Fall 2017, Course 18.821, Project Lab in Math
TuTh 12:30-2:30, Room 2-147

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This is an unusual class: there is no particular body of knowledge that it aims to convey, though you will likely learn some math from it. Its main goal rather is for you to discover mathematics in the process of working on some open ended questions together with your teammates, and to learn to properly communicate the results you have discovered.

**Outline of coursework.** During the first week the class will be subdivided in teams of three students each. Each team will be assigned a project from the list posted on the Stellar page. Your preference will be taken into account, so we encourage you to look into the list of projects as early as you can to see which problems you like. Each team will work on their project for about two weeks, then write a paper presenting their results and give a presentation in class for the audience of their peers.

Each team will work with two mentors. Before submitting the final version paper, you will prepare a draft which you will then rework based on your mentors’ comments. Likewise, you will give a practice presentation to your mentors before delivering the final version to the class.

You will work on three projects and write three papers, but will give only one class presentation. Please see the posted schedule for details.

Each practice presentation will happen during the scheduled class time. The students from other teams are not expected to be present, so they should use this time to work on their research or paper or presentation preparation. However, on the days when a team is giving a presentation attendance is mandatory, it is taken into account when figuring out the final grade. Meeting with your teammates and/or mentors is done out of class; the people involved will schedule time to meet.

**Academic integrity.** You are not allowed to look into the 18.821 papers from previous semesters.
It is allowed to look into mathematical literature related to your project. However, we encourage you not to do so unless specifically recommended by your mentor. The reason is that for some projects partial solutions can be found in the literature. If you do find and read them, you will need to go beyond what is done in the sources you’ve read in your work on the problem. This may be much harder and more time consuming than working out things from scratch.

In any case, you must mention all the sources you have consulted in your paper. Not doing so constitutes an academic integrity violation, and will have consequences you want to avoid. We will also ask you to briefly describe the individual team member contributions (such as: “X wrote section 1, Y wrote section 2, Z wrote section 3, and X, Y and Z collaborated on proofreading of the whole text.”)

Grade. Grades are based on three papers, one oral presentation, and individual participation. Each paper is worth 20 points, the oral presentation 20 points, and the participation grade is 20 points, for a total of 100. On each paper and presentation, the passing score will be about 10 of 20.

For each of these you will receive a team score and an individual score (out of 20). Your final score is the average of the team and individual scores. These scores are primarily about the content and style, but will also take into account whether you were a good citizen of your team, e. g., showing up prepared for meetings with your mentor. The default individual participation score (last 20 points out of 100) is the average of your other four scores. This score will be adjusted for aspects that are not sufficiently accounted for in the ordinary scores of the first 80 points. For instance, it will be lowered by two points for each team presentation missed. (You are permitted one unexcused absence without penalty.) On the positive side, it may be raised for extraordinary effort and dedication or extraordinary contributions to the team or the class as a whole.