 20% and the weight of the final exam will be increased by 15%.

Missing two terms test due to a valid reason: You will not be able to write a make-up term test. The weight of the final exam will be increased by 35%.

Invalid reasons: Students who miss the term tests for any invalid reason will receive a grade of zero for that term test.

****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 20% per day unless an extension has been granted by the course instructor, with no late assignments allowed after **3 business days**. For example, if your essay receives a grade of 85, and it was two days late, with a 20% late penalty per day, your final grade is 51.

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