

**Mathematics Department
University of Wisconsin Oshkosh**

**General Syllabus for
PBIS 187 Problem Based Inquiry Seminar**

Course Description:

In this course students will develop their problem solving, critical thinking, communications and quantitative skills by exploring mathematical topics in a problem solving setting. Topics vary; see the mathematics department web page for current topics. The course requires students to participate actively in class discussions, presentations and group activities. This is not a lecture-based course, and students are expected to be actively involved in the process of mathematical inquiry, including investigating, questioning, conjecturing, reasoning, and making mathematical arguments. Students will be required to present clear, concise, well-organized solutions to problems both orally and in written assignments.

Prerequisite:

Math 103 with a grade of C or better or placement.

Description of Students Who Take the Course:

PBIS 187 satisfies the University minimum general education mathematics requirement. It is not intended for students whose programs require additional mathematics courses.

General Goals and Objectives for the Course:

This course focuses on critical thinking and active learning. Students will engage in problem solving and will come to understand that a “problem” is a situation that is unfamiliar and one for which a solution is not immediately evident. Being stuck is natural and is an essential part of the problem solving process.

PBIS courses offer the opportunity to develop the ability to distinguish problem solving and critical thinking from exercises and routine thinking and to identify attitudes and beliefs that are conducive to success in challenging situations (and those which are not). The intent is to provide a strong intellectual experience that will enhance the university experience and form a solid base for life-long learning.

Specifically students will

- collect data, observe patterns, make and verify conjectures
- improve their ability to reason logically
- develop effective written and oral communication skills
- improve skills related to critical thinking, problem solving and creativity
- use and understand symbol systems and quantitative methods
- understand principles of mathematics and the sciences.

Textbook and Other Required Materials Recently Used:

Required materials vary by instructor. See individual course syllabus.

Specific Course Content:

Content varies extensively by individual section. Recent topics include the mathematics of sports, graphs, coding theory, knots, geometry, probability, and the mathematics of geology. See the mathematics department web page for current offerings:

<http://www.uwosh.edu/departments/mathematics/courseinfo/pbis/pbisintro.php>

Variation by instructor:

Teaching methodology and evaluation policies for this course vary. Evaluation may include quizzes, exams, a comprehensive final, collected homework, and oral presentations. Instructors may also require projects and reading and writing assignments.

Students should consult the individual course syllabus for more information.

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