

| COURSE SYLLABUS | | | |
|------------------------|---------------|---------------------------------|---------------------|
| TERM: FALL 2019 | | COURSE NO: BIOL 200 | |
| INSTRUCTOR: | | COURSE TITLE: GENETICS I | |
| OFFICE: | LOCAL: | SECTION NO(S): | CREDITS: 3.0 |
| E-MAIL: | | | |
| OFFICE HOURS: | | | |

Capilano University acknowledges with respect the Lil'wat, Musqueam, Squamish, Sechelt, and Tsleil-Waututh people on whose territories our campuses are located.

COURSE FORMAT

Three hours of class time plus an additional hour of supplemental activity delivered through on-line or other activities for a 15-week semester, which includes two weeks for final exams.

COURSE PREREQUISITES

BIOL 111 (C-) and CHEM 111 (pass)

CALENDAR DESCRIPTION

This course is an introduction to the principles and mechanisms of heredity. Emphasis will be placed on an analytical approach to transmission genetics, genetics of humans, introductory molecular genetics, quantitative genetics, and population genetics.

COURSE NOTES

BIOL 200 is an approved Quantitative/Analytical course for baccalaureate degrees.

BIOL 200 is an approved Science course.

There is no laboratory for this course.

REQUIRED TEXTS AND/OR RESOURCES

Textbook: Pierce, Benjamin. *Genetics Essentials*. 4th ed. New York: W.H. Freeman, 2018.

COURSE STUDENT LEARNING OUTCOMES

On successful completion of this course, students will be able to do the following:

- Use rules of probability to infer genotypes in pedigrees and experimental crosses.
- Use recombination frequencies to construct genetic linkage maps.
- Apply statistical tests to quantitative genetic data.
- Solve problems in mathematical population genetics.
- Provide detailed explanations of molecular genetic mechanisms.
- Understand and explain molecular genetic techniques and their applications.
- Apply ethical reasoning to the applications of genetic knowledge and technology.

COURSE CONTENT

Topics for detailed discussion will be selected from the following:

| Weeks | Topics | Chapters |
|-------|---|----------|
| 1 | Introduction | 1 |
| 2 | Chromosomes and Cell Division | 2 |
| 3 | Mendelian Genetics | 3 |
| 4 | Extensions of Mendelian Genetics | 4 |
| 5 | Linkage and Genetic Mapping in Eukaryotes | 5 |
| 6 | Quantitative Genetics | 17 |
| 7 | Population Genetics | 18 |
| 8 | Microbial Genetics | 7 |
| 9 | DNA Structure; Transcription | 8, 10 |
| 10 | RNA Processing; Translation | 10-11 |
| 11 | Control of Gene Expression | 12 |
| 12 | Molecular Analysis | 14 |
| 13 | Genomics | 15 |
| 14-15 | Final Exam Period | |

EVALUATION PROFILE

Final grades for the course will be computed based on the following schedule:

| | |
|---------------|-------------|
| Quizzes (4) | 40% |
| Mid-Term Exam | 25% |
| Final Exam | 35% |
| TOTAL | 100% |

A graded assessment will be returned to students prior to the withdrawal date.

Specific dates and details regarding the Evaluation Component will be provided by the instructor.

GRADING PROFILE

| | | | |
|--------------|-------------|-------------|------------|
| A+ 90 - 100% | B+ 77 - 79% | C+ 67 - 69% | D 50 - 59% |
| A 85 - 89% | B 73 - 76% | C 63 - 66% | F 0 - 49% |
| A- 80 - 84% | B- 70 - 72% | C- 60 - 62% | |

Students should refer to the University Calendar for the effect of the above grades on grade point average.

INCOMPLETE GRADES

Grades of Incomplete "I" are assigned only in exceptional circumstances when a student requests extra time to complete their coursework. Such agreements are made only at the request of the student, who is responsible to determine from the instructor the outstanding requirements of the course.

LATE ASSIGNMENTS

Assignments are due at the beginning of the class on the due date listed. If you anticipate handing in an assignment late, please consult with your instructor beforehand.

MISSED EXAMS/QUIZZES/LABS, ETC.

Make-up work is given at the discretion of the instructor. Normally, a score of zero will be given for a missed exam, test, quiz, lab, etc. In certain exceptional situations, the student will be permitted to write a make-up test, defer the lab to a later date or to replace the score by other marks (see below). The date and timing of any make-up option is at the discretion of the instructor. It may not be possible to reschedule certain labs, tests or other activities.

A score of zero may be avoided when the student meets all of the following conditions:

1. Circumstances are beyond the control of the student which resulted in the exam, test, quiz, lab, etc. to be missed. Such circumstances include serious illness or injury or severe personal crises. They do not include forgetting about the test, lack of preparation for the test, or work-related or social obligations.
2. The student has notified the instructor (or the School of STEM office staff, if the instructor is not available) about the missed exam, test, quiz, lab, etc. Such notification must occur in advance or, at the latest, on the day of the exam, test, quiz, lab, etc.
3. Evidence of the circumstances may be requested. Proper medical documentation of illness or injury may be required from a doctor.
4. The student has been fully participating in the course up until the circumstances that prevented the writing of the exam, test, quiz, lab, etc. Fully participating means regularly attending labs and lectures and turning in assignments in the course.

