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 1]
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)

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