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College of Liberal Arts and  
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MGF 1107

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## MGF 1107

**Office Location:** LIT 483 (reserve an appointment on the Canvas Calendar)

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**Preferred form of Contact:** Please use Canvas messages or email. For grade inquiries you should use Canvas messages.

**Lectures:** MTWRF 09:30am – 10:45am

**Office Hours:** MW 10:40am – 11:30am, and TBD at LIT 215

This course is a traditional (primarily classroom) class, with class meetings on MTWRF from 09:30-10:45 (Periods 2). Our classes will be held in MAE 327. The course carries 3 credits. Unlike most math courses you are familiar with, this course will be based around class discussions and small group activities. Our first class meeting is **Monday 5/9 at 09:30 AM in MAE 327**.

### Course Materials:

**Required Reading and Other Course Materials:** There is no textbook for this course. Notes will be distributed for every section via formative (described below.)

**Required Technology:**

**formative ([www.formative.com](http://www.formative.com) (Links to an external site.)):** Formative is an online system for facilitating both classwork and homework. You will need to make a free account by going to [app.formative.com/join](http://app.formative.com/join) and entering the course code provided in Canvas. After doing so you will be prompted to enter your email address and password. You must **use your ufl email address** when signing up.

**Materials and Supplies Fee:** n/a.

**Course Description:** There's more to mathematics than the calculus sequence! There's new math being discovered every day! Many students come out of high school viewing mathematics as a finished work with calculus as its crowning achievement and that math is mostly just a list of formulas and procedures to be memorized and plugged into. This is far from the truth. In this class the emphasis will be on how mathematicians use arguments called proofs to enlarge the body of mathematical truth. Along the way we'll visit topics far afield from the algebra to calculus sequence.

Course Learning Goals: The primary goal of this class is for students to be (more) fluent in mathematical argument. This means that by the end of the class students will be able to

- communicate mathematical ideas both verbally and in writing, and
- understand how mathematical arguments can apply to other disciplines.

We will practice these skills using a number of interesting areas of mathematics. In terms of mathematical skills, students will be able to

- Use graphs both to study connections and also as an organizational tool,
- Use topology to make and justify claims about the shapes of objects,
- Analyze which player has a winning strategy in combinatorial games, and
- Find equilibria of strategic games.

## Course Format (Top)

This class is best described as a “flipped” class. Almost every class meeting will be preceded by a short assignment to introduce new concepts and terminology. These assignments are typically accompanied by a video to help explain difficult concepts. As a result, our class meetings do not involve any significant lecture portion. We will spend class time either engaging in a discussion or working in small groups on challenging problems and sharing solutions with the class. There will be weekly (usually) in-class diagnostic quizzes to make sure that nobody is falling behind. Topics from class will be both reinforced and expanded upon in the homework. Lastly, there is a final project which will be worked on over the course of the term.

Notably, there are no exams or other high pressure timed assignments in this class. Instead, there is a type of homework exercise, called a mastery assignment, which fills the role of major during-term assessments. Mastery problems are difficult, open-ended problems in which student and teacher engage in dialog to guide the student toward solution.

Contact Hours: “Contact Hours” refers to the hours per week in which students are in contact with the instructor, excluding office hours or other voluntary contact. The number of contact hours in this course is 5 as we meet MTWRF.

Statement on Workload: As a Carnegie I, research-intensive university, UF is required by federal law to assign **at least 2 hours of work outside of class for every contact hour**. Work done in these hours may include reading/viewing assigned material and doing explicitly assigned individual or group work, as well as reviewing notes from class, synthesizing information in advance of exams or papers, and other self-determined study tasks.

In this class this works out to 15+ hours per week as follows.

- 5 hours in our T/R class meetings (contact hours)
- 4 hours of pre-classwork assignments (1 each for MWRF class)

6+ hours spent on homework, the final project, or other studying

If you find yourself putting in more than 9 hours per week but still struggling, please reach out so that we can work out a plan to get you back on track.

