SYLLABUS MAT 551
Spring 2018

Class Meetings: Tuesday and Thursday from 12:30-1:50pm in Carnegie 115.
Description: This course will concentrate on building geometric intuition in multiple contexts, particularly 2- and 3-dimensional euclidean space and projective space. Other contexts may include spherical and hyperbolic geometry and conic sections.

Co/Prerequisites: MAT 375 and MAT 331. The course will assume that the students can read and write proofs and have a good understanding of the vector space $\mathbf{R}^n$ for $n = 2$ and 3.

Text: *Modern Geometry with Applications* by George A. Jennings. We will cover chapters 1 and 4, and parts of 2 and 3 depending on time.

Instructor: Rebecca R.G.
Call me: Rebecca or Dr. R.G.
    Email: rirebhuh@syr.edu.
    Office: 313C in Carnegie
    Office Hours: TBD based on student surveys.
[However, students should feel free to drop in any time, or email me to make an appointment.]

Grading: There will be problem sets/mini-projects, class presentations, two tests and a comprehensive (open book - open notebook) final exam. These items will be weighted as follows:

Category	Weight
Problem sets/mini-projects:	35%
Class Participation and Presentations:	10%
3 Tests (15% each)	45%
Final Exam*	10%

*The final exam will be given more weight if it demonstrates improved understanding.

Cell Phones: All electronic devices other than a calculator should be turned off and put away during class unless explicitly allowed by the instructor. Calculators on cell phones are not to be used on tests or quizzes.

Equipment: You will need a pair of compasses and a straight edge for the constructions on the problem sets and the tests. I have construction sets to lend if you need one. If you like, you may use a scientific or graphing calculator like a TI-84 or TI-89. You can also do basic graphing using Google's search window. We may sometimes meet in a computer cluster to use Geometer's Sketchpad - a geometry software package.

Getting Help on Projects and Problem Sets: If you get stuck on the projects and problem sets, you should get help from me or from other students in the class. However, you must write up your own solutions and **include the names of any people that you worked with or consulted.**

Final Grades: The assignment of the final letter grades will be based on the standard scale:

Grade	Range	Grade	Range
A	93-100	C+	77-79
A-	90-92	C	73-76
B+	87-89	C-	70-72
B	83-86	D	60-69
B-	80-82	F	0-59

Tentative Calendar

Month	Day	*Tuesday* Topic	Day	*Thursday* Topic
Jan.	16	*Introduction*	18	*Euclidean*
	23	*Euclidean*	25	*Euclidean*
Feb.	30	*Euclidean*	01	*Euclidean*
	06	*Euclidean*	08	*Euclidean*
	13	*Euclidean*	15	*Euclidean*
	20	*Review*	22	*Test#1*
Mar.	27	*Projective*	01	*Projective*
	06	*Projective*	08	*Projective*
	13	*no class*	15	*no class*
	20	*Projective*	22	*Projective*
	27	*Projective*	29	*Projective*
Apr.	03	*Review*	05	*Test#2*
	10	*TBD*	12	*TBD*
	17	*TBD*	19	*TBD*
	24	*Review*	26	*Test#3*
May	01	*Review*		

Final Exam: Fri, May 04, 10:15am–12:15pm
ALL STUDENTS MUST take the final exam at this time!

Expected Learning Outcomes:

• The ability to use and understand the usage of mathematical notation;

• The ability to follow proofs and other mathematical discourse;

• The ability to write simple proofs in the major proof formats (direct, indirect, inductive), and to engage in mathematical discourse;

• The ability to explain a proof verbally and with the blackboard to your peers;

• The ability to select an appropriate mathematical model for a given real world problem and to understand the limitations of conclusions drawn from mathematical models.

Presentations:

Part of class time on Thursdays will be dedicated to student presentations of homework problems due that day.

The goal of student presentations is to come to a class consensus about a solution of the presented problem. Therefore if you are not presenting your job will be to analyze the work of the presenter and ask questions whenever they arise for you. The goal is not to put the presenter on the spot, but to allow them to lead the class to an agreed upon solution. This process will be most effective when the class is focused on the presentation and asking questions that will help clarify the solution or proof. If there are multiple students prepared to present a particular problem the student with the fewest presentations will be chosen.

Each presentation will be scored using the rubric that follows:

0 points	1 point	2 points
The attempted solution does not contain significant information relevant to the problem.	The attempted solution makes significant progress towards the solution or proof.	A complete solution or proof is presented with minimal help from the class if needed.

Homework:

Homework will be assigned weekly and due in class on Thursdays. There will be a penalty for late homework. Each week, several problems will be graded in detail and the rest will be graded for completeness. Solutions will be posted to Blackboard. If there is a problem you would like feedback on, leave a note on your homework and I will get to it as time allows.

You may get help from classmates or from the professor, but your final write-up must be your own (and you should indicate who you got help from).

How to Succeed:

• It is absolutely essential that you understand how to solve the assigned homework problems and, more importantly, how and why the skills and techniques presented in the course are used in solving the assign problems. Quiz and exam questions will be similar to these problems.

• Ask questions in class about anything that is not completely clear. When your peers are presenting, ask about anything that doesn't make sense to you–this is an important part of the presentation. Don't hesitate to bring questions to your instructors during office hours.

• Stay caught up. Mathematical concepts build on each other cumulatively and you need to stay on top of the material at every stage. If you are having difficulty, don't expect that the problem will take care of itself and disappear later. Contact me immediately to discuss the problem!

• Form a study group. Many students benefit from a study group to work through challenging problems and to review for exams. You should attempt the problems ahead of time by yourself and then work through any difficulties with your study partners. Explaining your reasoning to another student can help to clarify your own understanding.

• You should expect to work hard. Don't get discouraged if you find some of the mate- rial very difficult. Be persistent and patient! If you follow the above suggestions, your experience in this course will be a rewarding one.

Students with Disabilities: If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), visit the ODS website? http://disabilityservices.syr.edu, located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible. You are also welcome to contact me privately to discuss your academic needs although I cannot arrange for disability-related accommodations. Arrangements with ODS take time; **contact them well before the first test.**

Academic Integrity: Syracuse University?s Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course- specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University?s academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level. For more information and the complete policy, see http://class.syr.edu/academic-integrity/

Religious observances policy: SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -¿ Enrollment -¿ My Religious Observances) from the first day of class until the end of the second week of class.

Please fill out this form and return it to me in IN PERSON in the next few days.

Name (please print):

E-mail address:

Class and major:

Upper division math courses you have taken:

Other courses you are taking this semester:

Why did you want to take this class, and what do you hope to get out of it?

Are there any geometric topics you'd particularly like to cover? Some possibilities: spherical geometry, hyperbolic geometry, conic sections.