

Marshall University Syllabus

College of Science

Department of Mathematics

# Course

MTH 300: Intro to higher math

## Course Description

A transition between elementary calculus and higher mathematics with emphasis on techniques of proof.

### Credits

4 Credits

### Prerequisites

C or better in MTH 230 (Calculus 2)

## Term/Year

Fall 2022

## Class Meeting Days/Times

Mondays – Thursday 1-1:50 pm

## Location

WAEC 3119

## Academic Calendar

For beginning, ending, and add/drop dates, see the [Marshall University Academic Calendar](http://www.marshall.edu/academic-calendar/) (URL: http://www.marshall.edu/academic-calendar/ ).

# Instructor

Dr. Bonita Lawrence

## Contact Information

* Office: SH 614
* Office Hours: Monday, Wednesday 10-12 am. Tuesday, Thursday 3:00 – 4:00.
* Additional virtual or in-person hours available by appointment. To make an appointment, please email.
* Office Phone: 304-696-3040
* Marshall Email: lawrence@marshall.edu

# COVID-19 Related Information

Marshall's official COVID-19 protocols are online at <https://www.marshall.edu/coronavirus>. Policies and protocols may change over time as we respond to changing conditions. The website will always contain the most recent information.

# Required and/or Recommended Texts and Materials

## Required Texts and Materials

# *Mathematical Reasoning* by Sundstrom is available for free as a pdf download: <https://scholarworks.gvsu.edu/books/9/> or on amazon if you prefer a hard copy.

# LaTeX is a mathematical typesetting software that you will learn to use in this course. You may use a free online version at [www.overleaf.com](http://www.overleaf.com), or download a copy to your own computer at [www.miktex.org](http://www.miktex.org) (for PCs) or <http://www.tug.org/mactex/> (for Mac)

# Course files, LaTeX tutorials, and announcements will be posted on MUOnline.

# Course Student Learning Outcomes

The table below shows the following relationships: How each student learning outcome will be practiced and assessed in the course.

| Course student learning outcomes | How students will practice each outcome in this course | How student achievement of each outcome will be assessed in this course |
| --- | --- | --- |
| Students will be able to write proofs of mathematical statements using appropriate techniques. | Problem sets and practice and present days | Exams, Final Portfolio |
| Students will be able to read a complex mathematical argument and determine its validity. | Problem sets and practice and present days | Exams, Final Portfolio |
| Students will be able to make and test conjectures about specific mathematical situations. | Problem sets and practice and present days | Exams, Final Portfolio |
| Students will be able to make effective oral and written presentations of their completed work. | Problem sets and practice and present days | Exams, Final Portfolio |
| Students will be able to perform complex mathematical reasoning independently. | Problem sets and practice and present days | Exams, Final Portfolio |
| Students will enhance writing skills and strategies. | Problem sets and practice and present days | Exams, Final Portfolio |

# Course Requirements/Due Dates

**Problem Sets** – 1 or 2 per week

Problem sets will be posted in Blackboard. Assignments should be completed in LaTeX or neatly by hand (assignment will specify) and uploaded **as a single pdf file** to Blackboard. It is acceptable to discuss problem sets with classmates, but your submission should reflect **your own understanding of the content**. Submissions that use techniques/theorems we have not covered in class will earn a grade of 0 and may be reported for academic dishonesty.

**Exams** – There will be two in-class exams covering announced sections of the course content.

Tentative dates: Tuesday, September 27

Thursday, November 10

**Final Portfolio:** Your final portfolio will consist of 10 proofs, 8 of which will be revisions from problem sets and 2 that are new. These will be revised to be a finished piece of writing. Each proof will have an accompanying analysis. A draft of 40% of the portfolio is due **Thursday, October 27 by 5 pm** and the final draft is due **Wednesday, December 7 by 5:00 PM**.

# Grading Policy

Problem Sets - 35%

Practice & Present – 15%

Exam 1 - 15%

Exam 2 - 15%

Final Exam - 20%

**Problem Set Grading and Rewrite Policy:**

Each question on a problem set is worth 5 points. Any proof writing question receiving a grade of 1 point may be rewritten for up to 4 points. Rewrites are due one week after grades for that set have been posted. **Questions that were not attempted the first time will not be eligible for a rewrite. Problem sets that are submitted late will not be eligible for a rewrite.**

**Rubric for Proofs:**

5 Points - A fully correct proof. This means that the statement being proved is restated prior to the start of the proof; the proof is correct and complete; grammar, spelling, and punctuation are correct; and the proof is not excessively verbose and does not include unnecessary mathematical steps.

4 Points - The proof is essentially correct but may have grammar, spelling, or punctuation errors, or does not fully adhere to proof-writing guidelines.

1 Point - The proof is substantially incorrect but shows some understanding of proof techniques and the mathematics needed to prove the statement.

0 Points - The proof was not submitted and is thus ineligible for revision.

# Grading Scale

The following are minimum requirements for the desired letter grade.

A: 90 - 100%

B: 80 - 89%

C: 70 - 79%

D: 60 - 69%

F: 0 - 59%

# Attendance/Participation Policy

Your active participation in class is necessary to fully learn and appreciate proofs. While attendance is not a graded component of this course, missing a practice and present day will result in a 0 for that assignment, and chronic absence will result in poor comprehension of material and thus in a lower course grade. If you do miss a class, it is your responsibility to 1) obtain notes from a classmate, 2) spend time learning any content missed, and 3) obtain a university-excused absence if appropriate.

I do not generally accept late work except without a **university-excused absence.** In the event of an extended absence, I will work with you to determine an appropriate schedule for make-up work.

# Academic Honesty

# All work submitted must be your own. It is acceptable (and encouraged) to discuss problem sets and reading assignments with your peers, but the written work you submit should reflect your understanding of the material. Exams and portfolios should not be discussed with anyone but the instructor. See the university’s academic dishonesty policy for more information.

# University Policies

By enrolling in this course, you agree to the University Policies. Please read the full text of each policy (listed below) by going to [MU Academic Affairs: University Policies](http://www.marshall.edu/academic-affairs/policies/). (URL: http://www.marshall.edu/academic-affairs/policies/ )

* Academic Dishonesty Policy
* Academic Dismissal Policy
* Academic Forgiveness Policy
* Academic Probation and Suspension Policy
* Affirmative Action Policy
* Dead Week Policy
* D/F Repeat Rule
* Excused Absence Policy for Undergraduates
* Inclement Weather Policy
* Sexual Harassment Policy
* Students with Disabilities (Policies and Procedures)
* University Computing Services Acceptable Use Policy