

## Pedagogy of Mathematics

Math250481

Instructor: Dr. M. Shiyyab, mathematics Dept. (637-4444, ext. 228),  
[Muadhh@yahoo.com](mailto:Muadhh@yahoo.com)(email)

Office hours: see the office hours schedule at the door of my Office

Text: Curriculum and Evaluation Standards. National Council of Teachers of Mathematics, 1989, or 1999.

### Course Objective:

Mathematics pedagogy shed new light on what it means to integrate content and pedagogy in a teacher-education context. Whether new to the field or seasoned professionals, all secondary teacher or students who are graduating with a mathematics degree are encouraged to view instructional issues in relation to their own experiences in learning mathematics.

Ideal for preservice and in-service programs. this course objectives are:

Provides a foundation for developing a deep understanding of topics fundamental to learning school mathematics.

- 1) helps teacher develop expertise in the processes emphasized in the NCTM (National council of Teachers of Mathematics) standards.
- 2) Offers activities that capture the rich interplay of inductive and deductive thinking in mathematics.

Students are encouraged:

- 1) To seek connections between pedagogy and content in a number of ways. Pedagogical ideas are vital part of the substance of each piece of knowledge in this course. Often these ideas are exemplified in various classroom vignettes or in a variety of interview settings.
- 2) To imagine the implications for teaching of their own experiences as learners. Consequently, both the content and format (instructional strategy for teaching will differ significantly from most text and teachers of mathematics.
- 3) to explore a number of different views of the concept of function with the expectation that they will deepen their appreciation of its mathematical complexity and at the same time develop a point of view regarding its teaching.

**Generally**, The content and topics of this course explicitly addresses some of the underlying principles of the standards in the NCTM. The course represents a novel point of view with regard to teacher education. The title of the material we'll be working with, mathematics, and pedagogy suggest that novelty.

The material of this course will help understand the integration of pedagogy and mathematics. Each of the individual idea provides a different kind of focus on the relationship of educational issues to mathematics.

“**Thinking About Being a Mathematics Teacher**” invites students to consider a variety of general but important questions-including why it is that they decide to become mathematics teachers and what their image is of teaching mathematics.

“**Designing Teaching**” select a topic that has, in one form or other, received the equivalent of several days of attention in the secondary curriculum in the American Schools. It must also have the same attention in our curriculum. Introducing the topic in a myriad of ways, included among them are the relationship of geometric and algebraic ways of thinking and the relationship between the formal and informal proofs.

“**Developing A topic Cross the curriculum**” Examine the ways in which mathematical content and teaching pedagogy are intertwined and inseparable when one begins to think and teach about functional relationships. So this unit presents functions as both a mathematical entity in its own right and as a unifying mathematical tool that enables us to relate mathematics to the real world.

“**Analyzing Subject Matter**” Fundamental ideas of Combinatorics demonstrates how much depth exists in problems that are easily stated and understood, but difficult to analyze.

Modeling is a relatively new topic to the secondary school scene, though the topic is one that has captured the fancy of practicing mathematicians for a long time. “Modeling with functions” is offered in an effort to suggest how mathematics can be applied and related to the real world, to other fields, and to itself as well.