Course Syllabus

Decoding Your Genome

ANTH 376: GENOMICS & ANTHROPOLOGY
4 credit hours (satisfies an SC requirement)

Please read through this course syllabus! You are responsible for this material.

Course Instructors

Dr. Kirstin Sterner (she/her/hers pronouns)
I am a molecular anthropologist with a genomics lab on campus. If you need to reach me throughout the term you can always email me (ksterner@uoregon.edu) or drop by my office hours (in person or virtual) before class on Mondays (12 to 1:30pm). More information about how and when to contact me can be found on the Communicating with Dr. Sterner and Elisabeth Page.

Elisabeth Goldman (she/her/hers pronouns)
I am a biological anthropology graduate student and a member of Dr. Sterner's Lab. I am currently finishing up my dissertation! If you need to reach me throughout the term you can email me (egoldman@uoregon.edu) or drop by my office hours (virtual only) on Tuesdays (10:30am - 12). More information about how and when to contact me can be found on the Communicating with Dr. Sterner and Elisabeth Page.

Course Format

This course is an in-person course that includes both lectures and a weekly discussion section. Lectures will be held on Mondays and Wednesdays from 2pm until 3:20pm in 128 CHI and your discussion sections will be on Thursdays in 330 Condon. Note: this is not a course you can take remotely or asynchronously! You need to be able to attend lectures, exams and discussion sections when it is safe to do so. If you have concerns about being able to regularly attend the lectures and discussion sections please reach out to me right away.

Prerequisite

Students should have completed at least one of the following courses: ANTH 270 (Introduction to Biological Anthropology), ANTH 175 (Evolutionary Medicine), BI 211 (General Biology I: Cells), or BI 282H (Honors Biology II: Genetics and Molecular Biology).
Course Description

This course explores how molecular data are used to address anthropological questions concerning human (and nonhuman primate) biological variation, health and evolution.

Extended Course Description

The Human Genome Project and recent advances in genome sequencing techniques have made it possible to sequence human genomes relatively quickly and inexpensively. As more and more genomes are being sequenced, scientists are exploring these data in hopes of finding the molecular underpinnings of human traits and diseases. This group-satisfying (science) course will explore how genomics and other types of molecular data are used to address fundamental questions of human (and nonhuman primate) evolution and biology. Each week we will explore different topics in molecular anthropology including: the Human Genome Project and related spin-off projects; genomic insights into human diversity and evolution; personal genomics and medicine; gene X environment interactions (e.g., epigenetics); ancient DNA (e.g., Neanderthal genome); primate comparative genomics; and molecular primatology. In addition, students will have an opportunity to discuss and critically analyze current biological and social issues related to human genetics/genomics during their weekly discussion sections.

The course will also serve as an introduction to molecular anthropology for anthropology majors and an introduction to the field for non-majors. As one of the fastest growing subfields of biological anthropology, molecular anthropology is a critical component in the education of all students in the discipline. After successfully completing this course, students will be prepared to enter upper-level courses in molecular anthropology.

This course has three main sections:

Unit 1: This course begins with a two-week section that introduces students to key concepts and methods used in molecular anthropology. During this section we will also establish a scientific framework through which students will be expected to interpret and assess the material and readings presented during the term. The ultimate objective of this section is for students to learn key concepts and terminology common in human genomics (and other –omics).

Unit 2: During the second section of this course we will explore how genomic (and other –omics) data are currently being used to study human biology and origins. Using an evolutionary framework, we will place the human genome in context with other hominins (e.g., Neanderthals) and primates (e.g., chimpanzees) in order to understand the molecular underpinnings of distinctly human traits. We will start by examining research that compares human and nonhuman primate genomes and then expand out to studies that attempt to connect human-specific genotypes to human-specific characteristics. The ultimate objective of this section is for students to understand how molecular data are being used to explore fundamental questions in human biology and evolution.

Unit 3: The final section of the course will focus on human genomics. We will discuss the promises and pitfalls of personal genomics, focusing on the intersection of genomic data and medicine. We will also explore the complex ethical issues and social implications of human genome sequencing and direct-to-consumer genomic testing. The ultimate objective of this section is for students to learn how to interpret and assess genetic/genomic information encountered in daily life.