Statement Regarding Course Recording: Our class sessions may be audio visually recorded for students in the class to refer back to and for use of enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate verbally are agreeing to have their voices recorded. If you are unwilling to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the “chat” feature, which allows students to type questions and comments live. The chat will not be recorded or shared.

With the passing of HB 233, the rules for students recording class need to be carefully explained. 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.

## Grading Policies (Top)

There are 1000 total points in this class, broken down as follows.

## Final Project

The final project is an investigation into a famous mathematical result or mathematician. Most topic choices are contemporary to show how math has continued progressing. The project may consist of two parts: a research paper and an accompanying visual aid. A full description of the project parameters, including a list of acceptable topics, can be found on Canvas.

**Submit:** Canvas,

**Value:** 250 points

## Homework

The primary role of homework in this class is to reinforce but also, and more importantly, extend the topics in class or apply those topics in novel ways. Occasionally, the homework will introduce additional, optional topics that are related to the in-class topics. The optional topics provide students have some freedom to pick which homework exercises they wish to complete, especially with the more challenging assignments.

All homework is classified as level 1, 2, or 3. The difficulty scales along with the level, but at the same time fewer of the higher level assignments are required for full credit. Most homework comes as a set or a level 1, 2 and 3 assignment, but some are standalone assignments. Sets of homework must be completed in order. That is, you can not do the level 2 or 3 if you do not complete the level 1.

### Level 1 Homework

The level 1 homework is designed to either reinforce one of the core topics covered in class or to lay the groundwork for one of the optional topics.

These assignments should be straightforward given the treatment of the material in class. A good rule of thumb is that a level one assignment should take no longer than one hour to complete. If you find an assignment taking longer than this, then please **seek assistance during office hours**.

Instructors are willing to discuss any aspect of a level 1 assignment, up to and including whether an answer is correct or not. However, the student must have made an attempt on the question prior to asking for help.

A level 1 homework will typically be due 2-5 days after the corresponding class period in which the material was covered.

Each level 1 homework assignment is worth 20 points, but only your best five assignments count toward your grade.

**Submit:** formative (link varies per assignment)

**Value:** 20 points x 5 assignments = 100 points

### Level 2 Homework

The level 2 homework goes slightly beyond the fundamentals in class and lays the groundwork for the level 3 assignment.

These assignments should be challenging, but should take no more than two

hours to complete. If you find a level 2 assignment taking longer than this, please **seek assistance during office hours**.

Instructors are willing to discuss almost any aspect of a level 2 assignment. There are very few questions on these assignments where we will be cagey about whether a particular answer is correct, but we will always be willing to discuss errors in how you came up with your answer.

Each level 2 homework assignment is worth 40 points, but only your best four assignments count toward your grade.

**Submit:** formative (link varies per assignment)

**Value:** 40 points x 4 assignments = 160 points

### Level 3 (Mastery) Homework

The level 3 homework assignment does not require any new material. However, successful completion will require clever application of material from the level 1 and 2 homework and (almost always) some element of mathematical proof.

Level 3 homework will require at least 3 hours of work. If you find progress is slow after an hour of work, you should **seek assistance during office hours**.

Instructors are happy to discuss mastery assignments, but answers will be less straightforward since the goal is helping to guide the student's original thoughts.

Level 3 homework assignments are graded based on **mastery**. Here are more details about mastery grading.

Only competent efforts will receive **any** points at all.

While mastery assignments will be submitted on Canvas or formative, the grade will only be entered after a **conference with an instructor**. It is the student's responsibility to schedule this conference within a week of the deadline. In the conference, the student must show complete understanding of their solution to get full marks.

If a solution falls short of mastery but is on the right track, the student will be given partial credit and a chance to resubmit. In general, the resubmission window will be a week from the conference. Students are strongly encouraged to have some discussion of their solution prior to their first submission to ensure that they are on the right track and are able to resubmit.

This policy is mirrored in abridged form in the **Course Overview and Policies Page** in the "Grading Policies" section.

Each level 3 assignment is worth 100 points, but only your best two count toward your grade.

**Submit:** formative (link varies per assignment.) Additional work from resubmissions may be submitted on Canvas on the assignment page.

