

MATH 300 Writing for Mathematics Syllabus

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The purpose of this course is to develop techniques and skills for writing in the mathematical sciences. This will include three main objectives:

1. writing proofs,
2. writing expository essays on mathematical topics,
3. combining exposition and proofs to produce math research papers.

Although you will not be expected to produce your own research in this class, you will have assignments for which the writing style should mimic such work.

Grades: 20% of your final grade will come from class participation. The remaining 80% will be based on your written assignments.

Class Participation: Attendance will be taken during each class. Much of our class time will consist of discussing and evaluating fellow students' work. Your participation in this discussion will be noted and used to calculate your final grade.

Turning in Work:

1. All assignments must be done in LaTeX, which is a mathematical typesetting program. It is each student's responsibility to learn how to install and use LaTeX on a computer of their choosing. Refer to the course webpage for some helpful resources.
2. Assignments are due **before class at 8 AM** and turned in via e-mail. Late assignments will be given half credit.
3. You must attach both the .tex file and the compiled .pdf file.
4. Send your assignments to the following e-mail: math300wed@gmail.com. ***This e-mail should be used only for turning in assignments.*** For anything else, use my UIC e-mail above.

Assignments:

1. **Research Paper 1:** (5-6 pages, 20% of final grade) This will be a non-technical research paper on the history of mathematics. You will choose a famous mathematician and write about the following:
 - a short biography of their life, including mathematical training and career;
 - an analysis of their work, focusing on its importance relative to the historical context;
 - a discussion of how their work impacts current mathematical research.
2. **Research Paper 2:** (6-10 pages, 30% of final grade) You will choose a mathematical topic from a list of several options. This topic will be a well-known topic or result in basic theoretical math. You will present this topic in its entirety, and format it as a research paper. This should include the following components:
 - an introduction of the topic, including a summary and some historical perspective;
 - a full write-up of the result, including all relevant definitions and proofs;
 - a conclusion, which mentions some applications of the result to other mathematical topics;
 - a bibliography of all works cited.
3. **Short Essays:** (around 1 page each, 15% of final grade) These will cover topics such as introductions to mathematical topics, thought experiments on philosophical math questions, and analyses of mathematical paradoxes. Details of each assignment will be given throughout the semester.
4. **Proofs:** (15% of final grade) You will be given a theorem and asked to write a proof. These will generally be easy topics in basic math, whose proofs should require no more than a page. All you need to turn in is a statement of the theorem (which will be handed out) along with its proof. You will not generally need to prove the result from scratch, but instead use your discretion as to what preliminary facts and lemmas should be included. The focus should be on clarity, flow, and precision.

More details about each assignment will be posted on the webpage throughout the semester.

Citing Sources: You are encouraged to use outside sources (books, internet, etc...) for completing your assignments. Therefore, you must cite *all* sources for *every* assignment. For example, if you don't know how to do a proof, you may do research online to find one. You may then read the proof so that you understand it and cite the source. However, you should rewrite the proof on your own and in your own words. If you turn in a proof that is copied directly from another source, you will receive 0 points and possibly be held accountable for violating university academic honesty policies.

Course Schedule: Assignments will be due according to the following schedule (subject to change).

- due Wednesday, January 22: proof 1
- due Wednesday, January 29: essay 1
- due Wednesday, February 5: proof 2
- due Wednesday, February 12: essay 2
- due Wednesday, February 19: rough draft of research paper 1
- due Wednesday, February 26: proof 3
- due Wednesday, March 5: research paper 1
- due Wednesday, March 12: essay 3
- due Wednesday, March 19: proof 4
- due Wednesday, April 2: essay 4
- due Wednesday, April 9: proof 5
- due Wednesday, April 16: essay 5
- due Wednesday, April 23: rough draft of research paper 2
- due Wednesday, May 7: research paper 2

Writing Center: The English department runs a writing center, making an appointment is suggested. The website is <http://www.uic.edu/depts/engl/writing/>

Math Learning Center: Located in 430 SEO. Tutoring is usually available for lower-level courses such as calculus, but you should be able to find help with basic proofs as well.