Genome Sciences
University of Washington
Math Science Upward Bound
Summer Academy 2017

Instructor: Sunny Rao - sdrao@uw.edu
Time: Monday, Tuesday, Wednesday, Thursday 9:40 – 10:40 AM
Location: Sieg Hall, Johnson Hall (See schedule for details)

Course Description: Your genome holds a whole wealth of hidden information about you! Learn about how variations in your DNA are what make you, you! We'll talk about how these variations occur and how they get passed on. We'll also learn about how the DNA sequences of humans can affect how we develop disease and respond to external agents, like chemicals, drugs, and vaccines. Genomics is one of the hot areas of science, and we can use it to study everything from microbes to humans! We'll talk about how scientists are able to study genomes and explore some of the computer techniques that data scientist use to analyze genomic data! No programming or previous biology experience needed.

Text, Reading, Materials: All reading materials will be posted on Canvas.

Class activities and requirements:

1. Laboratories: There will be a total of 4 laboratories throughout the class, in the computer lab and in the wet lab. Students will be expected to complete a pre-lab before the start of experiments and submit a post-lab report.
2. Testing: There will be a pre-test (July 3) as well as a midterm (July 20) and final exam (Aug8) for the class. Quizzes will be administered at the instructor's discretion.
3. Individual assignments and group assignments will be assigned throughout the course. These may relate to wet lab or computer lab activities.
4. Project: Students will be expected to complete a final project and give a presentation about their work at the end of the class. Students will meet with the instructor to determine an appropriate project. Midterm report due July 24, Final Project due Aug 11

Student expectations: All students are expected to participate in group activities, presentations, and class discussions. No cell phones are allowed in class. If you have finished an activity before the allotted time, ask the instructor what is to be done next. All students are expected to act professionally and be respectful to themselves and others. We will be doing computer and wet lab experiments, so there will be no eating or drinking in class. Students are expected to check Canvas regularly. Students are encouraged to ask lots of questions and provide feedback to the instructor! Please consult the MSUB student handbook to understand additional Academic, Participation, Attendance, and Behavior standards for this class.

Evaluation and Grading Policy:

- Laboratory pre-lab and post lab reports	35%
- Group and individual assignments/ in-class homework assignments	20%
- Quizzes, Pretest, Midterm, Final	15%
- Final Project and presentation	15%
- Class participation, attendance, behavior	10%
TOTAL	100%

Week	Date	Room	Topic
1 – Intro to genomics and genetics	July 3	Sieg 228	Intro to genetics/genomics
	July 4	---	HOLIDAY – NO CLASS
	July 5	---	Field Trip: Picnic
	July 6	Sieg 228	How are traits transmitted?
	July 7	Johnson 117	LAB 1
2 -	July 10	Sieg 228	Cell Biology 101
	July 11	Sieg 228	Genetic Variation - SNPs
	July 12	---	Field Trip
	July 13	Johnson 122	LAB 2 – Part 1
	July 14	Johnson 122	LAB 2 – Part 2
3 -	July 17	Johnson 122	LAB 2 – Part 3
	July 18	Johnson 122	LAB 2 – Part 4
	July 19	---	Field Trip
	July 20	Sieg 228	MIDTERM
	July 21	Sieg 228	Next gen sequencing techniques
4	July 24	Sieg 228	Intro to data science
	July 25		Lab 3 Part 1
	July 26	----	Field Trip
	July 27	Sieg 228	Lab 3 Part 2
	July 28	Sieg 228	Lecture
5	July 31	Johnson 117	Lab 4 Part 2
	Aug 1	Johnson 117	Lab 4 Part 2
	Aug 2	---	Field Trip
	Aug 3	Johnson 117	Lab 4 Part 3
	Aug 4	S228/J117	Lecture
6	Aug 7	S228/J117	Lecture
	Aug 8	S228/J117	FINAL EXAM
	Aug 9	---	UW Field Trip / Workday
	Aug 10	Johnson 117	Project Workday
	Aug 11	Sieg 228	Final Project Presentations