**Value:** 100 points x 2 assignments = 200 points

### Quizzes

There are 5 quizzes (1 quiz/week except for the last week). They will always cover the previous week's worth of material and/or a documentary. Of the 5,

only 4 will count for credit.

Quizzes are open notes.

**Submit:** formative (link varies per assignment.) during class

**Value:** 25 points x 4 assignments = 100 points.

## Pre-Classwork

There will be an assignment due prior to (usually midnight before) almost every class period. These will usually take around half an hour and never longer than an hour.

This is as close as we get to a lecture in this course. Sometimes there will be a mini-lecture with definitions and examples, but sometimes it will just be some reading and prompts to focus your thoughts for class.

**Submit:** formative (link varies per assignment.) prior to class.

**Value:** 10 points x 10 assignments = 100 points

## Classwork

Most class periods are devoted to class discussion or group activities. Students are assessed based on their participation in these activities.

Participation in every class activity is worth 5 points. There are 22 such activities.

It is impossible to make up a missed class activity since interaction is a crucial part of them, but 4 of these assignments are dropped to account for unavoidable absences

**Submit:** formative (link varies per assignment.) prior to class.

**Value:** 10 points x 9 assignments = 90 points

Pre-Classwork Assignments (10 assignments, 10 pts each)	100 points
Classwork (est 9, 10 pts each)	90 points
Lvl Homework (est 5, 20 pts each)	100 points
Lvl2 Homework (est 4, 40 pts each)	160 points
Lvl3 Homework (Mastery) (est 2, 100 pts each)	200 points
Quizzes (est 4 of 5, 25 pts each)	100 points
Final Project	250 points
<b>Total</b>	<b>1000 points</b>

Final grades are assigned on a 125 point scale:

1000-875 is an A

874-750 is a B

749 – 625 is a C

624 – 500 is a D

Anything lower is an E

A C or higher is needed to meet degree requirements. Plus and minus grades are awarded based on the strength of the final project, Lv3 homework, class participation, and overall growth over the course of the term. Otherwise, the grading scale is strictly adhered to. Grading in this class is consistent with the UF polices at <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/> (Links to a

Mastery Grades: The Level 3 homework is graded for mastery. This means that only essentially correct solutions will receive any points. There is a well-defined review and resubmission process by which students will refine their answers with instructor guidance. Please consult the [List of Graded Work](#) for a full description.

Policy on Late and Make-up Work: Requirements for class attendance and make-ups, 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>.

Any makeup (this includes extension) request **must be made prior to the deadline of the assignment** unless an emergency prevents communication. Makeups are only approved in the case of official UF business, religious observances, or personal emergency. In most cases, documentation is required to verify the reason for absence. Makeups may be denied if the reason for absence was known about well before it being communicated.

Grade Return Timing: Most assignments will be graded automatically by the formative software and will be returned almost as soon as the deadline passes. Some questions require manual grading, so you may see some things marked wrong that you know are right. Please wait a few days before reporting these grading errors. Mastery assignments are like small projects and usually take a week or so to grade properly. So these may linger as zeros until they are graded.

Grade Disputes: Students are strongly encouraged to ask questions about potential mistakes in graded assignments. Discussing why something was marked as incorrect is a great way to learn, and this discussion is a fundamental part of mastery assignments as outlined above. However, these discussions should occur as assignments are returned, not as an end-of-term attempt to scrape together a few extra points. In general, students have **one week** after a grade is returned to review the assignment and dispute a grade. Discussion after this window is still encouraged, but it will not result in an improved grade. Moreover, end of term point negotiations

will be **penalized with a minus grade**. For example a student with 874 points (in the B range) who asks for grade leniency at the end of the term will receive a B- instead of what would certainly have been a B+. So please discuss solutions with us, but do not haggle for every individual point and, moreover, don't do it on the last days of the semester.

## Honor Code (Top)

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 ([sccr.dso.ufl.edu/process/student-conduct-code/](https://sccr.dso.ufl.edu/process/student-conduct-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 instructor or TAs in this class.

