Course Title: MATH 343, Statistical Models and Methods

Course coordinator: Liliana Pazdan-Siudeja, email: lpazdans@uoregon.edu

Prerequisites: MATH 252

Important Note:
- Students who already have credit for MATH 462 cannot get credit for MATH 343.
- Students who take 343 and 462 concurrently cannot get credit for 343.
- Students who have credit for 343 can later take 462 and get credit, but the two courses cannot both be used to satisfy the “four upper-division course” requirement for the Math Major.

Note to Instructors: To my knowledge, this textbook is out of print, but DuckStore is able to prepare “packets” which are legal copies of the textbook.

Other Recommended Materials: A scientific or graphing calculator. Colored pens or pencils.

Calculators: Calculators can be helpful for homework and actually may be needed for some of the problems. No calculators will be allowed during exams (unless otherwise stated).
Note to Instructors: I usually do not allow to use calculators, which means that algebraic calculations or tasks embedded into timed class assessments need to be reasonable. Feel free to adjust the calculator policy to your liking.

Course Content: We will (most likely) do a selection of topics from chapters 1-10, if time allows.
Note to instructors: It is a good idea not to spend too much time on Chapters 1 and 2, and assign some sections to students to be read on their own. Finishing with Chapter 10 is a perfectly reasonable idea and do not feel forced to go all the way up to Chapter 12, as it might be more beneficial to cover less material in order to cover it more “in-depth”.

Learning Outcomes:
By the end of the course, the successful student will have knowledge of the basic tools of statistics and a certain knowledge of probability theory necessary to understand basic models and tests used in statistics.

In particular, the student will be expected to understand the notion of random variable and their mass/density functions and distribution functions, as well as typical types of random variables used in statistics, for instance: Bernoulli, binomial, uniform, exponential and Gaussian random variables. Additionally, the student will be expected to know certain quantities attached to random variables, for instance mean, variance and percentiles, their probabilistic interpretation, and how to estimate these quantities from data.
The statistical content of the course will revolve mostly around modeling and hypothesis testing. The successful student will have an understanding of what types of standard random variables are applicable in various situations/models, and in some instances what assumptions/simplifications are necessary to model certain situations by a particular type of random variable. The student will be able to form hypotheses from simple data, and know various methods (tests) to confirm/reject a hypothesis within a certain confidence interval under various assumptions on the data. The student should come away with an understanding of how these methods will scale to actual data sets which may arise in the sciences or other disciplines.

Canvas:
At canvas.uoregon.edu you may login and access course documents such as this syllabus. In-Depth homework will be posted there. Also, you may view your scores on homework and tests at any time. Hence, check it periodically for homework assignments, announcements, and to see if your assignment scores are properly entered in the grade book.

Communication
Our class will communicate through our Canvas site. 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.

If you contact me with a question, I will try to respond within one business day. I typically provide feedback on assignments graded by me within one week.

Course grade determined by:
- Homework + WebWork 30%
- Midterm Exam 30%
- Final exam 40%

Standard grade assignments will be made (e.g. grades in the 80% to 90% range will be B’s, those in the 70% to 80% range are C, etc.) Plus and minus grades will be awarded in the upper and lower 2% of a bracket. (e.g. A grade of B+ is awarded between 88% and 90%; B- between 80% and 82%). I reserve the right to apply a course adjustment to grades at the end of the term.

The standards for each level of work:
Please access the following link for details.

In-depth Homework:
There will be some conceptual homework covering some in-depth problems. Assignments will be posted on Canvas and must be uploaded into Canvas, every Wednesday, starting Week 2. Homework should be in ONE FILE, legible, complete and self-contained. That is, a reader should be able to understand exactly
what you are trying to demonstrate (be it a problem or a proof) without referring to any additional resource. No late or make-up hw will be accepted (unless arranged with me).

**Homework on WebWork:**

A part of your homework will also be given and collected via WebWork. WebWork is a free, web browser-based program that maintains and grades a pool of homework problems that have been selected by your instructor.

**Logging Into WebWork:**

See https://webwork.uoregon.edu/webwork2 to access WebWork assignments for this class. Among sections of Math 343 you need to access YOURS according to the CRN of the class in which you are enrolled. You will need to sign in using your regular UofO email credentials: your DuckID as your username and your UO email password for password. Once you have logged in, you can change your password, if you wish.

The due time of the WeBWorK homework will be posted on the WeBWorK webpage and will not be posted on Canvas.

