

COURSE SYLLABUS



COURSE TITLE: BIOL-232-Principles of Genetics

CLASS SECTION:

TERM: 2025W

COURSE CREDITS: 3

DELIVERY METHOD(S):

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Ləkʷəŋən (Songhees and Kosapsum) and WSÁNEĆ peoples. We honour their knowledge and welcome to all students who seek education here.

INSTRUCTOR DETAILS

NAME: Geoffrey Morris

EMAIL: [morriscg@camosun.ca](mailto:morrisg@camosun.ca)

OFFICE: Fisher 340B

HOURS: Tue 10:00-11:00am; Wed 11:30am-12:30pm; Thu 1:00-2:30pm; Fri (Ewing 201) 9:30-10:00am

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

The cellular and molecular basis of the transmission of hereditary characteristics. Topics include: Mendelian inheritance and its cytological basis, gene action in biochemical pathways, microbial genetics, linkage and gene mapping, DNA as the genetic material, the genetic code, gene action in development and differentiation and the fundamentals of genetic engineering.

PREREQUISITE(S):

All of:

C in BIOL 231

CO-REQUISITE(S):

All of:

C in CHEM 121

EQUIVALENCIES:

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon successful completion of this course, a student will be able to:

- Demonstrate the basic principles of Mendelian and molecular genetics.
- Use standard techniques of genetic analysis in laboratory experiments.
- Apply principles of genetics to ethical issues relating to molecular genetics.
- Define and explain basic genetics terminology.
- Use and apply genetic principles in problem solving.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Textbook:
(Required) Genetics: A Conceptual Approach, seventh edition, Pierce, MacMillan Learning, 2020. You will need access to the MacMillan Achieve website to complete certain assignments. The textbook may be purchased from the Camosun Bookstore or online.

Lab Manual
(Required): Biology 232 lab manual is available through the course D2L website. You will be responsible for printing and reading the labs, and following any pre-lab instructions before the lab session.

Lab Coat
(Required): Lab coat rental chit is available from the Camosun Bookstore. This chit is required for a rental lab coat that will remain in F222 for duration of semester.

Lecture Outlines: Lectures will be delivered in a PowerPoint format. Copies of slides will be made available on the Biology 232 D2L website.

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING (%)
Quizzes (Reading Quizzes)	10
Assignments	20
Lab Exam	20
Lecture Midterm 1	12.5
Lecture Midterm 2	12.5
Lecture Final Exam	25
If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the Grade Review and Appeals policy for more information.	TOTAL 100

<https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf>

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

Labs:	Monday	10:30am-1:20pm	Fisher 222
Lectures:	Tuesday	11:00am-12:20pm	Ewing 334
	Thursday	11:30am-12:50pm	Fisher 336

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

Week	Labs (Monday)	Chap.	Lecture Topics (Tuesday/Thursday)
1 (Jan 6-10)	Introduction and Lab Skills	1 2	Introduction to Genetics Chromosome and Cell Reproduction
2 (Jan 13-17)	Serratia 1 Mutagenesis 1	3 4	Basic Principles of Heredity Sex Determination & Sex-Linked Characteristics
3 (Jan 20-24)	Serratia 2 Mutagenesis 2	4 5 7	Sex Determination and Sex-Linked Characteristics Extensions and Modifications of Basic Principles Linkage, Recombination, and Eukaryotic Gene Mapping
4 (Jan 27-31)	SimBio Population Genetics (online)	7 6	Linkage, Recombination, and Eukaryotic Gene Mapping Pedigree Analysis, Applications, and Genetic Testing
5 (Feb 3-7)	Practice Problems (in F336)	6 25	Pedigree Analysis, Applications, and Genetic Testing Population Genetics
6 (Feb 10-14)	BC Cancer Field Trip	8	Chromosome Variation <i>Feb 13 – Lecture Midterm 1 (Chapters 1-7, 25)</i>
7 (Feb 17-21)	<i>No Lab</i>		<i>No Lecture (Reading Break)</i>
8 (Feb 24-28)	CRISPR 1: Intro	9 10 11	Bacterial and Viral Genetics Systems DNA: The Chemical Nature of the Gene Chromosome Structure and Organelle DNA
9 (Mar 3-7)	Fish Fraud 1	11 12	Chromosome Structure and Organelle DNA DNA Replication and Recombination
10 (Mar 10-14)	CRISPR 2: Gene Editing Fish Fraud 2	12 13	DNA Replication and Recombination Transcription
11 (Mar 17-21)	CRISPR 3: DNA Extraction and PCR	14	<i>Mar 18 – Lecture Midterm 2 (Chapters 8-12)</i> RNA Molecules and RNA Processing
12 (Mar 24-28)	CRISPR 4: Electrophoresis	15 16	The Genetics Code and Translation Control of Gene Expression in Bacteria
13 (Mar 31-Apr 4)	<i>Lab Exam</i>	16 17	Control of Gene Expression in Bacteria Control of Gene Expression in Eukaryotes
14 (Apr 7-11)	Group Presentation (in F336)	18	Gene Mutations and DNA Repair
Final Exam Period (Apr 14-25)			<i>Final Exam (scheduled by Registrar)</i>

