MGF1106
Sections: 1027, 1885
Math for Liberal Arts I
Spring 2024

I. General Information

Class Meetings

- This course is an **asynchronous online** course. Course content is delivered through video lectures that can be viewed on on Canvas.

Instructor(s)

- Name: Ross Ptacek
- Office: 442 LIT
- Office Hours: MTWRF 10:00-11:00 AM EST on Zoom. I will be present in my office during these times on MWF. Additional hours available by request..
- Email: rptacek@ufl.edu

Teaching Assistant(s)

- Name Ayra Memana
- Office: 413 LIT
- Office Hours: TBD
- Email: aryagayathmemana@ufl.edu

Course Description

MGF 1106 is a general education Mathematics course which is not intended to prepare you for Precalculus or Calculus. Instead, this course is meant to improve general mathematical reasoning skills and cover topics that are broadly applicable in daily life. Topics include voting, weighted voting, probability, symmetry and fractal geometry. This course qualifies for both GenEd and Gordon Rule credits.

Prerequisites

None.

General Education Credit

● Mathematics

This course accomplishes the [General Education](#) objectives of the subject area listed above. A minimum grade of C is required for General Education credit. Courses intended to satisfy General Education requirements cannot be taken S-U.

Required Readings and Works

Our textbook is *Excursions in Modern Mathematics, 9th Edition by Peter Tannenbaum.*

The textbook is primarily available as an e-book which **must be purchased using UF All Access**. Instructions for purchasing the textbook are on the Accessing MyMathLab page of the introductory module on Canvas.

All other materials will be presented on the section pages on Canvas. These pages include links to the video lectures and notes. While the video lectures are intended to be comprehensive, students are responsible both for watching the videos and reading the textbook.

Materials and Supplies Fees: $27.99

II. Graded Work

Description of Graded Work

The following is a list of all graded assignments in the course, their point values, and details about their submission. Following this list is a table showing how final grades are assigned.

Exams

- There are three proctored exams during the term. We will use Honorlock for proctoring.
    - Exam 1 covers material from chapters 1 and 2
    - Exam 2 covers material from chapters 16 and 17
    - Exam 3 covers material from chapters 11 and 12
- You are allowed pencil and scratch paper on the exams but no other notes are allowed.
- Depending on the exam you will either be allowed a four-function or scientific calculator. The only allowed ones are the ones built into Honorlock or the ones at Desmos (https://www.desmos.com/fourfunction, https://www.desmos.com/scientific)
- Each exam is a 60 minute exam, but an extra 15 minutes are added to account for any delays caused by Honorlock.

- **General Education SLOs Met:** Communication, Content, Critical Thinking.
- **Submission:** Canvas
- **Value:** 3×165 points = 495 points.

Exam Reviews

- Each exam has a corresponding review with questions similar to exam questions.
- Students get unlimited attempts, but the correct answers will only show after the due date.
- Exam reviews are always due at midnight before the exam window begins.
- **General Education SLOs Met:** Communication, Content, Critical Thinking.
- **Submissions:** Canvas
- **Value:** 5 points × 3 = 15 points

Final Exam

- There is a proctored cumulative final exam during finals week. We will use Honorlock for the proctoring.
- The final exam is a 90 minute exam, but an extra 15 minutes are added to account for any delays caused by Honorlock.
- **The final exam is optional** and only serves to replace one of the other two exams if that would be beneficial. In other words, there are 4 exams (three during-term and one final), and only your best three will count.
- Allowed materials for the final exam are identical to those for the usual during-term exams. The scientific calculator at https://www.desmos.com/scientific is allowed on this exam.
- **General Education SLOs Met:** Communication, Content, Critical Thinking.
- **Submission:** MyMathLab
- **Value:** Replace one 165 point Exam if beneficial.