**WebWork Practice:**

The first assignment you should complete in WebWork is called “webwork-intro-set”. It does not involve (much) math, but instead is intended to familiarize you with the interface of WebWork: how to look at problems, how to preview and enter answers, and so on. This assignment counts as your first homework assignment. Do it by the end of Friday night by midnight on Week 1 for credit. These are easy points! (if you used this system before, this set should take no more than 10 minutes).

**Showing Work:**

While doing your WeBWorK homework, I highly recommend having scratch paper at hand. Even though WeBWorK does not grade you on your process, having a comprehensive thought process is necessary. It will also help you track down mistakes that you made if the first answer you submit is incorrect. Remember: On exams showing your work will be extremely important!

**Getting Help:**

If you have a question about a homework problem, one excellent resource is the ”email instructor” button at the bottom of the page. Clicking on that and typing a short message about what you have tried on the problem will help your instructor diagnose the issue you are having. Please, do not send an email simply saying ”What am I doing wrong on this problem?” or ”I can’t get the right answer on this one”. On most homework problems it is impossible to figure out what you are doing wrong if I only see your answer (which is all WebWork shows me). Hence, first you should go back over your work and see if you can find the mistakes yourself. If you can’t, feel free to email me, but include a description of how you solved the problem as well as any work you did for intermediate steps. The more information you give, the more likely it is you get a prompt and helpful reply.
Exams:

(1) Midterm Exam: Wednesday of Week 5
(2) Final Exam: TBA (Week 11)

Final Exam is a part of the regular quarter, and you are expected to be present. If you cannot attend the final exam due to a conflicting obligation, please do not take the course.

Bring your UO student ID to all your exams.

The use of cellular phones, or any device that communicates with the outside world is strictly forbidden during exams.

Note to Instructors: Please be advised that according to the new Attendance Policy you need to have a statement how you will handle missed exams. Please see an email from the Department Head Prof. Nicholas Proudfoot from Wednesday 9/21/2022. The way I am planning to deal with students who will miss an exam is to use their final exam’s score as a substitute for an exam that they missed. Regarding the final exam: depending on the size of your class and the date of the exam, the two reasonable policies that you might want to consider is to have a single set makeup time, or just to state that anyone who misses the final has to take an incomplete.

Accessibility:

For those of you who are currently registered with Accessible Education Center for a documented disability, please present your paperwork to me during the first week of the term so that we can design a plan for you. Those of you with a disability (or who might) but are not registered with AEC should contact them as soon as possible. It is much more likely that measures can be taken to provide adequate special accommodation if the organization is done through AEC. I have attempted to provide documents that are accessible. Please let me know if you need additional accommodations.

Student Conduct:

I plan to treat every student with respect and, as such, expect my students to show respect for me and for the class as a whole. Violations of the student conduct code result in the incident being included on your student conduct record and can result in a failing grade on any course work related to the violation or a failing grade in the course. The University of Oregon requires all instances of cheating be reported, no matter how small.

Cheating includes, but is not limited to:
- Looking at another student’s exam during a test
- Copying the work of another person (student or otherwise) and submitting it as your own
- Using any materials except those explicitly approved during a test-taking situation
- Resubmitting graded work that was altered after being returned

For a list of other descriptions of cheating, see the Student Conduct Code, [dos.uoregon.edu/conduct](dos.uoregon.edu/conduct).

The University Student Conduct Code defines academic misconduct, which includes unauthorized help on assignments and examinations and the use of sources without acknowledgment. Academic misconduct is prohibited at UO. Consequences of a reported misconduct to the Office of Student Conduct and Community Standards can include failure of the course.
Suggestions for Successful Study:
Don’t get behind in your homework, reading, etc.
Participate in class, ask questions, and make use of my office hours.
Make friends with your classmates-you can find out for instance what material was
covered when you missed the class or discuss homework problems with them.
Read ahead in the book. Even reading the first few pages of each lesson will help
the material sink in quicker during lecture and allow you to ask meaningful ques-
tions.
Keep all your old homework assignments, midterms, and quizzes - most probably,
you will find them useful when you are studying for future tests.

Important Dates.
Please, see http://registrar.uoregon.edu/calendars.html for details.
Saturday of Week 1 - Last day to drop without a W
Sunday of Week 1 - Last day to add/register for a class.
Sunday of 7th week - Last day to withdraw (drop with a W or change to P/NP.)
November 11 - Veterans Day holiday; classes are not in session Thursday-Friday
of 9th week - Thanksgiving break (no classes)

Community Standards:
The University of Oregon community is dedicated to the advancement of knowledge
and the development of integrity. In order to thrive and excel, this community must
preserve the freedom of thought and expression of all its members. The University
of Oregon has a long and illustrious history in the area of academic freedom and
freedom of speech. A culture of respect that honors the rights, safety, dignity and
worth of every individual is essential to preserve such freedom. We affirm our
respect for the rights and well-being of all members.