I believe that my strength as an educator is not in showing students how to solve problems but in being able to engage in the Socratic method with students. I want to ask the questions that kickstart your own thinking. Because of this, the use of a tutor is **strongly discouraged** and in most cases will be considered an **honor code violation**. The point is to think independently, not to present someone else's thoughts. Both skills are important, but in this class we focus on the former. In this class collaboration with your peers is encouraged, but the final submitted product must be your own work. In general, if a student cannot adequately explain their answers to the point that the instructor does not believe that it is the student's own work, it will be treated as though the student copied the answers, an honor code violation.

Any violation of the honor code will result in a final grade of 0 on the corresponding assignment with no further opportunities for resubmission. This is especially true for plagiarism on the final project.

## Additional UF Policies (Top)

This course is aligned with the following UF policies

Accommodation for Student with Disabilities: 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/> (Links to an external site.). This class supports the needs of different learners; 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.

Statement Regarding Evaluations: 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 from the



Gatorevals website (Links to an external site.). 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 the evaluation system. (Links to an external site.) Summaries of course evaluation results are available to students at the public results website (Links to an external site.).

## UF Student Resources (Top)

**UF Police:** The UF police are together for a safe campus. 392-1111 (or 9-1-1 for emergencies) and <https://police.ufl.edu/>.

**Career Connections Center:** Career Connections Center (Links to an external site.) (352-392-1601 | [CareerCenterMarketing@ufsa.ufl.edu](mailto:CareerCenterMarketing@ufsa.ufl.edu)) connects job seekers with employers and offers guidance to enrich your collegiate experience and prepare you for life after graduation.

**Counseling and Wellness Center:** Counseling and Wellness Center (Links to an external site.) (352-392-1575) provides counseling and support as well as crisis and wellness services including a variety of workshops (Links to an external site.) throughout the semester (e.g., Yappy Hour, Relaxation and Resilience).

**Dean of Students Office:** Dean of Students Office (Links to an external site.) (352-392-1261) provides a variety of services to students and families, including Field and Fork (Links to an external site.) (UF's food pantry) and New Student and Family programs (Links to an external site.)

**Disability Resource Center:** Disability Resource Center (Links to an external site.) ([DRCaccessUF@ufsa.ufl.edu](mailto:DRCaccessUF@ufsa.ufl.edu) | 352-392-8565) helps to provide an accessible learning environment for all by providing support services and facilitating accommodations, which may vary from course to course. Once registered with DRC, students will receive an accommodation letter that must be presented to the instructor when requesting accommodations. Students should follow this procedure as early as possible in the semester.

**Multicultural and Diversity Affairs:** Multicultural and Diversity Affairs (Links to an external site.) (352-294-7850) celebrates and empowers diverse communities and advocates for an inclusive campus.

**Office of Student Veteran Services:** Office of Student Veteran Services (Links to an external site.) (352-294-2948 | [vacounselor@ufl.edu](mailto:vacounselor@ufl.edu)) assists student military veterans with access to benefits.

**ONE.UF:** ONE.UF (Links to an external site.) is the home of all the student self-service applications, including access to:

Advising (Links to an external site.)

Bursar (Links to an external site.) (352-392-0181)

Financial Aid (Links to an external site.) (352-392-1275)

Registrar (Links to an external site.) (352-392-1374)

**Official Sources of Rules and Regulations:** The official source of rules and regulations for UF students is the Undergraduate Catalog (Links to an external site.) and Graduate Catalog (Links to an external site.). Quick links to other

information have also been provided below.

[Student Handbook \(Links to an external site.\)](#)

[Student Responsibilities \(Links to an external site.\)](#), including academic honesty and student conduct code

[e-Learning Supported Services Policies \(Links to an external site.\)](#) includes links to relevant policies including Acceptable Use, Privacy, and many more

[Accessibility \(Links to an external site.\)](#), including the Electronic Information Technology Accessibility Policy and ADA Compliance

[Student Computing Requirements \(Links to an external site.\)](#), including minimum and recommended technology requirements and competencies

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