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced notice is required. Deadlines can be reviewed on the [CAL exams page](https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams). <https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams>

COURSE GUIDELINES & EXPECTATIONS

Written Work

Lecture and lab assignments may be assigned at the instructor's discretion. It is the student's responsibility to be informed of any work expected and the dates the work is due. Assignments may be intended to be completed as individuals or as groups. The instructor will make clear which is which. Work intended to be submitted by an individual must be completed independently, keeping in mind student conduct requirements. Work intended for completion by a group must not be completed by an individual. Each person in a group will receive the same mark on any group work.

Unless otherwise indicated, all submitted written material (including numerical entries in data tables) must be prepared using word processing (typically MS Word) or graphing software (e.g. Excel). The only exceptions are calculations and some graphs, which may be submitted handwritten or hand drawn. Any exceptions will be clearly indicated. Work submitted inappropriately formatted, which includes last-minute handwritten corrections, will not be marked until all formatting is correct. Since correcting formatting requires time, this will likely mean a late penalty will be assessed.

Late Penalties

All assignments must be handed in by the time indicated on the assignment. Be sure to submit all assignments on time to avoid deductions. Where possible, late assignments will be graded but marks equivalent to 15% of the total value of the assignment will be deducted for each day (or partial day) past the deadline. For example, an assignment submitted two hours late would be deducted 15%; an assignment submitted 40 hours late would be deducted 30%.

Exams

The lab and lecture exam dates are set; please refer to the schedule above. Should an emergency or issue arise that prevents you from completing an exam at the scheduled time, you are required to contact your instructor ASAP and *before* the noted scheduled time for approval to arrange for a deferred exam date or re-weighting overall grade. Failure to obtain prior approval will result in the exam being automatically marked zero. No re-writes are allowed once an exam has been started or attempted. Study guides for each exam will be available on D2L closer to the exam dates.

Laboratory Safety

Nothing is more important to the instructor than students enjoying a safe class and lab environment. Consider the following issues:

Lab footwear	<ul style="list-style-type: none">For safety reasons WorkSafeBC mandates, and federal regulations require, that students are required to wear closed shoes in all lab times. Flip flops, sandals or shoes with holes are not acceptable. Other footwear posing an instability risk (e.g. high heels or bicycle shoes) are prohibited.
Eating & drinking	<ul style="list-style-type: none">Eating or drinking anything in the lab is a violation of federal regulations, so absolutely nothing may be ingested while in the lab. Chewing gum and applying makeup or lip balm are similarly prohibited. No exceptions will be made, even for medications.If something must be consumed, then it may be taken out of the lab.
Hair	<ul style="list-style-type: none">It is recommended that long hair be tied securely to prevent it from being exposed to lab equipment.
Handwashing	<ul style="list-style-type: none">Hands should be thoroughly washed after removing lab coats and before leaving the lab.

Guidelines for Lab Attendance in Biology at Camosun

In order to pass the course, students are required to meet the minimum lab attendance, participation and completion requirements.

- Laboratory activities involve practical applications of your knowledge and manual skills development. Development of these skills is a requirement to meet the Course Learning Outcomes.
- Meeting Course Learning Outcomes is a requirement for gaining credit in the course, as well as ensuring articulation, pre-requisite and transferability standards are met.
- Laboratory activities are in-person activities; attendance and participation are required. Online alternatives are not available.
- Laboratory attendance may be monitored by a sign-in/sign-out binder in the lab or by your instructor (while checking prelab completion). It is your responsibility to record your attendance using this binder or confirm that your instructor has recorded your attendance.
- Attendance from the sign-in/sign-out binder will be transferred to your D2L course page by your instructor. If you notice any discrepancies, please contact your instructor ASAP.
- If you arrive late to the lab, you may miss the opportunity to sign-in, and/or participate in graded assessments such as pre-lab quizzes.

