

# Introduction to Formal Mathematics

MATH 108 – Fall 2017

👤 Dr. Joshua Wiscons  
📍 Brighton (BRH) 144  
🗨️ **MWF** 1PM–2PM; **Th** 10AM–11AM  
And also **by appointment**  
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🌐 [webpages.csus.edu/wiscons/teaching/](http://webpages.csus.edu/wiscons/teaching/)

📌 **Prerequisites** Grade of C- or better in both Math 31 (Calculus 2) and Math 35 (Linear Algebra).

📖 **Book** We will use a *modified* version of the open-source book *An Introduction to Proof via Inquiry-Based Learning*, by [Dana C. Ernst](#). The chapters will be posted on our course website at

[webpages.csus.edu/wiscons/teaching/math108\\_f17.html](http://webpages.csus.edu/wiscons/teaching/math108_f17.html)

⚙️ **Course Goals** The overarching goals of this course are to (1) increase the students' capacity for independent fact-based reasoning, (2) improve the students' written and oral communication of mathematics, (3) develop the necessary competency with basic logic, set theory, and proof writing for further study in mathematics, and (4) develop the skills and mindset for solving problems in a team.

**Typical Day** A typical class meeting will consist of group work, discussion, and student presentations.

## Course Components

*Homework.* Homework will *usually* be assigned each class meeting, due at the next meeting. You are *allowed and encouraged* to work together, but you are expected to **write up your solutions on your own**. All assignments should be **carefully, clearly, and cleanly written**, including proper grammar, punctuation, and spelling. These assignments will be graded on a ✓-system.

On each assignment, you are **required** to clearly reference all outside resources<sup>1</sup> that you used, or write “no outside resources used.” This is very important!

My hope is that you do not use outside resources—this will have the most benefit for you. A ✓<sup>+</sup> will not be given when outside resources are used, and heavy use of these may further lower grades.

*Writing Assignments.* These will be due each **Saturday** by 5PM and must be typed up with  $\LaTeX$ . Becoming proficient with  $\LaTeX$  is one of the aims of the course—I will support you as much as needed with this.

Take great care not to plagiarize or allow your own work to be plagiarized.

*Discussion and Participation.* Learning to discuss mathematics is a highly valued part of this course. This component will evaluate your progress in areas such as ability to describe a solution (with clarity and thoughtfulness), ability to share and shed light on your difficulties, and ability to listen critically and respond accordingly. *The best way to excel in this component is to be engaged with your group each day, active in class-wide discussions, and prepared to present at the board.* Repeated absences will impact this portion of your grade. When I score presentations, I will use the following rubric:

✓ <sup>+</sup>	Well thought out approach, clearly articulated (verbally and visually).
✓	Well thought out approach, but explanation lacked clarity.
✓ <sup>-</sup>	Approach was not well thought out, but ideas were well communicated.
—	Completely unprepared.

To ensure a passing grade for this component, you must present at least twice before the first midterm, twice more before the second midterm, and once more before the end of the class.

<sup>1</sup>The following are **not** considered outside resources: your classmates, me, our book (by [Dana](#)).

*Exams.* There are 2 midterm exams *tentatively* scheduled for Oct. 6 and Nov. 17. There is also a Final Exam scheduled for Friday, December 15 from 8:00AM–10:00AM.

### Grade Composition

Homework	12.5%	
Writing Assignments	12.5%	
Discussion and Participation	15%	
Midterm Exams	35%	(17.5% × 2)
Final Exam	25%	

*In general, letter-grades cutoffs will be standard: A 100-90%, B 89–80%, C 79–70%, D 69–60%, F 59–0%.*

**📌 Focus on Writing** Mathematics is deeply concerned with solving old problems, stating new ones, generalizing and abstracting existing theories, and uncovering new connections, but the end product is always a precise, concise, and thorough article. An “advance” in mathematics is nothing until others believe and understand it. One major goal of this course is to improve the students’ ability to write logically precise, well-structured, and well-justified mathematics. Supplementing this goal, the course aims to build proficiently in typesetting mathematics with  $\LaTeX$ .

We will discuss these issues both in and outside of the classroom, and you are strongly encouraged to solicit feedback from me on your rough drafts. Revisions to your final drafts will be by invitation only.

**Getting Extra Help** Mathematics is hard. Try hard. But don’t be surprised if that is not always enough. Talk with your classmates. Talk with the [Math Tutoring Lab](#) tutors (in BRH 118). Talk with me. But please try to avoid asking “how do I start.” Instead, try to rewrite the problem in a way that is more meaningful to you and then ask, “does my interpretation of the question seem correct.” Very often, the act of “simply” reformulating a problem will lead to insight about its answer.

**Disabilities** Any student with a documented disability needing academic adjustments or accommodations should speak with me privately during the office hours in first two weeks of class. Please provide me with a copy of your accommodation letter from the [Services to Students with Disabilities \(SSWD\)](#) office. All discussions will remain confidential.

**Cheating** Cheating will result in disciplinary action and will be reported to the [Office of Student Conduct](#). If you are unsure what constitutes cheating, please speak with me and review Sacramento State’s *Academic Honesty Policy and Procedures* document here: [www.csus.edu/umannual/student/stu-0100.htm](http://www.csus.edu/umannual/student/stu-0100.htm).