MATH2705W – Technical Writing in Math

Section 1 (7174) meets Monday from 11:15 am – 12:05 pm in Monteith 113

Instructor: Ben Lantz

Email: Benjamin.Lantz@uconn.edu

Office: Monteith 405

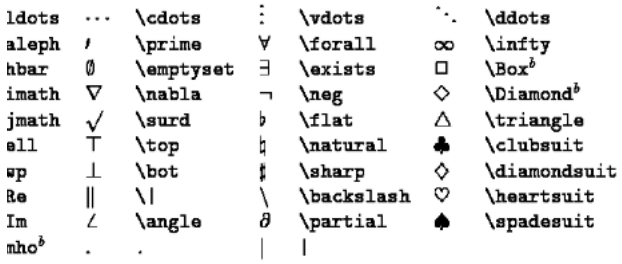
Office Hours

Mondays: 10:00 am - 11:00 am

Tuesday/Thursdays 9:15 am – 10:15 am

2:00 pm - 3:00 pm

Or by Appointment (contact me via email)



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aleph	ℵ	\prime	∀	\forall	∞	\infty
hbar	ℏ	\emptyset	∃	\exists	□	\Box$^\flat$
imath	∇	\nabla	¬	\neg	◇	\Diamond$^\flat$
jmath	√	\surd	♭	\flat	△	\triangle
ell	⊤	\top	♮	\natural	♣	\clubsuit
wp	⊥	\bot	♯	\sharp	◇	\diamondsuit
Re	∥	|	\	\backslash	♡	\heartsuit
Im	∠	\angle	∂	\partial	♠	\spadesuit
mho$^\flat$	.	.	|	|		

Course Description

This course will introduce formal writing in mathematics. A large portion of this course is devoted to learning Latex, a software used to write mathematics. Latex is an excellent tool used to express our mathematical thoughts and I use it every day. I learned Latex in grad school, and I only wish that I learned it earlier.

In this course we are going to:

1. Write about mathematics clearly, using correct grammar, in a well-organized manner.
2. Discuss mathematical ideas and results in a clear and concise manner understood by others.
3. Understand your audience: who is the reader of your mathematical piece?
4. Explain proof in a manner that is easily understood by a reader.
5. Use clear and appropriate examples to explain ideas and illustrate points.
6. Develop documents and presentations that effectively and correctly communicate mathematical ideas.

Syllabus TL; DR

- Each week on Monday we will have an activity in class geared at learning something new about math writing and/or Latex. Participation in the activities will be 10% of your grade in the course.
- You have 3 assignments in this course worth 30% of your grade each. You will submit a “first submission” of each assignment on Monday at 11:59 pm (worth 10% of your grade), and then you will submit a final submission of each assignment on the following Monday at 11:59 pm (worth 20% of your grade). See the schedule for details on due dates.
- You will be using Latex, a mathematical writing software, for each assignment.
- If you ever have a question or if anything arises throughout the semester, please email me at Benjamin.Lantz@uconn.edu. I am good at returning emails and can help with whatever you need.

Prerequisites

Prerequisites: ENGL 1007 or 1010 or 1011 or 2011, and MATH 1132Q or 2141Q; completion of or concurrent enrollment in either MATH 2110Q, 2142Q, 2210Q, or 2410Q; open only to Mathematics majors.

Textbook and Resources

There is no official textbook for this course, but there are many options for a text and other resources given below:

Although there is no book required for this course, we suggest “**Mathematical Writing**” by Franco Vivaldi (Springer Undergraduate Mathematics Series, 2014th Edition) as a valuable resource for this class.

LaTeX: The students can install LaTeX for free on their own machines or use online sites such as overleaf.com to typeset their papers. Supporting references:

Books on LaTeX:

- G. Grätzer, “Math into LaTeX,”
- M. R. C. van Dongen, “LaTeX and Friends.”

A few other useful LaTeX resources:

- A (two-page) quick guide to LaTeX.pdf, and "The Not so Short Introduction to LaTeX.pdf."
- YouTube video by David Richeson: "A Quick Introduction to LaTeX,"
- A sample LaTeX file.zip (based on an example file by Richeson). It also includes a Beamer sample file.
- You can compile LaTeX documents using Overleaf.com, without having to install LaTeX in your machine.
- Or, install your own LaTeX compiler in your machine. For example: TeXstudio.
- Geogebra is very useful to draw diagrams that can be ported to LaTeX as images (in PDF format, for example).

