BIOL 205 – INTRODUCTORY GENETICS
(WINTER 2026)

Course Instructor: Dr. Christopher Somers chris.somers@uregina.ca
Office: RIC 327

Lectures: Mon, Wed, Fri 1:30-2:20 in RIC 119 (STARTS *January 7th*).
Laboratory: Information provided separately.

- Both the lecture and Laboratory components are **mandatory**
- Lecture and Laboratory course components are **in-person**

Office hours: Mon 10:30-11:30; Wed 9:00-10:30 drop-in sessions. If these times don't fit your schedule, please email the Instructor to set up an appointment.

Course description: Introductory Genetics will cover the fundamentals of how information is encoded in nucleic acids, and the relationship between genotype and phenotype. We will use human genetics and the causes of various diseases with a genetic basis as a model to aid learning. The topics covered will be linked back to human health and societal relevance at every opportunity. This course reviews and builds on concepts covered in high school and first-year courses, and brings them together in a way that provides the foundation for more advanced learning at the 300 and 400 levels. There is both a lecture and laboratory component to Biology 205, both are mandatory.

Learning outcomes:

1. Understand the general structure of eukaryotic genes.
2. Demonstrate a sound knowledge of the link between genotype and phenotype.
3. Understand how mutations affect phenotype.
4. Demonstrate applied knowledge regarding genetic diseases.
5. Wield biological and ethical information to evaluate societal relevance of genetics.

Prerequisites: BIOL 100, 101; CHEM 104 (can be taken concurrently).

Textbook: Lewis, R. (2024) Human Genetics: Concepts and Applications, 14th Edition, ISBN: 9781-266-28319-2, McGraw Hill. The textbook is **mandatory** – you will be given assigned readings. Quizzes and assignments will require preparation based directly on the textbook; some subjects may get little or no coverage in lecture. The textbook is available in electronic form from the publisher:

https://connect.mheducation.com/class/c-somers-winter-2025

Additional requirements: A computer and stable internet connection will be required for the biweekly genetics challenges and quizzes in this course, which will be completed online.

Grading

1. *Human Genetics Challenge Assignments* – approximately bi-weekly (5 x 3) 15 %
2. *OMIM case study* – hand in anytime but due by last day of classes 5%
3. *Midterm Quiz* – **March 4** all course content; written online (UR Courses) 15 %
4. *Final exam* – all course content (in person) 30 %
5. *Laboratory components* 35 %

****Mandatory Course Components**: you must complete at least 3 bi-weekly assignments, the Laboratory components, and the Final Exam to pass the course; these components are mandatory. You do not necessarily need to pass all of these individual components, but they must be completed to qualify to pass the course******

Assignments

1. *Human Genetics Challenge* (5 x 3 = 15 %) – Approximately every 2 weeks during the semester a challenge assignment will be posted on the UR Courses page. The challenge will be posted on a Wednesday and the answer will be due by 5:00 p.m. on the Friday of the same week. Students should provide the answer / solution online via the UR Courses page, carefully following the instructions provided. The weekly challenges will vary in complexity and will almost always require some reading to complete. Most will focus on human genetics topics covered in the textbook. The goal of the weekly challenge is to keep students engaged in the course material on a regular basis and to foster a strong sense of continued connection with the fundamentals of genetics we will be learning. Note that at least 3 of the challenge assignments must be completed to pass the course. **You should work on your own for these assignments**; do not share answers or submit those of other students! Dates may vary from the list shown.

Date Assignment Posted *	Date Assignment Due (by 5:00 p.m.)
1. January 21	January 23
2. February 4	February 6
3. February 25	February 27

4. March 11	March 13
5. April 1	April 3

2. *Online Mendelian Inheritance in Man (OMIM) case study (5%)* – go to the homepage for the National Library of Medicine (https://www.ncbi.nlm.nih.gov/) and use the "Resource List (A-Z) to locate the OMIM repository. Read the "Getting Started" and "FAQ" sections to familiarize yourself with the content and structure of the database. Find a disease entry that is of **personal interest to you**. It could be related to your ethnicity / population of origin, a condition a family member or friend has, something you saw in a movie or TV show that generated interest, etc. In a maximum of 250 words or 1 page of text, provide the following information: (1) database accession number and name of condition; (2) description of the phenotype in your own words; (3) summary of the genetic basis for the disease in your own words; and (4) brief explanation of why you chose this condition and its personal relevance to you. Grades will be assigned based on accuracy of reporting, quality of writing, and the care you took to develop a personal connection. To submit this assignment, upload it to the UR Courses page using the Turnitin link provided. **Note**: all reports will be compared to each other, the internet, and AI identifiers so make sure you do your own work. This assignment can be submitted *any time* during classes, but **the final due date is April 13 by 5:00 p.m**.

