Introduction to proof (Math 108), Spring 2008, San José State University
MacQuarrie Hall 235, MW noon–1:15pm (Sec. 01, code 22343)

Instructor: Dr. Tim Hsu (pronounced "shoe").

Office and phone: MacQuarrie 419, (408)924-5071.

Office hours: M 1:30–3:30, W 1:30–3, F noon–1, or by appointment. For a current schedule, see: `http://www.math.sjsu.edu/~hsu/courses/generic/sched.pdf`

E-mail: `hsu@math.sjsu.edu` or `hsu.math.sjsu@gmail.com`. I can be reached by e-mail at most times of the day, and will often answer within a few hours.

Course web page: `http://www.math.sjsu.edu/~hsu/courses/108/`

Required texts: *Reading, Writing, and Proving*, Ulrich Daepp and Pamela Gorkin; Math 108 coursepack: *Writing Proofs*, Hsu, and excerpts from *What Is the Name of This Book?*, Raymond Smullyan; *Concepts of Modern Mathematics*, Ian Stewart

Grading: Your semester grade consists of: Homework and presentations 20%; Exam 1 14%; Exams 2 and 3 18% each; Final exam 30%.

Goals of the course. Throughout your mathematical career, you've dealt with theorems, definitions, and other mathematical "facts," and you may have even dealt with proofs of those theorems. The goal of this class is to give you a firm foundation for working with definitions, theorems, and proofs that will serve you well in future classes dealing in abstract mathematics. Specifically, by the end of this class, you should be able to: **tell** the **difference between a definition and a theorem**, and how the two concepts are related; **divide** a theorem into **assumptions** and **conclusions**; **outline** the proof of a theorem; **work with sets**, especially those **defined by properties**; and **devise and write proofs** of straightforward theorems.

Prerequisites. You should have already completed Calculus I and II (Math 30 and 31) and Discrete Math (Math 42); if you haven't, please speak with me as soon as possible.

Class is cell/beeper-free. Please turn off all cellphones, beepers, etc., in class.

Homework. The first few homeworks (Problem sets 01a and 01b) will be atypical in format and due on **Mon Jan 28** and **Wed Jan 30**, respectively. After that, homework will be due roughly once a week, with an outline of problem set 02 due **Mon Feb 04**, and the final version due **Wed Feb 06**. For more details on homework content and the process of doing homework (including revisions), see the homework handout that will be distributed in class next week.

Specific homework assignments will be determined as the term progresses. For a complete list of all homework assigned to date, and downloadable versions of almost all handouts from class, you can always check the course web page.

Presentations. Throughout the semester, you will be required to give a 5 minute presentation of one or two proofs at the board, and you may also choose to present a chapter from the *Concepts* book. In the last few weeks of the semester, you will each be required to lecture on a piece of "Chapter One" of some higher-level course. These presentations will be graded as part of your homework grade. More details will be given later.

Problem sessions. In addition to my regular office hours, starting this **Fri**, **Jan 25**, I will also hold problem sessions for this class **every Fri**, **1pm–2pm**, in a room to be announced (come to MH419 first). These sessions are completely optional, and you should be fine without them, but the time is available for those who can make it.

Exams. We will discuss exams in more detail later, but briefly, the material on exams will mostly resemble the material from the homework. All exams are closed-book.

Calculators. You will *not* be allowed to use calculators for *any* in-class exams.

Exam dates. The dates of our three in-class exams and final exam are found on the syllabus below. In particular, the final exam will be held on **Thu May 15**, from **9:45am–noon**. Please make sure that you are still on campus at that time (e.g., don't buy a plane ticket that leaves town on May 14).

How to add this course. If you are not registered for this course, and you would like to add it, you must first put a full effort into completing all of the work in the course. Second, if you are a graduating senior, you need to produce documentation to verify that.

I'll make a waiting list, which you get on by filling out and turning in the information form for the course. I'll give out add codes starting **Mon Feb 04**, mainly based on completeness of homework, and as long as there is room, I will continue to give out add codes until add date (**Mon Feb 11**). Note, however, that graduating seniors have the highest priority, and that Open University students have the lowest priority.

How to drop this course. Until **Mon Feb 04**, you can drop at `my.sjsu.edu`. Nothing will appear on your transcript, but please let me know if you drop.

To drop after Mon Feb 04, you must go to the student services center and submit a Course Drop form to the Director of Academic Services. Dropping under these circumstances is only allowed for "serious and compelling reasons" (course catalog). A low grade is not a serious and compelling reason.

Academic integrity. Your commitment to learning (as shown by your enrollment at SJSU) and SJSU's Academic Integrity Policy require you to be honest in all of your academic course work. Faculty are required to report all infractions to the Office of Student Conduct and Ethical Development. See: `http://sa.sjsu.edu/student_conduct`

Disabilities. If you need course adaptations or accommodations due to a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities register with the Disability Resources Center to establish a record of their disability.

Tentative syllabus

All reading is from Daepp and Gorkin unless otherwise noted.

Date	Reading	Date	Reading
Wed Jan 23	Intro; Logic	Mon Mar 24– Fri Mar 28	**SPRING BREAK** **NO CLASSES**
Mon Jan 28	Ch. 6	Mon Mar 31	**Cesar Chavez Day**
Wed Jan 30	Ch. 7	Wed Apr 02	Ch. 17
Mon Feb 04	Ch. 8	Mon Apr 07	Ch. 17
Wed Feb 06	Ch. 9	Wed Apr 09	Ch. 18–19
Mon Feb 11	Ch. 10	Mon Apr 14	Ch. 19
Wed Feb 13	Ch. 10–11	Wed Apr 16	Ch. 19–20
Mon Feb 18	**Exam 1**	Mon Apr 21	Ch. 20
Wed Feb 20	Ch. 11	Wed Apr 23	Ch. 21–22
Mon Feb 25	Ch. 12	Mon Apr 28	**Exam 3**
Wed Feb 27	Ch. 12	Wed Apr 30	Ch. 22
Mon Mar 03	Ch. 12	Mon May 05	Projects
Wed Mar 05	Ch. 13	Wed May 07	Projects
Mon Mar 10	Ch. 14	Mon May 12	Projects
Wed Mar 12	Ch. 15		
Mon Mar 17	Ch. 16	**Thu May 15**	**Final exam,**
Wed Mar 19	**Exam 2**		**9:45am–noon**