

San José State University
Department of Mathematics & Statistics
Math 106 INTUITIVE GEOMETRY
Section 2, 3 units, Spring 2017

Instructor:	F. D. Rivera, Professor
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Office Hours:	MW 1:15 AM – 3:30 PM and by appointment
Class Days/Time:	MW 4:00 – 5:15 PM
Classroom:	MH 425
Prerequisites:	Math 012 and Math 105 with grades of C- or better; two years of high school algebra; one year of high school geometry.

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on Canvas at <http://sjsu.instructure.com>. You are responsible for regularly checking with the messaging system through [MySJSU](http://my.sjsu.edu) at <http://my.sjsu.edu> (or other communication system as indicated by the instructor) to learn of any updates.

Course Description

Introductory geometry, measurement, inductive and deductive reasoning, introduction to transformations, and problem-solving techniques; technology integrated throughout the course.

Mathematics 106 is the third course in a three-course sequence designed for prospective elementary school teachers. You will develop deep understanding of mathematical concepts and processes taught at the elementary level. All concepts and processes are aligned to the Common Core State Standards (and the new California Mathematics Framework). In particular you will analyze characteristics and properties of two- and three-dimensional geometric shapes; develop mathematical arguments about geometric relationships; apply transformations and use symmetry to analyze mathematical situations; represent geometric objects using representational systems such as concrete models, drawings, and coordinate geometry; and use techniques, tools, and formulas for determining measurements. In general you will be encouraged to think about geometry as the study of objects in a plane or in space. You will

be asked to investigate situations involving geometric objects, state conjectures, and provide explanations that support your conjectures. You will use a dynamic geometry system called *Geogebra* as a tool for visual investigations. Throughout the course, you will experience mathematics learning in the way that we want your future students to experience mathematics learning. In addition, you will analyze your learning experiences from the perspective of a future teacher.

This course aligns with the following elementary math requirements for multiple subject credential candidates: Domain 3: Measurement and Geometry (3.1, 3.2, and 3.3).

Course Learning Outcomes

Upon successful completion of this course, all students will:

- (1) use mathematical methods to solve geometry problems;
- (2) use mathematics to solve real-life problems and arrive at conclusions based on numerical and graphical data;
- (3) develop the following mathematical habits: (a) make sense of problems and persevere in solving them; (b) reason abstractly and quantitatively; (c) construct viable arguments and critique the reasoning of others; (d) model with mathematics; (e) use appropriate tools strategically; (f) attend to precision; (g) look for and make use of structure; and (h) look for and express regularity in repeated reasoning.

Required Textbook

EngageNY PreK-Grade 8 Geometry modules (free download at <https://www.engageny.org/common-core-curriculum>)

Required Technological Tool

Geogebra (free download at <https://www.geogebra.org/download>)

Dropping and Adding

You are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. found at http://sa.sjsu.edu/student_conduct. You should be aware of the new deadlines and penalties for adding and dropping classes.

Course Requirements and Grading Policies

Homework	(9 @ 5 points)	45 points
Lab	(8 @ 10 points)	80 points

Exams	(3 @ 80 points)	240 points
Final Exam		135 points
TOTAL		500 points

Notes on Exams: You are entitled to one makeup exam. If you miss an exam, I need to know why and you will need to show valid proof. I make the final decision whether the proof is sufficient. A makeup exam is taken in my office on an appointed date and time. If you miss a makeup exam, you get 0 points.

The final exam date - ***Friday, May 19 2:45 – 5:00 PM*** - is not negotiable. Do not plan to leave on vacation before this date. The final exam is cumulative.

Note on Homework: Every homework assignment is due by 5:15 PM of the scheduled submission day (refer to the table on p. 5 specific dates). Absolutely no extension or makeup allowed on any homework.

Note on Wednesday Labs: Absolutely no extension or makeup allowed on labs. Each lab needs to be completed in class and submitted on or before the session is over. Labs are done in pairs or in groups, and you decide with your partner or group in terms of how to accomplish the tasks. You are expected to submit individual lab reports.

Grading Policy & Standards: Course grades will be determined by adding all points earned on all course requirements, multiplying by 2, and then dividing by 1000. This will give you percentage of points earned. You should be able to use this technique to evaluate your course grade to date at any point in the semester.