Quizzes

- Each chapter also has a quiz associated with it (six total).
- The quiz is timed (45 minutes) but not proctored.
- Students get two attempts, the better of which counts.
- Unlike lecture quizzes and homework, the chapter quizzes **do not stay open** until the end of the term.
- **General Education SLOs Met:** Communication, Content, Critical Thinking.
- **Submission:** MyMathLab
- **Value:** 6×25 points = 150 points

Lecture Quizzes

- Each video lecture (approx. 30) has a corresponding lecture quiz to test comprehension of the basic principles of the lecture. The quiz must be completed prior to attempting the corresponding homework.

- The quiz is not timed and is not proctored.
- Five attempts are given, the best of which counts for your grade. But if you find yourself missing point on the lecture quiz, reach out for clarification.
- Lecture quizzes stays open until the beginning of the corresponding exam.
- **General Education SLOs Met:** Communication, Content, Critical Thinking.
- **Submission:** MyMathLab
- **Value:** 30 × 2 points = 30 points.

Intro Assignments

- There are four introductory assignments due the first week of class.
    1. Chapter O homework: Orientation for the MyMathLab online homework system
        - **Submission:** MyMathLab
        - **Value:** 5 points
    2. Syllabus Quiz: A quiz on commonly missed class policies.
        - **Submission:** Canvas
        - **Value:** 5 points
    3. Course Introduction: A post in the Canvas discussions to introduce yourself to your classmates.
        - **Submission:** Canvas
        - **Value:** 5 points
    4. Practice MyMathLab Exam: This lets you experience how Honorlock is used to gain access to password protected/proctored exams.
        - **Submission:** Canvas
        - **Value:** 5 points

Homework

- Each video lecture (approximately 30) has corresponding homework.
- Homework may be attempted any number of times prior to the due date. In general, each exercise is graded without partial credit.
- Homework is due on the first day of the corresponding exam window.
- **General Education SLOs Met:** Communication, Content, Critical Thinking.
- **Submission:** MyMathLab
- **Value:** Total 250 points (about 20 per week)

Participation

- Students begin with full participation points.
- Participation points can be gained (bonus) by contributing meaningfully to Canvas discussions. They can also be gained for a variety of actions that help the class run more smoothly, such as answering another student's question.
- Participation points can be lost by doing things that hinder the class running smoothly. This includes making disruptive comments on the Canvas discussions but also includes

repeatedly asking questions that have been answered in the syllabus or in course announcements.

- **General Education SLOs Met:** Communication, Content, Critical Thinking.
- **Submission:** None
- **Value:** 10 points

Grading Scale

Your final grade is computed by summing up your total points and rounding to the nearest full point. A letter grade is then assigned using the chart below. For information on how UF assigns grade points, visit: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Letter Grade	Point range		Letter Grade	Point range
A	900+		C	660-699
A-	860-899		C-	620-659
B+	820-859		D+	580-619
B	780-819		D	540-579
B-	740-779		D-	500-539
C+	700-739		E	0-499

A minimum grade of C is required for General Education credit. Courses intended to satisfy General Education requirements cannot be taken S-U.

Attendance and Participation

Attendance: As this is an asynchronous online class, there is no attendance policy. However, it is in the student's best interest to make contact with the course material multiple times a week, as though there were scheduled class meetings.

https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Participation: As this is an online, asynchronous class, participation is primarily assessed based on how the student interacts with others on the Canvas discussion boards as outlined above.

III. Annotated Weekly Schedule

Week	Topic	Summary	Required Readings/Works	Assigned Work Due
Week 1	Orientation, Voting	Orientation to the course	Syllabus,	Intro

