Math 138: Statistics and Applications
Fall 2022
Syllabus

Professor: Josh Laison
he/his/him, Ford 215, x6689, jlaison@willamette.edu

Student Hours:
Monday 3:00-4:00
Tuesday and Thursday 10:30-11:30
Friday 12:30-1:30

My student hours this semester will be in my office and also on Zoom. You can access the remote student hours at https://tinyurl.com/2p85hkas
You are very welcome to talk with me at other times. If I'm in my office or in a student hours Zoom meeting you can drop by without an appointment, or you can schedule an appointment via email. My available times are on my webpage http://www.willamette.edu/~jlaison

Class Meetings: 11:30-12:30 Monday, Wednesday, Friday, Ford 201

QUAD Center Tutors: Drop-in times Monday Tuesday 6:00-9:00,
Wednesday Thursday 3:00-9:00, Friday 3:00-4:30, Sunday 3:00-6:00, Ford 222
Appointments and more info available at http://willamette.edu/offices/quad

Textbook: Stats: Data and Models, DeVeaux, Velleman, and Bock, 3rd edition

Course Webpage: (Textbook homework assignments, slides from class)
http://www.willamette.edu/~jlaison/stats.html

Course WISE page: (Datasets, Panopto recordings, Zoom links, non-public materials)
https://wise.willamette.edu/portal/site/MATH-138-02-18_FA

Course WeBWorK page: (Online homework assignments)
https://secure.willamette.edu/webwork2/Math138-Laison

R Studio: (Statistical software)
https://cloud.r-project.org/
https://www.rstudio.com/products/rstudio/download

Graded Components of the Course

Homework Assignments:	
Textbook problems (9)	25%
WeBWorK problems (21)	25%
Quizzes (5)	25%
Final Project (1)	25%
Total	100%

Student Learning Outcomes: By the end of the course, you will

- Understand and be able to apply standard statistical techniques,
- Be able to apply probability and statistics to make informed decisions about quantitative information presented to you in your everyday life,
- Be able to apply your knowledge of statistics to your various academic pursuits and careers.

Ways to Get Unconfused:

- Find classmates to work together with. Although different people have different working styles, I find math problems much more interesting and less frustrating in a group than by myself.
- Talk to me during my student hours or at other times, and I will be more than happy to answer questions. You're welcome to come by my office (for in-person student hours) or join the zoom call (for remote student hours) and hang out and work on problems even if you don't have questions right away. I hope to see everyone regularly!
- If you're working on a WeBWork problem, use the "E-mail Instructor" button to ask me a question.
- Come to the drop-in study sessions held by the QUAD Center, or make an appointment. These are also great places to make friends in the class and form study groups.

R Studio: We will use R Studio in class, a computer software package designed to make the computational aspects of statistics easier. Although it's not the easiest to use, it is powerful, free, and currently the most popular choice for professional statisticians. Knowledge of R will likely help you get hired in a career that uses statistics.

Most textbook assignments will include a homework problem specifically meant to help you learn to use R to do statistics, but you're welcome to use R as much as you like on other problems too!

Homework Assignments: You will have a small WebWorK assignment most days of class (3-5 problems 2-3 days a week), and a larger textbook assignment once a week (10-12 problems). You'll also have a short video to watch most days of class (10-15 minutes, 2-3 days a week), and I'll ask you to look at the chapter of the textbook before we talk about each topic in class.

The textbook homework should be uploaded to your Google Drive folder.

I encourage you to talk to me, to math and statistics tutors, and to each other about the homework problems.

WeBWorK: WeBWorK is an online homework system. When you enter a correct solution to a homework problem, it will immediately tell you the solution is correct, and give you credit for it in your grade. If you enter an incorrect solution, you will have the opportunity

to go back and try the problem again, and it won't be counted against you. Don't spend time guessing random answers and entering them into WeBWork. If you don't know how to do a problem, see the list of ways to get unconfused above.

Your WeBWorK username is the beginning of your email address (e.g., for me it is jlaison) and your initial password is your Student ID number without the leading zeros. You can change your password after you first log in.

WeBWorK usually requires very precise answers. For instance, if the correct answer is 1.60045 and you enter 1.6, the system may say that's incorrect, depending on who wrote the problem. On most problems, you can enter answers like `5+sqrt(340)`, and WeBWorK will do the calculation for you.

Final Project: The final project will give you a chance to apply your newly acquired statistics skills. In a group of 2-3 students, you'll propose a topic in a meeting with me, gather and analyze data, generate statistical conclusions, and then present your findings at the end of the semester to the rest of the class.

