Math 105: University Mathematics I

The University of Oregon
CRN 42311
Summer 2020

Class Meetings: MTWRF, 12–1:50, over Zoom

Instructor: Cruz Godar

Email: cgodar@uoregon.edu

Office Hours: over Zoom — MWF 11–11:50, and by appointment

Learning Outcomes

A successful student can:

- Distinguish between inductive and deductive reasoning
- Use Venn diagrams to determine the validity of a syllogism
- Translate between English statements and statements written using logical connectives: implies, and, or, not
- Use truth tables to determine the validity of an argument
- Use truth tables to determine when two arguments are logically equivalent

- Use the language of sets
- Describe the union, intersection, and complement of sets
- Represent relationships between sets using Venn diagrams
- Determine the correct counting method a problem requires
- Use factorials, permutations, and combinations (where appropriate) to solve a counting problem.
- Use the terminology of probability
- Understand the rules of probability
- Use counting methods to determine probabilities
- Use probabilities to compute expected values
- Use expected values to determine which of two events has a better chance of success
- Determine when it is appropriate to use conditional probabilities
- Use the correct formulas to compute probabilities and conditional probabilities
- Determine when two events are independent
- Use probability to solve problems in genetics and other applications

---

Materials

Textbook: *Mathematics: A Practical Odyssey, 8th Edition*, by Johnson and Mowry, **or** *University Math I and II, Math 105/106, 3rd ed* — they're the same book.

Calculator: Scientific calculators are allowed but not required — you will be expected to leave your answers in exact form whenever possible. Graphing calculators are not allowed.

Assignments and Grading

Your total grade in the class is determined by your scores on the homework, quizzes, midterm exam, and the final exam, weighted in the following manner:

Quizzes: 20%
Homework: 20%
Midterm: 30%
Final Exam: 30%

Your total grade at the end of the quarter will be rounded up to the nearest whole number. For example, a total grade of 84.2% will be rounded up to 85% and awarded a B.

Quizzes: There will be quizzes every Monday and Thursday at the start of class, covering the material discussed since the previous quiz. You'll have 30 minutes to write, scan, and upload your solutions to Canvas. Your lowest quiz score will be dropped.

Homework: The homework is split into two parts: a handful of book problems, which are graded on completeness (whether an attempt was made), and two additional problems written by me, which are graded on correctness. These two parts are each worth half of the homework credit. Homework will be due every Tuesday Friday at 11:59 PM. Working with others is strongly encouraged, but the final work you submit must be your own. Your lowest homework score will be dropped.

Exams: Our class will have a midterm on the Thursday of week 2 and a final on the Friday of week 4. The final exam will be cumulative.

No late work of any kind will be accepted unless there is a documented, excusable circumstance. Such circumstances include sports events in which you are involved in an official capacity (competing or playing in the band, for example), or illnesses with doctor's notes. If this is the case and you are given a make-up opportunity, the late work must be submitted no more than two weeks after its original due date.

Scanning your work: A series of pictures will **not** be accepted by Canvas — only a single pdf file will work. To use your smartphone for this, use the built-in document scanner in iOS (accessible through the Files app by tapping the ... menu and selecting *Scan Documents*), or the Adobe Scan

app for Android. Plenty of other apps are available for both platforms, too.

A note on grading: most problems in this class are graded on a four-point scale that's been curved to an eight-point one:

8: Work that shows command of the material and has only a few small mistakes, if any.

7: Work with minor mistakes that can't be ignored, but don't severely impact the solution.

5: Work that's on the right track, but has enough mistakes that they get in the way of demonstrating understanding of the material.

3: Work that shows elements of understanding, but is too clouded with mistakes to be considered on the right track.

0: No work shown for any problem where work is required or work that demonstrates no understanding of the relevant material.

Course Schedule

This schedule is tentative, and may change slightly throughout the quarter.

6/22	**6/23**	**6/24**	**6/25**	**6/26**
1.1	1.2	1.3	1.4	1.5–1.6
			Quiz 1	HW 1
6/29	**6/30**	**7/1**	**7/2**	**7/3**
2.1–2.2	2.3	2.4	**Midterm**	Holiday
Quiz 2	HW 2	Quiz 3	HW 3	
7/6	**7/7**	**7/8**	**7/9**	**7/10**
2.5	3.1	3.2	3.3	3.4
Quiz 4	HW 4		Quiz 5	HW 5
7/13	**7/14**	**7/15**	**7/16**	**7/17**
3.5	3.6	3.7	Quiz 7	**Final**
Quiz 6	HW 6		Review	

Homework 1 and quiz 1: material from 6/22–6/24
Homework 2 and quiz 2: material from 6/25–6/26
Homework 3 and quiz 3: material from 6/29
Homework 4 and quiz 4: material from 6/30–7/1
Homework 5 and quiz 5: material from 7/6–7/7
Homework 6 and quiz 6: material from 7/8–7/10
Quiz 7: material from 7/13–7/14

Other Things

Accessibility: For those of you who are currently registered with Accessible Education Center for a documented disability, please have your paperwork sent to me during the first week of the term (as early as possible) so that we can design a plan for you. Those of you with a disability, or who think they might have one, 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. Please let me know if you need additional accommodations.

Prohibited Discrimination and Harassment Reporting: I am a student-directed employee. For information about my reporting obligations as an employee, please see Employee Reporting Obligations. Students experiencing any form of prohibited discrimination or harassment, including sex or gender based violence, may seek information on safe.uoregon.edu, respect.uoregon.edu, titleix.uoregon.edu, or aaeo.uoregon.edu or contact the non-confidential Title IX office (541-346-8136), AAEO office (541-346-3123), or Dean of Students offices (541-346-3216), or call the 24-7 hotline 541-346-SAFE for help. I am also a mandatory reporter of child abuse. Please find more information at Mandatory Reporting of Child Abuse and Neglect.

Conduct: This university exists for your benefit. If you believe something is not as it should be, don't hesitate to let me know.

And as you should hold the university to a high standard, I will hold all of you to one in return. Academic dishonesty, including looking at other students' quizzes or tests or using any materials other than those allowed during a testing period, submitting others' work as your own, or altering returned work and resubmitting it, will be met with the strictest disciplinary action possible.

A word on learning: Math is not a subject that is learned passively. It is one thing to understand examples from lecture and another thing entirely to work through problems by yourself. Students who come to lecture expecting it to be enough on its own to pass the tests — and therefore don't put much or any effort into the homework — typically end up with very poor grades in the class. For your own benefit, *especially* in a 4-week class, it's crucial to stay on top of the homework, to follow along with lecture, and to seek help — from a friend, from my office hours, from the textbook, or from a tutor — when that becomes challenging.