



### Math 463 – Seminar in Mathematics Course Syllabus

**Course description:** One to three conference hours per week. Student participation in general and specific topics in mathematics; separate section for mathematics teacher certification. May be repeated for credit on a different seminar topic with departmental approval. Prerequisites: MTH 439 or concurrent enrollment

**Credit hours:** 1 to 3

**Course Prerequisites and Corequisites:** MTH 439 or concurrent enrollment

**Outline of Suggested Topics:** Topics are dependent upon the seminar. Textbook and reading materials will be chosen according to selected seminar topics.

A sample timeline for a seminar for mathematics teachers:

- Professional requirements and responsibilities 10%
  - Texas Essential Knowledge and Skills
  - NCTM Principles and Standards for School Mathematics
  - Other relevant national reports
  
- Mathematics content and historical connections 30%
  - SBEC beginning teacher standards
  - Areas of special concern in school mathematics
  - Historical development of mathematical ideas with appropriate classroom connections.
  
- Case studies and student presentations 60%
  - Case study investigations with interactive class discussions
  - Student presentations on assigned topics.

**Student Learning Outcomes (SLO):** Students will demonstrate (per program learning outcomes, as appropriate for the chosen seminar topic):

1. Comprehension of core mathematical concepts. [PLO 1]
2. Procedural fluency. [PLO 2]
3. Competencies in using various mathematical tools for problem solving. [PLO 4]
4. Sound mathematical reasoning. [PLO 1,3]
5. An understanding of the development and connectedness of mathematical ideas. [PLO 1]
6. Proficiency in communicating mathematics in a format appropriate to expected audiences. [PLO 5]

## **Program Learning Outcomes (PLO):**

Students graduating from SFASU with a B.S. degree and a major in mathematics will:

1. Demonstrate comprehension of core mathematical concepts. [*Concepts*]  
(notion of theorem, mathematical proof, logical argument)
2. Execute mathematical procedures accurately, appropriately, and efficiently. [*Skills*]  
(calculus, algebra, routine, nonroutine, applied)
3. Apply principles of logic to develop and analyze conjectures and proofs. [*Logical Reasoning*]  
(quantifiers, breaking down mathematical statements, counterexamples)
4. Demonstrate competence in using various mathematical tools, including technology, to formulate, represent, and solve problems. [*Problem Solving*]  
(calculus tools, algebra tools, applied tools, nonstandard problem solving)
5. Demonstrate proficiency in communicating mathematics in a format appropriate to expected audiences. [*Communication*]  
(written, visual, oral)

*Date of document: 11/20/2010*