



MA7500: Topics in Mathematics and Mathematics Education

Fall 2015

Professor: Frank Sanacory

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TEXTBOOK: There are two text books required for the course.

- The Mathematics that Every Secondary School Math Teacher Needs to Know by Alan Sultan, Alice F. Artzt, 2010, ISBN: 0415994136.
- Mathematics and Its History by John Stillwell. Springer; 3rd ed. 2010 edition ISBN-13: 978-1441960528

Topics to be covered

- History of mathematics
- Teaching Secondary school mathematics
- Math Education Research Paper and Presentation

CATALOG DESCRIPTION

This course is an introduction to research in mathematics education. Students will read historical and contemporary research literature and study a topic in the teaching of secondary school mathematics. Possible topics include: teaching the gifted, teaching in a bilingual environment, teaching trigonometry, teaching probability/statistics, teaching AP courses, designing standardized tests such as the SAT. A research paper is required.

COURSE OBJECTIVES or COURSE OUTCOMES

The objective of the course is for students to have profound understanding of teaching skills of school mathematics and to become familiar with historical and contemporary research and to reflect on current and historical trends and to have profound understanding of school mathematics.

COURSE EVALUATION & GRADING:

History and Mathematics Test	15%
Test: School Mathematics/Foundations of school math	20%
Mini Literature Reviews/ Presentation:	10%
Mini quizzes from speakers	10%
Culminating Experience: Term Paper/Presentation	20%

REQUIREMENT: NCTM membership (<http://nctm.org>). NCTM members receive one or two journals with membership and also get access to numerous online resources. Students are urged to join NCTM and make reading a habit of reading professional journals

Either there is \$45 membership, or the \$60 a year membership. For the \$60 a year membership the journals *Mathematics Teacher* (8–14), *Mathematics Teaching in the Middle School* and *Journal for Research in Mathematics Education* were both recommended to me.

COURSE OUTLINE

- History of Mathematics
 - History and Mathematics Test
- Research in Mathematics Education
 - History of Mathematics Education in America
 - International Assessment of Mathematics and Sciences (TIMMS, PISA)
 - Common Core Curriculum and NCTM Principles and Standards
 - Progression report for your Research Paper
- Teaching and Learning School Mathematics
 - Foundations of Secondary School Mathematics
 - Technology
 - Teaching AP Calculus
 - Test: School Mathematics/Foundations of school math
- Presentations of lessons
 - Math Education Research Presentation
 - Quizzes
- Research Paper
- Review of History and Mathematics Education
- Final Exam 12/17/2014

ACCOMMODATIONS FOR STUDENTS WITH SPECIAL NEEDS: If you have, or suspect you may have a physical, psychological, medical or learning disability that may impact how you function academically and/or your access to activities on campus, please contact Dr. Lisa Whitten, Director of the Office of Services for Students with Disabilities (OSSD). She will determine whether or not you qualify for academic accommodations and arrange them with your professors if you do. The OSSD is located in the NAB, Room 2064. You can reach Dr. Whitten at 516-876-3009 or whittenl@oldwestbury.edu.

Common Core Curriculum: <http://www.corestandards.org/>