

University of Montana

ScholarWorks at University of Montana

University of Montana Course Syllabi, 2021-2025

Spring 2-1-2022

BIOB 375.01: General Genetics

Sarah J. Certel

University of Montana, Missoula, sarah.certel@umontana.edu

Follow this and additional works at: <https://scholarworks.umt.edu/syllabi2021-2025>

Let us know how access to this document benefits you.

Recommended Citation

Certel, Sarah J., "BIOB 375.01: General Genetics" (2022). *University of Montana Course Syllabi, 2021-2025*. 123.

<https://scholarworks.umt.edu/syllabi2021-2025/123>

This Syllabus is brought to you for free and open access by ScholarWorks at University of Montana. It has been accepted for inclusion in University of Montana Course Syllabi, 2021-2025 by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

BIOB 375 GENERAL GENETICS

Spring 2022

INSTRUCTOR: Dr. Sarah Certel
sarah.certel@mso.umt.edu
HS 303B, 406-243-6479
Office hours: by appointment

Grader: Jessica Bailey (jessica1.bailey@umconnect.umt.edu)

LECTURES: T/R, 11-12:20 pm, **HS 207**

TEXTBOOK: *Genetics: A Conceptual Approach* by Benjamin A. Pierce, 6th or 7th Edition.
W.H. Freeman and Company [ISBN: 978-1-46410-946-1]

QUIZZES: Moodle

EXAMS: In person

INTRODUCTION: Biology 375 will focus on the molecular genetics of eukaryotes, with special emphasis on gene structure and gene regulation. This course will have two major components. First, students will acquire mechanistic understanding of particular genetic phenomena (e.g., DNA transcription, gene silencing, epigenetics), and in the process, gain knowledge about experimental tools used to acquire that understanding. Second, students will learn how these tools and this understanding are being used to address questions on the leading edge of development, cell biology, human health and disease, neuroscience, and behavior. To give but two examples: gene copy number can influence cancerous cells; also, gene imprinting strongly influences brain and behavioral development.

LEARNING OUTCOMES: Biology 375 will emphasize biological principles, scientific concepts, and scientific design. Expected outcomes are to:

- understand the mechanisms of inheritance,
- grasp fundamental principles of gene structure, gene expression
- understand how mutations are generated, impact gene expression, and protein function
- learn about new genome editing and genetic-based technologies
- gain experience in reading genetics-related primary literature

Genetics is a problem-based science and as possible problem sets, quizzes, discussion questions, and exams will all be assigned online to encourage students to synthesize subject matter, not simply to test their ability to recall details.

LECTURES: Students are expected to either attend lectures regularly. Videos or animations may be presented. All classroom material may be used as a basis for an exam, quiz, or problem set question in addition to all assigned reading in the textbook.

Zoom recording links are available upon email request.

MOODLE: Moodle is the conduit for posting course announcements, information, lecture recordings, lecture notes, discussion forums, grades, etc. It will also be used to communicate with students through email. *All correspondence will be through your official UM email account, so be sure to check this account regularly.* There are Moodle tutorials etc. available on the UM Online web site <https://moodle.umt.edu/> or contact IT for further assistance.

SAFETY MESSAGING FOR COVID-19:

- **Mask use is required within the classroom,** <https://www.umt.edu/coronavirus/mask-policy.php>
- Drinking liquids and eating food is discouraged within the classroom (which requires mask removal)
- Stay home if you feel sick and/or if exhibiting COVID-19 symptoms
- If sick or displaying symptoms, contact the Curry Health Center at (406) 243-4330
- COVID-19 Information from the University of Montana
 - UM Coronavirus Website: <https://www.umt.edu/coronavirus>

Students with disabilities: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at (406) 243-2243, ode@umontana.edu, or visit www.umt.edu/disability for more information. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation, and you are welcome to contact me privately if you wish. If you would like to request reasonable accommodations, you are advised to provide your ODE verification letter to your instructor in the first week of class so appropriate arrangements can be made. If you decide after the semester begins to disclose your disability and request accommodations, you should provide documentation, if possible, at least 10 days before the upcoming assessment so I may prepare appropriately. It is the responsibility of students to make sure they understand the types of modifications available to them before assessments.

MISCELLANEOUS INFORMATION

Prerequisites: To be registered in BIOB 375 students must have successfully completed the Introductory Biology sequence (BIOB 160 and BIOB 171), and Genetics and Evolution (BIOB 272). Transfer students' coursework in these areas is subject to review by the Biology Advisor, Dr. Kerry Bright (Biology.Advisor@mso.umt.edu)

Accommodations to ensure accessibility of students with disabilities will be gladly made. In order to qualify a student must be registered with Disability Services for Students (DSS). Arrangements for accommodations on exams will be made through DSS.

Academic misconduct will be reported and handled as described in the UM Student Conduct Code. All students must practice academic honesty. Academic misconduct is subject to an

academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. <http://ordway.umt.edu/SA/VPSA/index.cfm/name/StudentConductCode>

Dropping course or changing grading status must strictly follow University policies and procedures described in the UM catalogue.

Student Behavior

To maximize your likelihood of success, you should attend or watch each lecture, and complete assigned readings before class. Do not simply rely on PowerPoint presentations posted on-line. When in class students are expected to behave in a manner that is respectful of others. All disruptive electronic devices must be turned off during lecture, during Discussion and Review sessions as well as during exams.

GRADES and Assignments

Graded material:

- (1) **Assigned online quizzes** (3/10 pts each, 30 pts total)
- (2) **Two mid-term exams** (80 pts each; one recorded, the exam with the lowest score will be dropped)
- (3) **In class problem sets** (5 pts each/20 pts total). In class activities will be assigned throughout the semester. Students will be able to complete versions of the in-class problem sets online.
- (4) **Writing Essay** (30 pts)
- (5) **Virtual Reality Exercise** (10 pts)
- (6) **Group Presentation** (10 pts, 10 pts feedback, 20 pts total)
- (7) **Comprehensive Final Exam** (90 pts). Approximately 50% of the Final Exam will focus on material covered in the last third of the course; the remaining 50% will focus on material covered in the first two-thirds of the class.
- (8) **Pre- and Post-class tests** (10 pts each, 20 pts total). Each student receives 10 pts for completing the pre-class test regardless of answers, the post-test will be graded.

Total points: 300

Extra credit: Genetics in the News (up to 5 pts)

Extra credit: Writing essay revision (up to 5 pts)

Online quizzes or problem sets are due at midnight on the assigned day unless otherwise noted.

Although the pandemic aspect of life this semester is well-understood, make-up exams will be administered if email communication is made **prior** to the exam. Students must provide documentation of the illness or emergency. Students who may need to arrange a make-up exam because they will be off campus participating in University-related activities (ROTC, sports, etc.) must contact Dr. Certel one week prior to the exam, and provide documentation of the activity.

As in other DBS classes, the top ~10 %-tile of students will receive a grade of **A** or **A-**. The median score of the class will approximately define the partition between grades of **B** and **C**. A total

percentage (59.9%) or less will be failing (grade of **F**). Pluses (+) and minuses (–) will be used (**A**, **A–**, **B+**, **B**, **B–**, **C+**, **C**, **C–**, **D+**, **D**, and **D–**).

These cutoffs may be adjusted downward (in favor of the student) to better reflect natural breaks in the class scores.