		and technology. Properties of Voting systems.	Orientation Module of Canvas, Section 1.1 of text.	assignments
	Methods			
Week 2	Voting Methods	Plurality, Borda Count, and Plurality-with-Elimination methods.	Sections 1.2-1.4 of text.	Week 2 HW
Week 3	Voting Methods	Method of pairwise comparisons (Copeland's method). Fairness criteria.	Sections 1.4-1.5 of text	Week 3 HW Quiz 1
Week 4	Weighted Voting	Properties of weighted voting systems. Difference between weight and power. Banzhaf Method	Section 2.1-2.2 of text	Week 4 HW
Week 5	Weighted Voting	Shapley-Shubik method. Combinatorics of weighted voting systems.	Section 2.3-2.4 of text	Week 5 HW Quiz 2
Week 6	Probability	Sample Space, Events, and Distributions. Multiplication Rule.	Section 16.1, 16.2 of text.	Week 6 HW Quiz 2 Exam 1
Week 7	Probability	Permutations and Combinations. Probability using counting methods.	Section 16.2, 16.3 of text	Week 7 HW
Week 8	Probability	Weighted Averages and Expected Value. Managing Risk.	Sections 16.4, 16.5 of text	Week 8 HW Quiz 3
Week 9	Statistics	Mean, Median, percentiles, and standard deviation. Representing Data. Properties of Normal distributions.	Sections 15.2 -15.3, 17.1-17.2 of text	Week 9 HW
Week 10	Statistics	Approximately normal data. Central Limit Theorem.	Sections 17.3-17.4 of text.	Week 10 HW Quiz 4
Week 11	Symmetry	Rigid motions and symmetry. Reflections and rotations.	Sections 11.1-11.3 of text	Week 11 HW
Week 12	Symmetry	Translations and glide reflections. Symmetry type of finite objects.	Sections 11.4-11.6 of text	Week 12 HW
Week 13	Symmetry Fractal Geometry	Frieze Patterns. Fractals and fractal dimension.	Sections 11.7, 12.1 of text.	Week 13 HW
Week 14	Fractal Geometry	Exponential growth. Geometric series.	Section 9.2, 12.2, 12.3 of text	Week 14 HW

		Measurements of Fractals		
Week 15	Fractal Geometry	Complex numbers and the Mandelbrot set.	Section 12.4 of text	Week 15 HW Quiz 6 Exam 3
Week 16	Review			Final Exam

IV. Student Learning Outcomes (SLOs)

At the end of this course, students will be expected to have achieved the General Education learning outcomes as follows:

- **Content:** Students demonstrate competence in the terminology, concepts, theories, and methodologies used within the discipline. After completing this course students will be able to employ strategies in solving problems in voting systems, probability, statistics, and geometry. (Critical Thinking for Gen Ed Math, assessed through homework, lecture quizzes, quizzes, and exams)

- **Communication**: Students communicate knowledge, ideas, and reasoning clearly and effectively in written and oral forms appropriate to the discipline. Throughout this course, students will use mathematical methods to solve problems. In t heir solutions, they will translate problems into mathematical language, use mathematics to produce a solution, and then translate that solution back to the original problem. Students will communicate mathematical solutions clearly and effectively. (Communication for Gen Ed Math, assessed through homework, lecture quizzes, quizzes, and exams)

- **Critical Thinking**: Students analyze information carefully and logically from multiple perspectives, using discipline-specific methods, and develop reasoned solutions to problems. In this course, students will use mathematical methods to solve real-world problems. Students will use fairness criteria to assess the fairness of various voting methods, use combinatorial methods to assess both individuals' power in weighted voting systems and the likelihood of random events, use statistical techniques to make estimates about data, use geometric methods to assess the symmetry of an object, and use both algebraic and geometric techniques to reason about fractals. (Critical Thinking for Gen Ed Math, assessed through homework, lecture quizzes, quizzes, and exams).

VI. Policies

Attendance Policy
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Students Requiring Accommodation

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

UF Evaluations Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email, they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructors in this class.

Counseling and Wellness Center

Contact information for the Counseling and Wellness Center: http://www.counseling.ufl.edu/ , 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Free Help-The Little Hall Math Lab

In addition to attending your discussion section regularly and visiting the office hours of your instructor and teaching assistant, for help, the Little Hall Math Lab located in Little Hall 215 offers free drop-in assistance with math homework Monday through Friday from 9:30 to 4:00. It is staffed by mathematics graduate students and undergraduate tutors. Please note that this space is not designed for intense one-on-one tutoring, but rather as a resource for quick questions and explanations. You should not expect the staff to help you if you have not at least begun your homework and have specific questions. Moreover, they absolutely will not assist you with quizzes or any other such work. More details are available here: https://oas.aa.ufl.edu/students/tutoring/

In-Class Recordings

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.