

Syllabus for Math 323s: Geometry from the Ancient Greeks to Einstein

Instructor Information:

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Course Information:

Class meets 5:15 p.m. to 6:30 p.m., Tuesdays and Thursdays, Fall 2020.

Office Hours:

After class, upon request. You may also schedule a meeting by email.

Text:

“A Survey of Classical and Modern Geometries” by Arthur Baragar.

Course Objectives:

In this class we will study the geometries of the plane, the sphere, and hyperbolic space. We will also focus on the historical and axiomatic development of these three geometries. Finally, we will see how changing one assumption – a sign in the Rule of Pythagoras – leads to Einstein’s unification of space and time called Special Relativity.

Quizzes:

Many classes will begin or end with a quiz over assigned homework problems, material already covered in class, and videos assigned to watch outside of class.

Homework:

Due by email at bray@math.duke.edu before class. Be sure to put “ModernGeometry” (no space) in the subject of the email (and for all assignments) so that I will know that this is work for the class being turned in.

Papers:

Each student will write 4 papers (5-10 pages) on the topics of their choice related to the class, broadly interpreted.

Grading:

30% Quizzes and Homework

60% Four papers. Each student will present their paper in 5 minutes.

However, the grade is based on just the paper, not the presentation.

10% Class Participation