Quizzes and Exams

1. *Midterm Quiz* – this test will occur during the regular lecture period on **Wednesday, March 4, 2026**. Students will write the quiz **online** through the UR Courses page. Students may write the quiz from the classroom, at home, or in a place of your choosing; however, **you must work alone and adhere to the University of Regina's policies on academic misconduct**. You will need a stable and fast internet connection to write the quizzes.

2. The *Final Exam* (30%) will take place **in person** on **April 24, 2026 from 2:00-5:00** (location TBD). The exam will cover all course material, including topics covered in the challenge assignments. The format of the exam will be mixed and may include multiple choice and short / long answer questions. Note that the final exam is a required component that must be completed to pass the course.

Late assignments/missed exam policy: Late assignments will be assigned a grade of zero and not receive feedback. If you miss a test, contact the Instructor immediately to provide medical documentation and make alternative arrangements.

Attendance policy: Attendance at lectures is expected for all students but attendance is not taken.

Guideline for Class Activities (lecture topics may vary from this list)

Week of	Lecture Topics	Important Dates
January 5	Course intro; Molecular basis for genetics	
January 12	Molecular basis for genetics	
January 19	Molecular basis for genetics	Challenge assignment (Jan 21)
January 26	Molecular basis for genetics	
February 2	Mutations and genetic variability	Challenge assignment (Feb 4)
February 9	Mutations and genetic variability	
February 16	WINTER BREAK	
February 23	Genes to Phenotype	Challenge assignment (Feb 25)
March 2	Genes to Phenotype	Midterm Quiz (March 4)
March 9	Genes to Phenotype	Challenge assignment (Mar 11)
March 16	Modes of Inheritance	
March 23	Modes of Inheritance	
March 30	Cancer Genetics	Challenge assignment (Apr 1)
April 6	Case Studies	
April 13	Last day of classes; Exam Period	April 24 Final Exam

Academic integrity: Academic integrity requires students be honest. Assignments and exams are to help students learn; grades show how fully this goal is attained. Thus, all work and grades should result from a student's own understanding and effort. Acts of academic misconduct violate academic integrity, and are considered serious offences by the University. Examples include, but are not limited to, cheating on tests or exams, plagiarizing, copying from others, falsifying lab results, etc. Instances of academic misconduct will be reported to the Associate Dean Academic for investigation. Full details are provided in the Undergraduate academic calendar. Students are encouraged to understand your obligations as a student, as well as your rights.

In this course, **you are not permitted to use generative artificial intelligence (AI) programs** in your assignments or exams. Any work suspected of using generative AI will be reported for investigation of academic misconduct.

Accommodations: The Centre for Student Accessibility upholds the University's commitment to a diverse and inclusive learning environment by providing services and supports for students based on disability, religion, family status, and gender identity. Students who require these services are encouraged to contact the Centre for Student Accessibility to discuss the possibility of academic accommodations and other supports as early as possible. For further information, please email accessibility@uregina.ca.

BIOL 205 – INTRODUCTORY GENETICS
Winter 2026 Lab Syllabus and Schedule

I respectfully acknowledge that the University of Regina is situated on the territories of the nêhiyawak, Anihšināpēk, Dakota, Lakota, and Nakoda, and the homeland of the Métis Nation.

Lab Instructor: Dr. Jennifer Russell (she/her)
Contact: URCourses
Office: LB 414.4

Labs: Labs will be held in-person in LB 428. Please consult the Lab Schedule for exact dates.

Office Hours: TBD

Lab Description: In this lab you will perform a semester-long experiment to phenotype and genotype yourself at the *TAS2R38* locus.

Lab Objectives:

1) To understand basic concepts related to molecular biology
2) To develop wet lab skills
3) To develop skills in bioinformatics analyses
4) To develop skills in scientific writing

Lab Materials:

Notebook: You are required to purchase a bound notebook for lab work. Notebooks that allow for the addition/removal of new pages will not be accepted. You are free to use old lab notebooks from previous labs, provided that you have adequate space for the new content. **Do not use the same notebook for two courses happening in the same semester.**
Lab Manual: All lab content is available on URCourses.
PPE: Please bring your own lab coat and safety glasses to the lab. Lab coats and safety glasses can be purchased from URStores (in RIC). PPE should be kept in a plastic bag that is only opened INSIDE the lab!
Other Requirements: Please bring a pen (not a pencil) to write with.

