MATH 300-01

Winter 2016

Sets and Logic

Dr. Daniel Brice

Meetings:	Mon, Wed	8:30 AM – 9:50 AM	Sci III 101
	Fri	8:00 AM – 9:50 AM	Sci III 101
Final Exam:	Thu, Mar 17	8:00 AM – 10:30 AM	Sci III 101
Office Hours:	Mon, Wed	11:15 AM – 12:00 PM	Sci III 202
	Tue, Thu	12:00 PM – 12:45 PM	Sci III 202
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Course Description

Investigation of the fundamental tools used in writing mathematical proofs, including sentential and predicate calculus, topics from naive set theory, Cartesian products, partitions, equivalence relations, functions, countability, recursion, the binomial theorem and mathematical induction. This course relies heavily on problem solving and writing complete, logically consistent arguments to illustrate the correct use of the logical tools and methods discussed.

5 Quarter Units.

Course Objectives and Learning Outcomes

After completing this course, students will:

- Be able to read a mathematical proof and decide if it is correct or incorrect.
- Be able to write correct mathematical proofs.
- Understand the basics of naive Set Theory and be comfortable manipulating sets.
- Understand the notion of cardinality and be able to determine the cardinality of various sets.
- Understand the notion of an equivalence relations and know the connection between equivalence relations, partitions, and functions.

Required Texts and Materials

This course is based on *Proof and Concepts: the fundamentals of abstract mathematics*, version 0.98 of November 2013, by Dave Witte Morris and Joy Morris. The textbook is freely available online, but I strongly recommend that you pick up a printed copy from the CSUB printshop for a few dollars (the cost of printing it out).

There is no need for calculating devices in this course.

Attendance and Makeups

Attendance is required. If you miss six or more class meetings for any reason, you will automatically fail the course.

If you miss an exam due to medical reasons or a personal emergency, please contact me as soon as possible after the missed exam to schedule a makeup. Exams cannot be made up for reasons of convenience or preference or family vacation.

Reading and Homework

This course requires strong reading, writing, and critical thinking skills. Dedicate 15 to 20 hours each week to completing reading and homework assignments.

We will have daily reading and homework assignments that I will assign at the end of class. It is critical that you keep up with the fast pace of the course, because it will be almost impossible to catch up if you fall behind.

I encourage you to form study groups. Make friends in the class and meet every day. Science III and the CSUB Library offer many spaces in which students can work together—bring some whiteboard markers. Keep in mind that exams will be individual.

Assessment

During the course, you will accumulate points by completing various assessments. The assessments and their point values are here listed, for a total of 240 points for the course.

Assessment	Date	Point Value
Homework	various	10 points each
Exam 1	date TBA	30 points
Exam 2	date TBA	30 points
Final Exam	Mar 17	60 points

There is no extra credit.

Grade Assignment

Your grade is calculated by taking the total number of points you have earned and dividing by the total number of points possible. Letter grades are then assigned according to the following percentages.

Grade	A	A-	B+	B	B-	C+	C
Percentage	90%	85%	80%	75%	70%	65%	60%

Your assigned grade is not negotiable. A grade of D will not be assigned. Any percentage below 60% is an F.

Tutoring and Office Hours

Extra help is available to all students free of charge. The Mathematics Tutoring Center, located in Science III room 208, offers drop-in and by-appointment tutoring five days a week. Your instructor's office hours are available for additional help beyond that. If you cannot make it to office hours because of a schedule conflict, please email your instructor to make an appointment.

Standard for Academic Integrity

Students are expected to do all the work assigned to them without unauthorized assistance and without giving unauthorized assistance. For the complete policy, see the university catalog. Misrepresenting someone else's work as your own is dishonest and wrong, and if found will result in suspension and expulsion.

Quizzes and Exams are to be completed individually. If you suspect someone is copying your work, please raise your hand and ask to move to another desk—I do not require you to report the suspected copier.

Worksheets and homework may be completed collaboratively, though each student must submit their own paper copy.

Accommodations for Students with Disabilities

To request academic accommodations due to a disability, please contact the Office of Services for Students with Disabilities (SSD) as soon as possible. You must have an accommodations letter from the SSD office documenting that you have a disability; present the letter to me during my office hours as soon as possible or in the first class period.