# EMAT 4000/6000
# Connections Seminar
Syllabus, Summer 2006

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## Seminar Purpose

(1) To revisit high school mathematics on a deeper level, and
(2) To support you in your mathematics courses

The intent is that with the support of these seminars you will learn undergraduate mathematics in ways that will help you in your future work as mathematics teachers. These seminars are not tutoring sessions, but feel free send me questions that you have about the ideas in your mathematics courses, as those questions will help me organize the seminar to be partly responsive.

Many of the homework problems will be intended to give you sufficient "calculation experience" to be able to see the ideas embedded in the theorems and necessary for the proofs.

## Goals

- To learn mathematics deeply and with understanding
- To see mathematics as more than knowing "what to do"
- To develop internal conviction about how mathematical ideas work and why certain statements are true
- To develop habits of working together, asking and pursuing questions, looking for connections, and looking for multiple explanations

## Requirements

- *Weekly homework assignments* – These will be collected and graded. I will be looking for precision (rigor) in the use of mathematical language and notation. I will also be looking for your ability to develop intuitive understandings of abstract ideas.
- *Participation in class discussions*
- *Final project* – To be discussed in more detail during class.

## Hints for Success

- Pay attention to the operations. Many of the operations you deal with will be called addition or multiplication, but not all additions are created equal, and the same goes for multiplication.
- Build up a collection of examples that you are familiar and comfortable with, regarding the objects, operations, and properties.
- Do lots of calculations in order to develop this comfort level and so that you might begin to notice patterns and regularities.
- Use operation tables and other methods of organizing your calculations.