

# Math 199ABC Syllabus

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(last updated: March 23, 2023)

Welcome to Math 199! This is an undergraduate research course. During this course, we shall review and study classical Euclidean and triangle geometry.

**Course Credit Units.** You need to choose appropriate course credit units. One course unit is equivalent to three hours per week of work. For example, if you choose four course credit units, you need to work 12 hours a week on average.

## Goal and Benefits of the Class.

1. You will learn how to write a mathematics research article;
2. You will learn the  $\LaTeX$  typesetting;
3. You will learn deep knowledge in classical Euclidean and triangle geometry;
4. You will learn how to give a professional presentation;
5. You can become a contributor of the **Geometry Discovery Project (GDP)**, which would be an achievement worth mentioning in your CV;
6. If you become a contributor of the GDP and your article credit (see below) is at least one, then I would be happy to write a recommendation letter for your graduate school application.

**About GDP.** GDP is a multi-quarter / multi-year project. The purpose of this project is to provide a knowledge base for those interested in Euclidean geometry. This can include middle and high school students taking AMC (American Mathematics Competitions), AIME (American Invitational Mathematics Examination), or participating MathCircle. To some extent, GDP is a new kind of geometry book. It splits into *Topics*, and would be written by a group of “contributors”, by using the  $\LaTeX$  with elegantly colored graphs and hyperlinks to resources on the internet.

The url of the GDP is at <https://gdp.math.uci.edu>. Currently, it is under construction.

**Becoming a Contributor of GDP.** You are welcome to choose one of the topics (listed in the GDP website) to extend it to an article. Once you choose a topic, I can advise you on how to do the research and write the article. The advisements are

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## Geometry Discovery Project

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usually one-to-one — though it is fine if two or three of the students jointly work on one project. Collaborations of more than three students are usually counter-productive.

If you are the sole author of an article, then your article credit is 1; if two of you write an article, then your article credit is 0.5, etc. In order for me to write you a recommendation letter, the total article credit should be at least one.

By becoming a contributor, you also agree that in the future, if major revision is needed, then you and the future writer will get joint authorship of the revised article.

**First Thing to do.** Most mathematics (in fact, academia) papers are written using  $\text{\LaTeX}$ , which is a high-level, descriptive markup language. See [Wikipedia](#) for details. The best way to interface with  $\text{\LaTeX}$  is to use *Overleaf*, which can be thought of as a “Ggoogle Docs of  $\text{\LaTeX}$ ”. First, it requires no download to your computer, as it stores everything (your documents and the compiler) in the cloud. Second, it has a lot of nice help features and allow for sharing your project with your friends/collaborators.

Soon, I will introduce  $\text{\LaTeX}$  and Overleaf during Lecture. Before that, please sign up for your free UCI premium access to Overleaf. The instructions for how to do this can be found at: <https://www.overleaf.com/edu/uci#overview>.

It should take a minute or two . . . essentially you are just setting up your username and password. With UCI’s premium access, you can do much more than with the free access, so I highly recommend doing this step. Even if you use  $\text{\LaTeX}$  on your local machine (e.g. TeXShop, etc), please use Overleaf for this class, as you may be asked to collaborate with a classmate.

When you finish signing up, please email me your login email (should be your UCI netid in most cases). I will then share my Overleaf project with you, and you can see the details of the project and begin to work.