

MAT 515: Geometry for Teachers
Fall 2023

Class Location: Physics P130 MW 4:00pm-5:20pm

Instructor: Dr. Ethan L Addison

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Objective: This is a course covering the basics of planar Euclidean geometry, intended for future and practicing teachers. This is not a course in how to teach geometry; rather, it is to help you understand the subject and issues arising in teaching geometry well enough that you can teach the course. Of course, since the class consists of future or practicing teachers, pedagogical issues and how to present the material shall not be ignored

Official Description: A re-examination of elementary geometry using concepts from analysis and algebra. Mathematical topics integrate the study of the historical development of Euclidean and non-Euclidean geometries, including contributions from diverse cultures.

Office Hours: See <http://www.math.stonybrook.edu/cards/addisonethan.html> to stay up to date, as these are subject to change. I have both Zoom and in-person hours, and feel free to schedule an appointment. Our grader also holds MLC hours which can be found on their card.

Grader: Dylan Galt <https://www.math.stonybrook.edu/cards/galtdylan.html>

Grading Scheme: Your course grade will be computed based on the following combination of factors:

- Participation & Discussion (10%)
- Homework (40%)
- Midterm Exam (25%) — Date TBD
- Final Exam (25%) — Tuesday, December 19, 2:15-5:00pm

Brightspace: This will be our main resource for sharing information regarding grades, announcements, and course materials, so please check it regularly.

Text: Two textbooks by Hung-Hsui Wu form the foundation of our discussion. Though they each contain a fair amount of information that will not be covered in this class, mathematics educators may find all of it eventually expedient. *Rational Numbers to Linear Equations* (<https://bookstore.ams.org/mbk-131/>) explores the notions of congruence and similarity, and *Algebra and Geometry* (<https://bookstore.ams.org/cdn-1597818381566/mbk-132/>) dives into planar geometry and touch on axiomatic approaches to teaching geometry. Neither are necessary to purchase but will likely be helpful; moreover, the second book contains a summary of the geometry in the first.

Homework Policy: There will be about ten homework assignments distributed throughout the semester. Outside of the competitive scene, mathematics is often about collaboration. Thus students are encouraged to work together and consult external resources *so long as attribution is duly noted*. Plagiarism will not be tolerated and is subject to immediate report to the Academic Judiciary.

Math Learning Center (MLC): Located in the basement of the Mathematics Tower and virtually through Zoom, the MLC is where you can get free tutoring help with any of your math concerns. No appointment is required; just come in and ask. More at <http://www.math.stonybrook.edu/mlc/center-hours.html>

Academic Integrity: Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Professions, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html.

Student Accessibility Support Center: If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union Suite 107, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the staff at the Student Accessibility Support Center (SASC). For procedures and information go to the following website: <http://www.stonybrook.edu/ehs/fire/disabilities>.

Critical Incident Management: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Student Conduct and Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.