

Math 299B - Putnam Express

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Putnam is an 80-year old mathematics competition for undergraduate students. It is the most prestigious university-level math competition in the US. Even getting a score of one in Putnam (out of 120 possible points) could help you when applying for jobs or graduate school. The goal of this course is to prepare students to participate in Virginia Tech and Putnam Competitions. The top three students (as identified by the instructor) will represent the University of Maryland in Putnam.

Tell me more! How does the class work?

Every week students will be provided with some problems. These problems are from the past VT and Putnam problems with possibly some additional (easier) problems. Students are supposed to think about the problems during the week and in the next session come to the board and discuss their solutions or any ideas they might have regarding solving the problems. Students will learn how to talk about math in addition to solving problems.

Who can take this class?

To take this course you need to:

- love solving mathematics problems.
- be very comfortable with proof writing. Methods of proof like induction and proof by contradiction will be extensively used. All problems are proof-based problems.
- have some basic familiarity with Real Analysis (aka Advanced Calculus) and Number Theory. Advanced familiarity is not required.
- commit at least a couple hours every week outside of class to solving math problems.

Although it is not required, having experience with math competitions such as AMC 12, AIME, and USAMO is a plus.

What type of questions will I get on the competitions?

The questions are from variety of different subjects. The main topics are Abstract Algebra, Number Theory, Calculus, Real Analysis and Combinatorics.

How will I receive my grade in the course?

Your grade will largely be based on your active participation in class. As the competitions are very difficult, you will NOT be evaluated based on your performance on the competitions. Students are expected to come to the board and discuss their solutions or ideas about the problems a few times throughout the semester. All registered students are required to participate in both competitions. Virginia Tech competition is held on Saturday October 24, 2015 from 8:45 to 11:30 AM and Putnam will be held on Saturday December 5, 2015 in two sessions: 9:40 AM-1:00 PM and 2:50-6:00 PM.

What will I learn in this class?

The answer largely depends on you. You may learn a lot or (since there are no exams for the class) next to nothing depending on how interested you are, how much time and effort you put into this class and how much you engage during the class. We will go over variety of topics and will discuss many different problem solving methods.

What is in it for me?!

We will discuss variety of topics and we will do a lot of fun problems. Since Putnam is a very prestigious competition and the median score is usually zero or one, schools look upon a positive score favorably. A positive score on Putnam will be an example addition to your resume. Getting a score of 40 out of 120 usually puts you in top 200.

Can I see some sample problems discussed in this class?

We will discuss plenty of the past contests that can be found in the following pages. We will discuss VT problems for the first two-thirds of the semester. After VT is held we will start working through Putnam problems.

Virginia Tech Contest: <https://www.math.vt.edu/people/plinnell/Vtregional/exams.pdf>

Putnam Competition: <http://kskedlaya.org/putnam-archive/>

We will also discuss some additional (easier) problems depending on the level and interest of participants in the class.

I cannot attend the class. Can I still participate in the competitions?

Absolutely. There is no registration fee. Just let me know as soon as possible and I will take care of the rest!