

# **BIOL 444: Genomics**

**Spring, 2021**

**TR 11:00-12:15, LSS 277**

**Instructor:** Dr. Adam G. Jones  
Gibb Hall 240  
[adamjones@uidaho.edu](mailto:adamjones@uidaho.edu)  
(208) 885-0948

**Office Hours:** By appointment. Email is the preferred method of contact. Meetings will be held over Zoom.

## **Course Summary:**

This course provides an introduction to the field of genomics. The course emphasizes the technological advances and biological insights associated with the field. We also explore the ethical implications of these rapid advances in biotechnology. No textbook is required.

## **Learning Outcomes:**

At the end of the course, students will understand the origin of genome sequencing and its implications for the field of biology. In particular, students will be expected to understand new genome sequencing technologies, the importance of bioinformatics to genomics, a subset of bioinformatics techniques, and how to obtain data from public databases. They will also be expected to appreciate the importance of genomics with respect to a broad swath of biological disciplines, including the health sciences, ecology, evolution, development, and molecular biology.

## **Computer Requirements:**

This course requires students to have a fully charged portable computer that can be brought to class (or used while attending class via Zoom). Students will be expected to access BBLearn and Amazon Web Services via the internet during class. In addition, students are expected to sign up for a free Amazon Web Services account to use throughout the semester.

## **Grading:**

Grades will be based on 20 quizzes and 2 exams (a midterm and a final). Each exam will be worth 100 points. Quizzes will be worth 10 points each. The total number of points available is 400. Letter grades will be determined by the total number of points earned by a student, as follows: 0-239 = **F**, 240-279 = **D**, 280-319 = **C**, 320-359 = **B**, 360-400 = **A**.

## **Attendance:**

Even though this course is technically in-person, students have the option of meeting in person or participating via Zoom during the scheduled class time. The expectation is that all students will be available either in person or by Zoom during class. Students who cannot be present (or connected via Zoom) should contact the instructor. Check BBLearn for the Zoom meeting link, Zoom ID, and passcode.

Most class periods will have a quiz that must be completed during class. Unexcused absences will result in a 0 on the assignment for the day. Students will be permitted to make up missed work, provided they

can document the absence as an official university-excused absence. The intent to make up a missed assignment must be communicated to the instructor within three days of the absence for the student to be eligible for a makeup assignment.

**Covid-19 considerations:** The University of Idaho is still operating under Covid-19 precautions. Before attending class, students are required to test negative for Covid-19. In class, students are required to maintain social distancing and wear face coverings at all times. Students experiencing any symptoms consistent with Covid-19, including sore throat, cough, fever, etc., should attend class via Zoom rather than in person. In fact, students feeling less than 100% healthy should take advantage of Zoom – attending via Zoom will not affect anyone’s grade in a negative way. Any student is welcome to opt to attend via Zoom for any reason and instructor permission is not required.

**Center for disability access and resources reasonable accommodations statement:**

- Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through the Center for Disability Access and Resources located in the Bruce M. Pitman Center, Suite 127 in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course.
- Phone: 208-885-6307; Email: [cdar@uidaho.edu](mailto:cdar@uidaho.edu); Website: [www.uidaho.edu/current-students/cdar](http://www.uidaho.edu/current-students/cdar)

**Course Dates:**

Week 1, January 14:	Introduction to Genomics
Week 2, January 19, 21:	Using Linux
Week 3, January 26, 28:	Genes and Disease
Week 4, February 2, 4:	Simple Bioinformatics Tools
Week 5, February 9, 11:	Chimps and Neanderthals
Week 6, February 16, 18:	Whole-genome assembly I
Week 7, February 23, 25:	Whole-genome assembly II
Week 8, March 2, 4:	Phylogenomics ( <b>Midterm assigned March 2</b> )
Week 9, March 9, 11:	Comparative Genomics ( <b>Midterm due March 9</b> )
<b>Week null, March 15-19:</b>	<b>Spring Break</b>
Week 10, March 23, 25:	Gene Drive
Week 11, March 30, April 1:	Microbiomes
Week 12, April 6, 8:	Transcriptomics
Week 13, April 13, 15:	RNA-seq
Week 14, April 20, 22:	RNA-seq and Gene Ontology ( <b>Final assigned April 23</b> )
Week 15, April 27, 29:	Genomics and Disease ( <b>Final due April 30</b> )
Week 16, May 4, 6:	Genomics and Us

**Final Exam: The exam is take-home so we will not meet during the scheduled Final Exam period.**