Student Learning Outcomes

https://canvas.uoregon.edu/courses/199860/pages/course-syllabus
By the end of this course students will be able to:

1. define key concepts in genetics and genomics
2. outline how genomic data are collected and analyzed
3. explain how genomics is currently used in healthcare
4. explain how genomics has contributed to our understanding of human evolution
5. discuss ethical issues and social implication of human genome sequencing
6. discuss practical and ethical issues for direct-to-consumer genomic testing

Required Readings and iClicker

All readings will be available online (Canvas). This includes a mix of scientific articles, book chapters, news articles, and textbook chapters. See Course Schedule (https://canvas.uoregon.edu/courses/199860/pages/course-schedule) for weekly reading assignments. Discussion section readings should be completed before arriving to class on the day they are listed unless otherwise noted.

This course uses iClicker to increase engagement and reinforce key concepts. Students are expected to attend course and use their own iClicker to answer in-class questions. iClicker’s use will be explained during the first lecture and will not start until Week 2. To accommodate students who need to miss lectures for any reason or have clicker issues (e.g., forgot it at home), students will be able to drop 5 of their lowest iClicker scores. Note: answering questions for another student using their iClicker is considered a violation of the Student Code of Conduct will be treated as academic misconduct.

Classroom Etiquette

In order to foster an atmosphere of mutual respect and collaborative inquiry in this course we will use a Course Contract (https://canvas.uoregon.edu/courses/199860/pages/course-contract-for-genomics-and-anthropology). You will have an opportunity to suggest additions/edits to this contract before agreeing to it during Week 1. In addition, never record (audio or video) any part of the lectures or discussions unless you have my expressed permission.

Evaluation Criteria

Regular attendance at lectures and participation in discussion sections are required. Course readings are required and are essential to passing exams, completing reaction papers, and participating in discussion sections. Grades are based on two in-class exams, a final exam, two reaction papers, weekly discussion section attendance and participation, and pre-discussion assignments (see the "Discussion" links for each week listed under Pages for more info).

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1 (covers weeks 1-3)</td>
<td>15%</td>
</tr>
<tr>
<td>Exam 2 (covers weeks 4-6)</td>
<td>15%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Reaction Papers</td>
<td>20% (10% each)</td>
</tr>
<tr>
<td>iClicker</td>
<td>10%</td>
</tr>
<tr>
<td>Discussion Section Attendance &amp; Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Pre-Discussion Assignments</td>
<td>10%</td>
</tr>
</tbody>
</table>
Exams

Exams will test student comprehension of the fundamental concepts covered in this class and will include multiple choice, matching, fill-in-the-blank, and short answer. Exams 1 and 2 will cover lecture materials and readings for weeks 1-3 and 4-6 respectively. The final exam will cover lecture materials and readings for weeks 7-10 as well as the major concepts and themes from the entire course. The exams must be taken during the scheduled time - under no circumstances will make-up exams be given without a documented excuse. If you will not be able to take an exam you must notify me in advance (preferably by e-mail).

Reaction Papers

During the quarter, each student will write two short (2-3 pages, 800-word maximum) reaction papers on topics provided by the instructor. These response papers provide opportunities for discussion and critical analysis of current bioethical and social issues related to human genetics/genomics. Because reaction papers have an 800-word maximum, your writing should be concise and focused around a one or two main points. Reaction papers should be typed and double-spaced, using 12-point font with 1” margins, and should not exceed 800 words (excluding Works Cited page). A clear thesis statement should be present in the first paragraph. Papers are due when listed on the course schedule (below) – extensions will not be given without a documented excuse. If you will not be able to turn in your paper on time you must notify us in advance (preferably by e-mail). See the Reaction Paper Instructions, Examples and Tips page for more information.

Discussion Sections

This class has required weekly discussion sections. During these sessions, students will participate in hands-on activities and have an opportunity to discuss and critically analyze current biological and social issues related to human genetics/genomics in small groups.

