Introduction to proof (Math 108), Spring 2016, San José State University
MacQuarrie Hall 234, MW 10:30–11:45am (Sec. 01, code 20556)

Instructor: Dr. Tim Hsu (pronounced “shoe”).
Office and phone: MacQuarrie Hall 419, (408)924-5071.
Office hours: MW 9:30–10:30 and noon–1:00. Current schedule available at:
http://www.math.sjsu.edu/~hsu/courses/generic/sched.pdf
E-mail: tim.hsu@sjsu.edu. I can be reached by e-mail at many times of the day, and will
try to respond within 24 hours.
Course web page: http://www.math.sjsu.edu/~hsu/courses/108/
Required texts: Reading, Writing, and Proving, Ulrich Daepp and Pamela Gorkin (2nd
ed., 2011); What Is The Name of This Book?, Raymond Smullyan; Writing Proofs, Hsu
(download or photocopy).

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 theo-
rems, 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 ab-
stract 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-free. Please turn off all cellphones, etc., in class.

Homework. The first few homeworks (Problem sets 01a and 01b) will be atypical in
format and due on Wed Feb 03 and Mon Feb 08, respectively. After that, homework
will be due roughly once a week, with an outline of problem set 02 due Wed Feb 10, and
the final version due Mon Feb 15. For more details on homework content and the process
of doing homework, including revisions, see the handout on homework.

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 at the board of either one or two proofs or a survey of a mathematical subject
area. In the last few weeks of the semester, you will each be required to lecture on a piece
of “Section One” of some upper-level course. These presentations will be graded as part of
your homework grade. More details can be found in the handout on presentations.

Problem sessions. In addition to my regular office hours, starting this Fri, Feb 05, I
will also hold problem sessions for this class every Fri, 11:00am–noon, in a room to be
announced (probably on the 3rd floor of MacQuarrie Hall). These sessions are completely
optional, 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 Tue May 24, 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 23).
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 **Tue Feb 09** (or possibly earlier), mainly based on completeness of homework, and as long as there is room, I will continue to give out add codes until add date (**Tue Feb 16**). Note, however, that graduating seniors have the highest priority, and that Open University students have the lowest priority.

How to drop this course. Until **Tue Feb 09**, you can drop at my.sjsu.edu. Nothing will appear on your transcript, but please let me know if you drop.

To drop after **Tue Feb 09**, 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: [www.sjsu.edu/studentconduct](http://www.sjsu.edu/studentconduct)

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 Accessible Education Center (formerly the Disability Resources Center) to establish a record of their disability.

Tentative syllabus

All reading is from Daepp and Gorkin unless otherwise noted.

<table>
<thead>
<tr>
<th>Date</th>
<th>Reading</th>
<th>Date</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon Feb 01</td>
<td>Intro; Logic</td>
<td>Mon Apr 04</td>
<td>Ch. 18</td>
</tr>
<tr>
<td>Wed Feb 03</td>
<td>Ch. 6</td>
<td>Wed Apr 06</td>
<td>Ch. 18</td>
</tr>
<tr>
<td>Mon Feb 08</td>
<td>Ch. 7</td>
<td>Mon Apr 11</td>
<td>Ch. 19–20</td>
</tr>
<tr>
<td>Wed Feb 10</td>
<td>Ch. 8</td>
<td>Wed Apr 13</td>
<td>Ch. 20</td>
</tr>
<tr>
<td>Mon Feb 15</td>
<td>Ch. 9</td>
<td>Mon Apr 18</td>
<td>Ch. 20–21</td>
</tr>
<tr>
<td>Wed Feb 17</td>
<td>Ch. 10</td>
<td>Wed Apr 20</td>
<td>Ch. 21</td>
</tr>
<tr>
<td>Mon Feb 22</td>
<td>Ch. 10–11</td>
<td>Mon Apr 25</td>
<td>Ch. 22–23</td>
</tr>
<tr>
<td>Wed Feb 24</td>
<td><strong>Exam 1</strong></td>
<td>Wed Apr 27</td>
<td>Ch. 23</td>
</tr>
<tr>
<td>Mon Feb 29</td>
<td>Ch. 11</td>
<td>Mon May 02</td>
<td><strong>Exam 3</strong></td>
</tr>
<tr>
<td>Wed Mar 02</td>
<td>Ch. 12</td>
<td>Wed May 04</td>
<td>Projects</td>
</tr>
<tr>
<td>Mon Mar 07</td>
<td>Ch. 12</td>
<td>Mon May 09</td>
<td>Projects</td>
</tr>
<tr>
<td>Wed Mar 09</td>
<td>Ch. 12, 14</td>
<td>Wed May 11</td>
<td>Projects</td>
</tr>
<tr>
<td>Mon Mar 14</td>
<td>Ch. 14–15</td>
<td>Mon May 16</td>
<td>Projects</td>
</tr>
<tr>
<td>Wed Mar 16</td>
<td>Ch. 15–16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mon Mar 21</td>
<td>Ch. 16–17</td>
<td><strong>Tue May 24</strong></td>
<td>Final exam, 9:45am–noon</td>
</tr>
<tr>
<td>Wed Mar 23</td>
<td><strong>Exam 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mon Mar 28</td>
<td>SPRING BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wed Mar 30</td>
<td>NO CLASSES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>