MATH 3903: Problem Solving Fall 2017

Meetings: Lockett 3rd floor Lounge, W 5:00 – 6:30

Professor: Karl Mahlburg	**Office:** Lockett 320
Office Hour: By appointment	**E-mail:** mahlburg@math.lsu.edu
Webpage: www.math.lsu.edu/∼mahlburg/teaching/Putnam.html	

Website All important course information, including lecture information, problem sheets, and other announcements will be found on the course website. Please check it frequently!

Textbook (*Optional*) Razvan Gelca and Titu Andreescu, *Putnam and Beyond*, 2007.

This is available electronically through LSU's E-Textbooks program: www.lib.lsu.edu/ebooks.

Content We will learn a variety of practical and theoretical techniques for mathematical problem-solving, at the level of Collegiate mathematics journals and the Putnam Exam. Topics will include induction, combinatorial methods, elementary number theory, geometry, probability, linear recurrences, sequences and series, calculus, polynomials, inequalities, complex arithmetic, matrices and linear algebra, and abstract algebra.

Enrolled students are strongly encouraged to participate in the annual Virginia Tech Regional Math Contest (Sat., Oct. 21) and Putnam Mathematics Competition (Sat., Dec. 2).

Prerequisites You must have completed MATH 1552 (Calculus I) and at least one of MATH 2070 (Mathematical Methods in Engineering), MATH 2085 (Linear Algebra) or MATH 2090 (Differential Equations). Students with an extensive history of participation in mathematics competitions may also register with the Instructor's approval.

Schedule Due to University holidays, this class will **not** be held on Wednesday, Nov. 22.

Grading This course is graded on a Pass/Fail basis. In order to pass, you must attend each class session. At each class meeting you will be provided with a sheet of practice problems taken from that week's topic, and you are expected to participate by working on the problems individually or in small groups.

Each problem sheet will include a collection of Warm Up Problems and Main Problems, which will frequently be taken from previous Mathematics Contests. You are required to carefully write and submit a complete solution (at least 1 – 2 pages) to one or more of the Main Problems by the end of the semester.