FINAL EXAM PERIOD

Students should expect to write exams at any time during the final exam period. Individual exam times will not normally be rescheduled because of holidays, work, or other commitments. While efforts are made to spread exams throughout the exam period, an individual's particular course combination may result in exams being scheduled close together, or spread widely through the entire exam period.

ATTENDANCE

Students are expected to attend all classes and associated activities. If classes are missed, it is the student's responsibility to become aware of all information given in the lectures and laboratories, including times of examinations and assignment deadlines.

ENGLISH USAGE

Students are expected to use correct standard English in their written and oral assignments, exams, presentations and discussions. Failure to do so may result in reduced grades in any part of the Evaluation Profile.

ELECTRONIC DEVICES

Students may use electronic devices during class for note-taking, calculations and in-class research.

ON-LINE COMMUNICATION

Outside of the classroom, instructors will (if necessary) communicate with students using either their official Capilano University email or Moodle; please check both regularly. Official communication between Capilano University and students is delivered to students' Capilano University email addresses only.

UNIVERSITY OPERATIONAL DETAILS:

Tools for Success

Many services are available to support student success for Capilano University students. A central navigation point for all services can be found at: <https://www.capilanou.ca/student-life/>

Capilano University Security: download the CapU Mobile Safety App

Policy Statement (S2009-06)

Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Cheating and Plagiarism, Academic Probation and other educational issues. These and other policies are available on the University website.

Academic Integrity (S2017-05)

Any instance of academic dishonesty or breach of the standards of academic integrity is serious and students will be held accountable for their actions, whether acting alone or in a group. See policy S2017-05 for more information: <https://www.capilanou.ca/about-capu/governance/policies/>

Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances, are prohibited and will be handled in accordance with the Student Academic Integrity Procedures.

Academic dishonesty is any act that breaches one or more of the principles of academic integrity. Acts of academic dishonesty may include but are not limited to the following types:

Cheating: Using or providing unauthorized aids, assistance or materials while preparing or completing assessments, or when completing practical work (in clinical, practicum, or lab settings), including but not limited to the following:

- Copying or attempting to copy the work of another during an assessment;
- Communicating work to another student during an examination;
- Using unauthorized aids, notes, or electronic devices or means during an examination;
- Unauthorized possession of an assessment or answer key; and/or,
- Submitting of a substantially similar assessment by two or more students, except in the case where such submission is specifically authorized by the instructor.

Fraud: Creation or use of falsified documents.

Misuse or misrepresentation of sources: Presenting source material in such a way as to distort its original purpose or implication(s); misattributing words, ideas, etc. to someone other than the original source; misrepresenting or manipulating research findings or data; and/or suppressing aspects of findings or data in order to present conclusions in a light other than the research, taken as a whole, would support.

Plagiarism: Presenting or submitting, as one's own work, the research, words, ideas, artistic imagery, arguments, calculations, illustrations, or diagrams of another person or persons without explicit or accurate citation or credit.

Self-Plagiarism: Submitting one's own work for credit in more than one course without the permission of the instructors, or re-submitting work, in whole or in part, for which credit has already been granted without permission of the instructors.

Prohibited Conduct: The following are examples of other conduct specifically prohibited:

- Taking unauthorized possession of the work of another student (for example, intercepting and removing such work from a photocopier or printer, or collecting the graded work of another student from a stack of papers);
- Falsifying one's own and/or other students' attendance in a course;
- Impersonating or allowing the impersonation of an individual;
- Modifying a graded assessment then submitting it for re-grading; or,
- Assisting or attempting to assist another person to commit any breach of academic integrity.

Sexual Violence and Misconduct

All Members of the University Community have the right to work, teach and study in an environment that is free from all forms of sexual violence and misconduct. Policy B401 defines sexual assault as follows:

Sexual assault is any form of sexual contact that occurs without ongoing and freely given consent, including the threat of sexual contact without consent. Sexual assault can be committed by a stranger, someone known to the survivor or an intimate partner.

Safety and security at the University are a priority and any form of sexual violence and misconduct will not be tolerated or condoned. The University expects all Students and Members of the University Community to abide by all laws and University policies, including B.401 Sexual Violence and Misconduct Policy and B.401.1 Sexual Violence and Misconduct Procedure (found on Policy page <https://www.capilanou.ca/about-capu/governance/policies/>)

Emergency Procedures

Students are expected to familiarize themselves with the emergency policies where appropriate and the emergency procedures posted on the wall of the classroom.

DEPARTMENT OR PROGRAM OPERATIONAL DETAILS:

PROFESSIONALISM

Students should be able to demonstrate a professional attitude and behaviour: reliability, respect for and cooperation with colleagues, willingness to work calmly and courteously, respect for equipment and systems, and constructive response to criticism. The use of cellphones for non-academic purposes during lecture and lab sessions is prohibited. Students using cell phones inappropriately could be asked to leave the lecture hall or laboratory room by the instructor.

TOOLS FOR SUCCESS

For success in this course, students are expected to attend all lectures and laboratory sessions; come prepared to address topics presented; pre-read laboratory exercises; and complete assigned text book readings. For every one hour of lecture material presented, students should expect to spend at least two hours reviewing material and engaging with the study tools provided.