

# Syllabus: Principles of Genetics

*(BIOL 260, 4 credits) Summer 2020*

**\*\*This course is now entirely online and asynchronous.\*\***

## Instructors

**Instructor:** Kendall Mills, email: [kkmills@alaska.edu](mailto:kkmills@alaska.edu)

**Office hours:** by appointment (via Zoom)

**TA:** Iris Cato, email: [iacato@alaska.edu](mailto:iacato@alaska.edu)

**Office hours:** by appointment (via Zoom)

## Prerequisites

BIOL F115X; BIOL F116X; CHEM F105X; MATH F151X or higher, LS F101X or successful completion of library skills competency test

## Textbook

**Genetics: A Conceptual Approach by Benjamin Pierce (Sixth Edition).** You can use the e-book (ISBN:9781319127121), the loose-leaf (ISBN:9781319088699), or the hardcover book (ISBN:9781319050962). You do NOT need the version that includes SaplingPlus. You can currently rent the hardcover book from Amazon for \$28.

## Course description

This course covers the physical and chemical properties of DNA, principles of transcription and translation, reproduction and DNA replication, mutations, the genetics of cancer, Mendelian inheritance, quantitative genetics, population genetics, and phylogenetics.

Why do you look like your family? Why aren't you identical to your family? How do we find genes in the genome? How do we determine what those genes do? Students will learn the fundamentals of Mendelian and molecular genetics, as well as how these topics are important in everyday life; topics such as genetic diseases, stem cells, forensics and genetically-modified organisms (GMOs). Additionally, students will gain experience with critical thinking, problem solving, writing, and will gain hands on practice in modern laboratory skills.

## Course Structure

This is a 12-week course that is normally taught over 16 weeks in the fall and spring. The weekly time commitments will therefore be slightly higher. All the information and materials you will need for the course will be available on Blackboard.

### *Weekly schedule*

Each week there will be 2-5 recorded lectures to watch, with a homework assignment following each video. All lecture homeworks for the week will be due on **Friday at 11:59PM**. Each week you will also have one lab activity, for which you will need complete a short protocol quiz and a post-lab assignment. All lab assignments for the week will be due on **Sunday at 11:59PM**. All

material for the entire week will be made available **one week in advance**.

### *Laboratory activities*

There will be one lab activity per week, except for the week of the final exam. All labs can be completed at home. For the few wet labs you must complete as part of your lab project, **we will ship all of the required materials to you**. It is your responsibility to ensure the equipment is returned undamaged in a timely fashion once these labs are complete. To fulfill the written requirements for this course, you will write a scientific paper about our findings from this project. The remaining labs can be completed without specialized equipment with common household materials.

### *Lecture homework*

You are encouraged to work together to complete homework assignments, but all written answers must be in your own words. You will be allowed to complete the multiple-choice section of the homework assignments **three** times, and only your highest grade will be recorded.

### *Exams*

There will be two regular exams and one cumulative final exam. Exams will be open note and open book, but you are not allowed to communicate with other students. If you are involved in cheating by sharing answers with or receiving answers from other students, **you will receive an F in the course, and will be referred to the Associate Dean of Students & Director of Judicial Services for disciplinary action**.

All exams will be administered at the same time for all students, and they will be timed. Because there are no restrictions on the materials you can reference during the exam, you will be given a limited amount of time to answer all questions. This is to ensure you are being tested on how well you have mastered the material. **I strongly advise that you create a condensed version of your notes for each exam, so that all of the material you will need will be in written on just a few pages. You will not have time to look up every answer online, in your textbook, or in the recorded lectures.** You should prepare for exams as if your written notes are the only thing you will be allowed to reference.

## Evaluation

Grade cutoffs are A:90%, B:80%, C:70%, D:60%, F:<60%.

Exam 1	15%
Exam 2	15%
Final exam	30%
Lecture homework	15%
Lab assignments	25%

**Late assignments will receive 10% penalty per day.**

## Schedule

Do not rely on the printed lecture/lab/homework schedule. Timing of topic coverage is **subject to change** and will be updated on blackboard. **Exam dates will not change except in extreme circumstances such as university closure.**

## Student Support

**Support Services:** If you require more assistance than can be provided in class, lab and meetings with the course instructor/TAs, you may want to contact Student Support Services (<http://www.uaf.edu/sssp/>). They provide free services to eligible students, including: tutoring, math help, academic advising, mentoring and personal support, and cultural and social engagement. You may be eligible if you have a limited income, a documented physical or learning disability, or are a first-generation college student (meaning that neither of your parents earned a Bachelor's degree).

**Disabilities Services:** If you have a disability, or think you may have a disability, please contact the Office of Disabilities Services (203 WHIT, 474-7043). We will work with this office to provide reasonable and appropriate accommodation to students with disabilities.

**Student protections and services:** Every qualified student is welcome in my classroom. As needed, I am happy to work with you, disability services, veterans' services, rural student services, etc to find reasonable accommodations. Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. As required, if I notice or am informed of certain types of misconduct, then I am required to report it to the appropriate authorities. For more information on your rights as a student and the resources available to you to resolve problems, please go the following site: [www.uaf.edu/handbook/](http://www.uaf.edu/handbook/).