Missed Classes and Late Assignments: Please communicate with me about classes and assignments you miss, and I can help you make up what you missed.

Course Policies

Community: (Adapted from Federico Ardila) This course aims to offer a joyful, meaningful, and empowering experience to every participant. As a community of scholars, our work gets better when we're all invested in a common effort of learning and discovery. We will build that rich experience together by supporting each other. Please be prepared to take an active, critical, patient, and generous role in your own learning and that of your classmates.

Anti-racism: (Adapted from the Office of Equity, Diversity and Inclusion) I affirm our commitment to anti-racist action in the coming semester and beyond. I stand in solidarity with those who have been calling for justice and working to end institutionalized racism and white supremacy across the country and at Willamette.

Systemic racism at Willamette University is not an issue that can be addressed superficially. It will take a deep commitment from all parts of our community to make the changes that are necessary, and that is what I offer here: a commitment to gather, build, and act on a clear anti-racist agenda together.

Land Acknowledgement: (Adapted from the Dean's Office) Willamette is built on the land of the Kalapuya, who today are represented by the Confederated Tribes of the Grand Ronde and the Confederated Tribes of the Siletz Indians. We offer gratitude for the land, for those who have stewarded it, and for the opportunity to work on it. We acknowledge that our University's history is fundamentally tied to the first colonial developments in the Willamette Valley.

Diversity and Accessible Education Statement: (Adapted from the Accessible Education Services Office) Willamette University and I value diversity and inclusion. We are committed to a climate of mutual respect and full participation. My goal is to create a learning environment that is usable, equitable, inclusive and welcoming for people of any gender

identity or expression, race, color, national or ethnic origin, religion or religious belief, age, marital status, sexual orientation, or ability.

If there are aspects of the instruction or design of this course that result in barriers to your inclusion or accurate assessment or achievement, please notify me as soon as possible. Students with disabilities are also encouraged to contact the Accessible Education Services office in Smullin 155 at https://willamette.edu/offices/accessibility or accessible-info@willamette.edu to discuss a range of options to removing barriers in the course, including accommodations.

Religious Accommodations: (Adapted from the Office of the Chaplain) Willamette University and I recognize the value of religious practice and strive to accommodate students' commitment to their religious traditions whenever possible. If you anticipate missing class for religious reasons, please contact me to discuss your needs.

Time Commitment: Willamette's Credit Hour Policy expects 2-3 hours of work outside of class for every hour of in-class time. Since this class meets three days a week you should anticipate spending 6-9 hours outside of class engaged in course-related activities.

Academic Integrity: (Adapted from the Dean's Office) As members of the Willamette University community, students are expected to display honesty, trust, fairness, respect, and responsibility in their academic work. Plagiarism and cheating involve intellectual dishonesty, deception, and fraud, which inhibit the honest exchange of ideas.

This course will follow Willamette University Standards of Conduct and the Willamette Ethic, described in more detail here:
http://www.willamette.edu/cla/catalog/resources/policies/plagiarism_cheating.php
Plagiarism can take different forms, but its essence is presenting the words or work of another person as your own. When you are quoting from, paraphrasing, or using images created by another person in any of your work, you should acknowledge that source in a citation.
On the homework assignments: You are encouraged to, discuss the homework with fellow students, and get help from your professor, textbook, notes, or calculator. Your submitted written work should be your own. Copy/pasting sections of another assignment, copy/pasting or paraphrasing another source, or providing your assignment to be copied by others, is a violation of university policy.
On the quizzes: You may consult your text and notes. You may not discuss the exams with anyone other than me. Copying others' work, or providing your work to be copied by others, is a violation of university policy.
On the class project: All members of your group should contribute to producing all components of your project. Writing your name on work written by others is a violation of university policy.

Class Schedule (subject to change)

Part 1: Descriptive statistics and data visualization

Chapters 1–10

8 days of class

Part 2: Designing samples and experiments

Chapters 12, 13

3 days of class

Part 3: Probability and sampling distributions

Chapters 11, 14–18

6 days of class

Part 4: Statistical inference for one variable

Chapters 19–21, 23

6 days of class

Part 5: Statistical inference for multiple variables

Chapters 22, 24–28

10 days of class

Quiz dates: (subject to change) Sep 19, Oct 10, Oct 31, Nov 16, Dec 7

Final project presentation date: December 16 8:00-11:00 AM