MGF 1106 SYLLABUS

COURSE INTRODUCTION

MGF 1106, Mathematics for Liberal Arts I is a general education/math course which is not intended to prepare you for Precalculus or Calculus. Instead, this course emphasizes mathematical reasoning and the connections between mathematics and the liberal arts. This course qualifies for both GenEd and Gordon Rule credits.

Prerequisites: None
Credits: 3
Textbook: We will primarily use the free textbooks from Discovering the Art of Mathematics. These can be found at https://www.artofmathematics.org/books. On occasion there will be notes or worksheets distributed in class and through Canvas.

Course Content: This course focuses on mathematical thinking and how it can be applied to problems both within and outside of pure mathematics. We are not concerned with covering particular material or memorizing formulas but rather with the kinds of thinking that lead to the development of those formulas. Throughout the course, we’ll be answering the following two main questions.
• What is mathematical truth and how is it different from truth in other fields?
• How can mathematical truth be extended outside of pure mathematics?

Learning Objectives: Upon completion of the class students will
• Realize that mathematics is not about memorizing formulas,
• Be able to reason mathematically,
• Understand that error and revision are essential parts of mathematics,
• Be able to form and test conjectures and find counterexamples, and
• Communicate ideas both verbally and in writing,

CONTACT INFORMATION

Canvas: https://ufl.instructure.com
Instructor: Dr. Ross Ptacek
Office: LIT 442 (Subject to change during Little Hall Renovation)
Office Hours: Every day after class or by appointment
E-mail: rptacek@ufl.edu (This is the best way to reach me)
COURSE FORMAT

There will be no traditional lecture in this course. At the beginning of each class students will be placed into groups of 3-5. In their groups, students will work on problems and present their solutions both within their group and to the class. Students will also have homework problems which are similar in format to the group work. There are no exams or quizzes. Instead, every assignment is assessed as either mastered or not yet mastered and letter grades are determined by the number of assignments that the student has mastered. A full description can be found later in the syllabus.

All course communication will either be in class, to your ufl.edu email, or on Canvas (https://ufl.instructure.com/). Homework assignments and Important class announcements will be posted on Canvas, so it is important to ensure that you are set to receive notifications from Canvas to your ufl.edu email.

ASSIGNMENTS

In-Class Assignments: During every class period, we will split into groups and solve a problem or a continuation of the previous class’s problem. Students will be assessed as either participating or insufficiently participating. Attempts to present solutions to the class will also be recorded. At the completion of every problem, a homework assignment will be placed on Canvas and graded according to the standards given below in the grading section.

Independent Homework: There will be a growing pool of homework exercises maintained on Canvas. Homework assignments in the pool will be rated according to their difficulty (one to three points). Each homework will be graded according to the standards given below in the grading rubric. The number and difficulty of independent homework assignments mastered will be considered in the final grade. While students are encouraged to discuss these problems with their peers, solutions must be written independently. Students found to be copying solutions on an assignment will be unable to master that assignment.

Presentations: An important part of the course is communication of mathematical ideas. Much of this goes on within the group setting, but there will also be opportunities to present to the class. Presentations are very informal and should only take a few minutes. Credit will be given whether the presented solution is correct or not. The important part is that the presenter explains their solution and appropriately answers questions.

GRADING PROCEDURES

There are no numerical grades in this class. All participation grades are yes/no and all assignment grades are mastered/not yet mastered.

Participation: In order to receive participation credit for a given assignment, the student must

1. Be prepared to work (complete any essential prerequisite reading or other assignment),
2. Be present during the days that the class works on the assignment, and
3. Contribute to their group’s discussion of the problem.

It will be rare that a student in attendance does not earn participation credit. Students in danger of not earning credit will be given a warning in class.
**Homework:**
In order for an assignment to be considered mastered, the solution must satisfy the following criteria
1. The student correctly identifies the question. In other words, the solution addresses the problem being asked, not a similar or slightly different problem,
2. The solution incorporates appropriate mathematical ideas,
3. All relevant work including unfruitful attempts is included,
4. The solution is correctly justified with informal proof, and
5. The solution is correct or at least is mostly correct and recognizes cases where the given solution does not work.
A proper solution must satisfy **all** of these conditions in order for the assignment to be considered mastered. Otherwise, the problem is considered Not Yet Mastered.

**Resubmissions:** It is unlikely for a student to master an assignment on the first attempt, especially during the first few weeks of the course as we become comfortable with properly justifying our answers. However, any assignment can be resubmitted for mastery. In order for a resubmission to be accepted
1. All previous submissions must be included with the resubmission, and
2. All questions posed to the previous solution must be addressed.

Solutions must be submitted on paper. Ideally, you invest in some folders or a binder to retain all of your previous submissions. You may choose to submit scans of your paper solutions on Canvas in addition to turning the paper in to me. This has the advantage that Canvas will retain all of your old submissions so that you need only submit your most recent work each time.

**Deadlines:** All final submissions for all assignments are due on the last day of class (August 10), and I will promise at most three days to return assignments. However, I will only accept **two** assignments simultaneously. This means that you cannot wait until the last week of class to submit all of your assignments (and it’s extremely risky to wait that long since there’s no guarantee of mastery).

**Course Grade:** Because there are no numerical grades, course grades are based on meeting certain requirements. These are detailed below:

**To receive an ‘A’:**
- At least 90% in-class assignments mastered
- 12 points worth of homework mastered, including two 3-point assignments
- Make three solution presentations

**To receive a ‘B’:**
- At least 80% in-class assignments mastered
- 10 points worth of homework mastered, including one 3-point assignment and one 2-point assignment
- Make two solution presentations

**To receive a ‘C’:**
- At least 70% of in-class assignments mastered
- 8 points worth of homework mastered, including two 2-point assignments
- Make a solution presentation

**To receive a ‘D’:**
- At least 60% of in-class assignments mastered
- 6 points of homework mastered, including a 2-point assignment
Failure to achieve the D threshold will result in a grade of E.

Since this is my first time running a course like this over the summer, the thresholds for letter grades may change (to be easier) at around midway through the semester. Plus and minus grades will be considered based on attempted but not yet mastered assignments and partially meeting the requirements for higher letter grades.