To facilitate constructive discussion and/or prepare for the week’s activity, students will be required to submit short pre-discussion assignments. A more thorough description of the discussion component of this class and all related assignments is provided in the “Discussion” links in Course Schedule.

It is important that students read any assigned material prior to attending their discussion section, complete the pre-discussion assignment (see below) and arrive prepared to contribute. More information about Missing Class and the Extension/Late Policy can be found in the Course Policies section below.

Grading Statement

Grades will be assigned as follows: A = 90-100%, B = 80-89%, C = 70-79%, D = 60-69%, F < 60% (with minus and plus grades assigned at appropriate cutoffs).

A+ Quality of student’s performance significantly exceeds that of an A. Very few, if any, students receive this grade in a given course.

A Outstanding performance relative to that required to meet course requirements; demonstrates both mastery of course content & coursework quality at the highest level.
B Performance that is significantly above that required to meet course requirements; demonstrates both mastery of course content & coursework quality at a high level.

C Performance that meets the course requirements in every respect; demonstrates adequate understanding of course content and coursework quality.

D Performance that is at the minimal level necessary to pass the course but does not fully meet the course requirements; demonstrates marginal understanding of course content and coursework quality.

F Performance in the course, for whatever reason, is unacceptable and does not meet the course requirements; demonstrates inadequate understanding of the course content and coursework quality.

Course Policies

Course Communications (Canvas)

Our class will communicate through our Canvas site. The Canvas site is your main source for course information, documents, readings, assignments, assessments and announcements. Make sure that you regularly check your Canvas and your Canvas linked e-mail account. Announcements and emails are archived there and automatically forwarded to your UO email, and can even reach you by text. Check and adjust your settings under Account > Notifications.

Missed Class, Extension and Late Policy

I am committed to supporting students who need assistance. While providing accommodations for students who are unable to complete their work on time due to short-term illness, emergencies and pandemic related issues is important and something I are happy to do, it is important for you to know this can generate significant additional work and can quickly get out of hand if requested indiscriminately. Please help me to keep this class running smoothly by staying on top of your assignments when you are able so I can help those in need. Thank you for understanding.

What should I do if I need to miss Lecture?

It is important that you attend lectures when it is safe to do so. As a result, please plan around things like trips, work and other previously scheduled events as best you can and attempt to attend all of our meetings. That being said, I understand sometimes things come up (e.g., work, illness, caretaking responsibilities). To accommodate students who are unable to attend lectures I will be providing PDFs of my slides. Please use these to review the content you have missed and get notes from a peer in the class. If you have any questions reach out to the GE or I. In addition, any announcements I make during class (e.g, reminders etc.) will also be on Canvas so that students who are unable to attend can see them. Note: You do not need to notify us if you need to miss a lecture class.

What should I do if I need to miss my Discussion Section?

It is important that you attend your discussion section when it is safe to do so. As a result, please plan around things like trips, work and other previously scheduled events as best you can and attempt to attend all of our meetings. That being said, I understand sometimes things come up (e.g., work, illness, caretaking responsibilities). A Make-Up option will be offered for students with pandemic-related absences (e.g., illness, quarantining, caregiving responsibilities, last minute work changes due to staffing shortages). This Make-Up
option may also be used for some non-pandemic related reasons (e.g., illness/injury, personal emergency, work emergency etc.) with permission. Reach out to your GE (https://canvas.uoregon.edu/courses/199860/pages/communicating-with-dr-sterner-and-elisabeth) as soon as you know you will need to miss the discussion section - ideally before the discussion section meets - to request the Make-Up option.

Please note, Make-Up assignments generate substantial additional work and are only meant for excused absences. You will not be able to use the Make-Up option without our expressed permission and without a valid excuse (see above).