Late Assignments Policy: Please see the relevant assignment documents for information regarding late penalties.

Assignment Extension Policy: I understand that things can happen, and so I will be flexible with assignment dates. However, if you require an extension, I do ask that you contact me, at minimum, 48 hours prior to the due date. If you contact me less than 48 hours before the due date, I may choose not to accommodate late assignments. **There will**

be no extensions given for quizzes or notebook checks.

Attendance Policy: Lab attendance is mandatory, and **you will not receive grades for the lab component of Biology 205 if you have missed any lab sessions without valid reason; this includes the final exam**. In addition, it is imperative that you arrive on time; arriving late may subject you to late penalties. Please contact Dr. Russell if you are not able to make it to your lab session, or if you think you might be late. **If you contact me during/after your scheduled lab session you may be subject to penalties.**

Evaluation: The lab is worth 35 % of your total grade

Please Note: this breakdown is subject to change with agreement from students

Notebooks: 6.0 %

-Notebook checks will be done twice throughout the semester

Lab Quizzes (5): 10 % (2.0 % each)

Pipette Practical Test: 2.0 %

Introduction Assignment: 5.0 %

Lab Exam: 10 %

Engagement: 2.0 %

Lab Schedule: All dates and topics are subject to change, as necessitated by illness, closures, or other unforeseen circumstances.

Date	Lab Topic/Activity
Cohort A: January 12th, 13th, 14th **Cohort B: January 19th, 20th, 21st**	Lab Introduction and DNA Extraction
Cohort A: January 26th, 27th, 28th **Cohort B: February 2nd, 3rd, 4th**	PCR, Bioinformatics, and PTC Phenotyping
Cohort A: February 9th, 10th, 11th **Cohort B: February 23rd 24th, 25th**	Gel Electrophoresis and Bioinformatics
Cohort A: March 2nd, 3rd, 4th **Cohort B: March 9th, 10th, 11th**	PCR Digest and Gel Electrophoresis (RFLP Analysis)
Cohort A: March 16th, 17th, 18th **Cohort B: March 23rd, 24th, 25th**	Data Analysis
Cohort A and B: April 6th, 7th, 8th **Cohort A: First Hour (8:30/2:30)** **Cohort B: Second Hour (9:45/3:45)**	Lab Exam

***Cohort A:** Sections 092, 094, 096, 098

***Cohort B:** Sections 093, 095, 097, 099

Pre-Lab Quiz Due Dates: All quizzes are due by 1:00 PM on the Monday before your lab.
I reserve the right to change due dates if necessary, but I will always give at least one week's notice for changes.

	Accessible on URCourses	Due Date
Quiz 1	January 6th, 2025	Cohort A: January 12th Cohort B: January 19th
Quiz 2	January 12th, 2025	Cohort A: January 26th Cohort B: February 2nd
Quiz 3	January 26th, 2025	Cohort A: February 9th Cohort B: February 23rd
Quiz 4	February 9th, 2025	Cohort A: March 2nd Cohort B: March 9th
Quiz 5	March 2nd, 2025	Cohort A: March 16th Cohort B: March 23rd

Important Due Dates: I reserve the right to change due dates if necessary, but I will always give at least one week's notice for changes.

Due Date	Assignment
Lab 2	Pipette Practical Test
Lab 3	First Notebook Check - Labs 1, 2, and 3
February 10th	Writing Assignment 1
Lab Exam	Final Notebook Check - Submit at Lab Exam

Academic integrity: All work and grades should result from a student's own understanding and effort. Plagiarism of any kind will be reported to the Associate Dean. This includes, but is not limited to: word-for-word copying of the work of peers (this includes figures and graphs), word-for-word copying of resources and scientific journals, etc. Additionally, you are not permitted to use artificial intelligence programs to write and complete any assignments; this includes, but is not limited to, software like ChatGPT. **As a required component to this course, please complete the Academic Integrity declaration on URCourses.**

Acts of academic misconduct violate academic integrity, and are considered serious offenses by the University. Examples include, but are not limited to, cheating on tests or exams,

plagiarizing, copying from others, falsifying lab results, etc. Instances of academic misconduct will be reported to the Associate Dean Academic for investigation. Full details are provided in the Undergraduate Academic Calendar: https://www.uregina.ca/student/registrar/resources

Accommodations: Students in this course who may have need for specialized accommodations, should contact the Centre for Student Accessibility (Riddell Centre 229, 585-4631), and must discuss their accommodation letter with their relevant instructor.