Expected Classroom Behavior: Students are expected to behave respectfully
toward each other and toward the instructor during class time. This includes re-
fraining from using cell phones during lectures, unless allowed for instructional
purposes by your instructor.

Attendance: Attendance is not required but it is strongly encouraged, as it gives
you a chance to ask questions and clarify any potential confusion.

Note to Instructors: Please be advised on a new Attendance Policy, according
to which you need to specify if class attendance is mandatory and how you are
going to handle it if it is.

Academic Disruption: In the event of a campus emergency that disrupts aca-
demic activities, course requirements, deadlines, and grading percentages are sub-
ject 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.
**Staying Safe in Classes:** As the University of Oregon continues in-person instruction, instructors and students play a key role in keeping our community healthy and safe.

**Prevention:** The best way to prevent illness is to avoid being exposed to the virus. There are some general precautions the CDC recommends to prevent the spread of respiratory diseases.

- Stay up to date on your COVID-19 vaccines.
- Wear a face covering that covers both your mouth and nose when indoors around others.
- Wash your hands often with soap and water for at least 20 seconds.
- Avoid touching your eyes, nose, and mouth.
- Stay home if you are sick. Do not go to work or class.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces.

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

- University Health Services or call (541) 346-2770
- University Counseling Center or call (541) 346-3277 or (541) 346-3227 (after hrs.)
- MAP Covid-19 Testing
- Corona Corps or call (541) 346-2292
- Academic Advising or call (541) 346-3211
- Dean of Students or call (541)-346-3216

**Accommodation for Religious Observances:**

The university makes reasonable accommodations, upon request, for students who are unable to attend a class for religious obligations or observance reasons, in accordance with the university discrimination policy which says Any student who, because of religious beliefs, is unable to attend classes on a particular day shall be excused from attendance requirements and from any examination or other assignment on that day. The student shall make up the examination or other assignment missed because of the absence. To request accommodations for this course for religious observance, visit the Office of the Registrar’s website (https://registrar.uoregon.edu/calendars/religious-observances) and complete and submit to the instructor the Student Religious Accommodation Request form prior to the end of the second week of the term.

**Basic Needs:**

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course is urged to contact the Dean of Students Office (346-3216, 164 Oregon Hall) for support.

This UO webpage includes resources for food, housing, healthcare, childcare, transportation, technology, finances, and legal support: https://blogs.uoregon.edu/basicneeds/food/

**Title IX:** I am an assisting employee. For information about my reporting obligations as an employee, please see Employee Reporting Obligations on the Office of Investigations and Civil Rights Compliance (OICRC) website. Students
experiencing sex or gender-based discrimination, harassment or violence should call the 24-7 hotline 541-346-SAFE [7244] or visit safe.uoregon.edu for help. Students experiencing all forms of prohibited discrimination or harassment may contact the Dean of Students Office at 541-346-3216 or the non-confidential Title IX Coordinator/OICRC at 541-346-3123. Additional resources are available at investigations.uoregon.edu/how-get-support.

I am also a mandatory reporter of child abuse. Please find more information at Mandatory Reporting of Child Abuse and Neglect.

**Diversity and Inclusion:** The University of Oregon community values diversity and seeks to foster equity and inclusion in a welcoming, safe, and respectful community. In this course, we will uphold these principles by encouraging the exploration, engagement, and expression of distinct perspectives and diverse identities. We will value each class members experiences and contributions and communicate disagreements respectfully. Please notify me if you feel aspects of the course undermine these principles in any way.

**Other information:**

- In case of inclement weather, please check Canvas for further instructions. In general, the university does not close for snow, etc. If it is not safe for you to come to campus, please be sure to email me right away.
- As the university community adjusts to teaching and learning in the context of the COVID-19 pandemic, course requirements, deadlines, and grading percentages are subject to change, i.e. the syllabus might be changed/updated.

**Final Note to Instructors:** Please feel free to schedule and deadlines so that they will work for you; I like to give written assignments due Wednesday and WebWork due Friday (with possible extensions, if necessary)ive exams on Wednesdays and quizzes on Fridays but you might have a different preference. Percentages for different categories based on which a grade is determined can be also altered. Do not hesitate to contact me with course-related questions.