**What should I do if I need an extension on an assignment?**

It is important that you **plan** around things like trips, work and other previously scheduled events as best you can and attempt to complete the work for this class when it is due so that you have a **buffer** against all those unexpected life things that can come up. That being said, we understand that sometimes things come up that are out of your control (e.g., illness/health issues; last minute change in work schedule; caregiving responsibilities etc.) and may impact your ability to submit your assignments on time. If you are experiencing something like this and would like to request an extension, you need to **email us** (https://canvas.uoregon.edu/courses/199860/pages/communicating-with-dr-sterner-and-elisabeth) about this **before** the assignment/quiz is due. I will consider your request and get back to you as quickly as I can. The length of the extension will depend on the specific situation.

**What if I just missed an assignment? Can I still turn it in late?**

I strongly encourage you to submit your assignments on time since we will be discussing them during your discussion sections. If you think you will need more time and have a reasonable request, you need to reach out for an extension **before** the assignment is due (see above). Because your pre-discussion assignment is needed for our discussion and it is only worth 1 point, you will not be able to turn this in late. However, if you miss one of the two Reaction Papers and still want to turn it in late you can do so for **half credit**, but it needs to be turned in within a week of the original assignment and you may not receive feedback.

**Is there a make-up option for the Exams?**

This class has **3 required in-person exams** (see Course Schedule (https://canvas.uoregon.edu/courses/199860/pages/course-schedule)). Put these in your calendar now and plan accordingly. If you experience a conflict on the day of the exam (e.g., illness or emergency) please **reach out to us** (https://canvas.uoregon.edu/courses/199860/pages/communicating-with-dr-sterner-and-elisabeth) immediately so we can schedule a make-up. Please do not ask us to take the Final Exam early.

**Accommodations**

The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center (AEC) in 360 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu (mailto:uoaec@uoregon.edu). Appropriate accommodations will be provided for students working with AEC. Please make arrangements to meet with me to discuss these accommodations at the beginning of the term.

**Academic Integrity**
The [University Student Conduct Code](https://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Please note, I will report misconduct to the Office of Student Conduct and Community Standards—consequences can include failure of this course.

Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students’ obligation to clarify the question with the instructor before committing or attempting to commit the act. [Additional information about a common form of academic misconduct, plagiarism](https://researchguides.uoregon.edu/citing-plagiarism).

### Academic Disruption

In the event of a campus emergency that disrupts academic activities, course requirements, deadlines, and grading percentages are subject to change. Information about changes in this course will be communicated as soon as possible by email, and on Canvas. If we are not able to meet face-to-face, students should immediately log onto Canvas and read any announcements and/or access alternative assignments. Students are also expected to continue coursework as outlined in this syllabus or other instructions on Canvas.

In the event that the instructor of this course has to quarantine, this course may be taught online during that time.

### COVID Containment Plan

As the University of Oregon continues in-person instruction, instructors and students play a key role in keeping our community healthy and safe.

**Prevention:** To prevent or reduce the spread of COVID-19 in classrooms and on campus, all students and employees must:

- Comply with [vaccination policy](https://coronavirus.uoregon.edu/vaccine)
- [Wash hands](https://coronavirus.uoregon.edu/prevention#healthy-hand-washing) frequently
- Complete daily [self-checks](https://coronavirus.uoregon.edu/prevention#health-checks)
- Say home/do not come to campus if feeling [symptomatic](https://coronavirus.uoregon.edu/prevention#if-sick-stay-home)
- Individuals with no symptoms or mild symptoms can get tested at McArthur Court through UO's Monitoring and Assessment Program. Masks are required at COVID-19 testing sites including in line outside.
- Visit the [Exposure Scenario page](https://coronavirus.uoregon.edu/covid-exposure) page for information on reporting cases.

**Support:** The following resources are available to you as a student.

- [University Health Services](https://health.uoregon.edu/) or call (541) 346-2770
- [University Counseling Center](https://counseling.uoregon.edu/) or call (541) 346-3277 or (541) 346-3227 (after hrs.)
- [MAP Covid-19 Testing](https://coronavirus.uoregon.edu/testing#students)
- [Corona Corps](https://coronavirus.uoregon.edu/corona-corps), or call (541) 346-2292
- [Academic Advising](https://advising.uoregon.edu/) or call (541) 346-3211
• Dean of Students (https://dos.uoregon.edu/) or call (541)-346-3216