Missed Labs Guidelines

- Students who will miss a laboratory session have an obligation to seek out concessions directly from their instructor in a timely manner, *before* the lab period occurs.
- If notification is provided *after* the lab has occurred, concessions may not be available (please see Student Concessions Policy for further guidance on academic concessions, including possible reasons to request a concession).
- If you miss *up to three (3) laboratory sessions*, you are still eligible to meet the Learning Outcomes for the course.
- Concessions offered for the first three (3) missed laboratory sessions will depend on the reason for laboratory absence and is up to instructor discretion. Concessions may include writing up the laboratory report with provided data, omitting the lab, or other concessions.
- If you miss a total of *four (4) or more labs for any reason* (including, but not limited to: life circumstances, legitimate illness or family/pet emergency, planned vacations, milestone family events, work commitments, childcare or eldercare commitments, competitive athletic events), *you will be unable to meet the learning outcomes for the class and will receive a failing grade (F) in the entire course*, regardless of marks received on graded lab and lecture components. Exceptions will only be considered through an academic concession granted by the instructor or Dean/Associate Dean.
- This guideline applies to in-person laboratory activities only; for missed Lab Exams, please see the section in this outline on Exams.
- Please note that if you are suffering from a serious medical illness that prevents you from participating in this course, Camosun College has a Compassionate Medical Withdrawal Policy (<https://camosun.ca/services/forms#medical>)

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

Generative Artificial Intelligence

You may use Generative Artificial Intelligence (Gen AI) tools such as ChatGPT, Copilot, Gemini, and similar tools for ungraded learning activities, such as brainstorming or studying. However, please be aware that the material generated by these programs may be inaccurate or incomplete. You may not submit any work generated by a Gen AI tool or program for your graded coursework (assignments, exams, etc.). Use of Gen AI tools to complete graded coursework will be considered academic misconduct. Please note that different instructors will have different policies for using Gen AI tools. If in doubt, check with your instructor before using these tools.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit camosun.ca/services.

Support Service	Website
Academic Advising	camosun.ca/services/academic-supports/academic-advising
Accessible Learning	camosun.ca/services/academic-supports/accessible-learning
Counselling	camosun.ca/services/health-and-wellness/counselling-centre
Career Services	camosun.ca/services/co-operative-education-and-career-services
Financial Aid and Awards	camosun.ca/registration-records/financial-aid-awards
Help Centres (Math/English/Science)	camosun.ca/services/academic-supports/help-centres
Indigenous Student Support	camosun.ca/programs-courses/iecc/indigenous-student-services
International Student Support	camosun.ca/international
Learning Skills	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills
Library	camosun.ca/services/library
Office of Student Support	camosun.ca/services/office-student-support
Ombudsperson	camosun.ca/services/ombudsperson
Registration	camosun.ca/registration-records/registration

Support Service	Website
Technology Support	camosun.ca/services/its
Writing Centre	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: <https://camosun.libguides.com/academicintegrity/welcome>
Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.13.pdf> for Camosun's Academic Integrity policy and details for addressing and resolving matters of academic misconduct.

Academic Accommodations for Students with Disabilities

Camosun College is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging appropriate academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a documented disability and think you may need accommodations, you are strongly encouraged to contact the Centre for Accessible Learning (CAL) and register as early as possible. Please visit the CAL website for more information about the process of registering with CAL, including important deadlines: <https://camosun.ca/cal>

Academic Progress

Please visit <https://camosun.ca/sites/default/files/2023-02/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit <https://camosun.ca/sites/default/files/2021-05/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <https://camosun.ca/registration-records/tuition-fees#deadlines>.

Grading Policy

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal (see [Medical/Compassionate Withdrawals policy](#)). Please visit <https://camosun.ca/services/forms#medical> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence Policy: <https://camosun.ca/sites/default/files/2021-05/e-2.9.pdf> and camosun.ca/services/sexual-violence-support-and-education.

To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-370-3841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at <https://camosun.ca/sites/default/files/2021-05/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

Looking for other policies?

The full suite of College policies and directives can be found here: <https://camosun.ca/about/camosun-college-policies-and-directives>

Changes to this Syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.