A: 95 –100	A-: 90-94.99	B+: 87- 89.99
B: 84 – 86.99	B-: 80 – 83.99	C+: 77 – 79.99
C: 74 – 76.99	C-: 70 – 73.99	D+: 67 – 69.99
D: 64 – 66.99	D-: 60 – 63.99	F: Below 60

Course Grade Advisory: (1) A grade of C- or better in Math 106 is required in order for you to be eligible to take Math 101, Math 107A, or Math 107B (these are the remaining courses in the Mathematics Minor for K-8 Teachers). (2) A grade of C or better in Math 106 MAY be required by your major in order for you to graduate and/or for verification of subject matter competency prior to admission to the credential program. Please check with an advisor from your own major regarding minimum grade or grade point average requirements.

Classroom Protocol

Classroom Courtesies: Common courtesy requires you to respect your fellow students’ right to a learning experience without needless interruptions. Please help yourself and your fellow students to gain the most from this learning opportunity by arriving on time ready to work with

cell phones and pagers turned off. Do not come to class late. If you have an issue, talk to me about it.

Attendance and Participation: You are expected to be in class on Mondays and Wednesdays. I will always be available during office hours, so do show up when you need my assistance. If you are struggling, I need you to see me during my office hours so that you get timely and appropriate support.

Missed Classes: It is not acceptable to miss class due to a vacation. Any time you are unable to come to class, due to illness, accident, or other unavoidable incident, it is *your responsibility* to contact me regarding the missed class to you are able.

Study Load: You should expect to spend at least 6 hours per week outside of class to complete assignments, prepare for class sessions, and study the material in this course to have a reasonable expectation of passing the course. Depending on your background and study habits, you may need more time than this. It is almost certain that if you want to earn an A or a B, you should expect to spend significantly more time than this. Please take this into account if you are juggling a full study load as well as work or volunteer responsibilities.

Emergency Procedures: In the event of an emergency or emergency drill, a loud fire alarm will sound. In this event, you should gather up all of your belongings and proceed to the far back stairway of MacQuarrie Hall. Do not attempt to use the elevators. Make sure you take all of your belongings with you. Once you have left the building, you should move onto the lawn area adjacent to the building. If you have a physical condition that prevents you from walking down stairs, please inform me immediately, so I can make special arrangements for your safe exit from the building.

I reserve the right to change classroom and grading protocols and schemes. You have the right to be notified of any changes in a timely manner, but I make all final decisions.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at <http://www.sjsu.edu/gup/syllabusinfo/>.

MATH 106 TIMELINE AND SEQUENCE OF ACTIVITIES

Week	Dates	Topics	EngageNY Modules	HW Due	Lab Due	Possible MARS Tasks
1	Jan 30	Common Core State Standards for Mathematical Practice				
1	Feb 1	Shapes	PreK M2, Kinder M2, Grade 1 M5			2016 K Classroom Cleanup 2016 Grade 1 Shapes 2015 K Shapes in the Neighborhood 2014 K Shapes, Shapes, Shapes 2011 K Drawing Shapes 2011 Grade 1 Antonio's Shape
2	Feb 6, 8	Number, Geometry, and Measurement	PreK M4, Kinder M3, Grade 1 M3, Grade 2 M2, Grade 3 M7	1	1	
3	Feb 13, 15	Unit Conversion and Angles	Grade 4 M2, Grade 4 M4,	2	2	
4	Feb 20, 22	Coordinate Plane	Grade 5 M6		3	
5	Feb 27, Mar 1	Review and Exam 1		3 (Mar 1)		
6	Mar 6, 8	Area, Surface Area, and Volumes	Grade 5 M5, Grade 6 M5			
7	Mar 13, 15	Geometry	Grade 7 M6	4		
8	Mar 20, 22	Geometry	Grade 7 M6		4	
9	Mar 27, 29	SPRING RECESS				
10	Apr 3, 5	Review and Exam 2		5 (Apr 5)		

11	Apr 10, 12	Congruence	Grade 8 M2		5	
12	Apr 17, 19	Congruence and Similarity	Grade 8 M2 & M3	6	6	
13	Apr 24, 26	Similarity	Grade 8 M3	7	7	
14	May 1, 3	Examples of Functions from Geometry	Grade 8 M5	8	8	
15	May 8	Introduction to Irrational Numbers Using Geometry	Grade 8 M7			
15	May 10	Review				
16	May 15	Exam 3		9		
	May 19 (Friday)	FINAL EXAM, 2:45 – 5:00 PM				