General resources on writing mathematics:

- A YouTube video of Jean-Pierre Serre on "How to Write Mathematics Badly."
- Paul Halmos on "How to Write Mathematics.pdf."
- Bruce Berndt on "How To Write Mathematical Papers.pdf."
- Keith Conrad's "Advice on Mathematical Writing.pdf."
- "Good Problem: teaching mathematical writing..pdf" maintained and updated by Martin J. Mohlenkamp (Ohio University).
- Francis Su on "Good Mathematical Writing.pdf."
- A Twitter thread on "exemplary writing in mathematics."

Academic Integrity

Cheating is prohibited in all aspects of the course. Cheating includes using AI to complete part or all of a paper, asking other students to complete their coursework, and copying or soliciting solutions from the internet. UCONN and I both take academic dishonesty very seriously; any academic dishonesty will result in severe consequences.

Please see the university policy at the end of the syllabus for more information on Academic Integrity.

Class Cancellation Policy

If for some reason in-person class must be cancelled (snow day, I am sick, etc.), I will send an email as soon as I am able and if given enough time, we will try to hold class via Webex.

Communication

Please communicate with me often. I am available for questions about material at any time and I am very good at responding to emails quickly. Furthermore, please use the drop-in office hours at any time. You do NOT need to make an appointment for these times.

If you need to miss class, an assignment, or an extended time, please communicate with me. I do not need to know any personal details of what is going on in your life, but I can work with you to come up with a plan on how to overcome any obstacles that may be present.

Communication is KEY! Please reach out early and often with any questions or concerns.

Assessment and Grading

The course grade will be based on 3 assignments given throughout the semester (30% of your grade each). The first submission will be worth 10% of your grade and the final submission will be worth 20% of your grade.

Additionally, we will have an activity on every day of class geared at learning something new about Latex, math writing, or preparing for the papers. Participation in these activities is worth 10% of your grade.

Late Policy

Late work will be accepted at a 10% penalty up to 1 week after the due date. Please communicate with me if you are falling behind on an assignment.

Final Exam

There is no Final Exam for this course.

The Purpose of a “W” Course

In a writing-intensive course (W Course), writing should be integral to the learning goals and subject matter of the course. In the language of the General Education Guidelines at UConn, students should not write simply to be evaluated; they should learn how writing can ground, extend, deepen, and even enable their learning of course material. In addition to questions concerning strategies for developing ideas, clarity of organization, and effectiveness of expression and discipline specific stylistic norms, the W requirement should lead students to understand the relationship between their own

thinking and writing in a way that will help them continue to develop throughout their lives and careers after graduation.

A writing course in mathematics teaches students how to communicate mathematics in a precise, concise, and clear manner. Throughout this course, your instructor will emphasize the best practices in writing mathematics, as it pertains to writing mathematical proofs. The student will learn how to gauge the level of mathematical background of the audience (the reader) and learn how to modify a document to fit the mathematical level of the reader (e.g., how much background is necessary for each type of audience). The student of a W course will write drafts, revise drafts and resubmit. The reason why it is crucial to write a draft is so that the document can be peer-reviewed and critiqued by your instructor, so that a conversation can occur about what background may be necessary, and what level of detail is required when discussing a concept or a mathematical proof. In this course, there will be much emphasis on the structure of mathematical writing (examples, lemmas, theorems, corollaries, remarks, etc.), and there will be discussions about the importance and educational power of properly chosen examples and diagrams, graphs, to illustrate a document and to illustrate a mathematical argument that may be otherwise hard to grasp by the reader.

“W” Course Grading and Revision Policy

According to university-wide policies for W courses:

- an overall passing grade on the writing components of the course (the 15+ page assignments described below) is required to pass the course, and
- all writing components of the course (the assignments described below) must go through a feedback and revision process.

Accordingly, your portfolio will not be considered complete unless you have made revisions addressing the points raised in the assessment of your initial submission and you will not pass the course without a complete portfolio that achieves a passing standard.

Grading Scale

Letter grades will be assigned using the following scale:

A	:	93.00% and above
A-	:	90.00% - 92.99%
B+	:	87.00% - 89.99%
B	:	83.00% - 86.99%
B-	:	80.00% - 82.99%

C+	:	77.00% - 79.99%
C	:	73.00% - 76.99%
C-	:	70.00% - 72.99%
D	:	63.00% - 69.99%
D-	:	60.00% - 62.99%
F	:	59.99% and below

Letter grade cutoffs may be lowered if deemed necessary (although this is not likely and should not be expected).

Policy on Academic, Scholarly, and Professional Integrity and Misconduct (ASPIM)

https://policy.uconn.edu/2023/07/11/academic-scholarly-and-professional-integrity-and-misconduct-aspim-policy-on/