

**Tarleton State University**  
**Department of Mathematics, Physics, & Engineering**  
**Course Syllabus**

**Math 507 Special Problems**

**Spring 2008**

**Wednesday 6:00-9:00 p.m.**

**Instructor: Dr. Bowen Brawner**  
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**Office Hours:**

MF	9:00 a.m. – 10:00 a.m.
TW	2:15 p.m. – 3:15 p.m.
R	10:40 a.m.- 11:30 a.m.

Other times are by appointment.

**Required Books:**

**In Search of Understanding: The Case for Constructivist Classrooms (Paperback)**  
by [Jacqueline Grennon Brooks](#) (Author), [Martin G. Brooks](#) (Author) \$16

**How People Learn: Brain, Mind, Experience, and School: Expanded Edition (Paperback)**  
by [Committee on Developments in the Science of Learning with additional material from the Committee on Learning Research and Educational Practice](#) (Author), [National Research Council](#) (Author) \$16

**How to Solve It: A New Aspect of Mathematical Method (Paperback)**  
by [G. Polya](#) (Author) \$5

**Principles and Standards for School Mathematics (Paperback)**  
by [National Council of Teachers of Mathematics](#) (Author) \$40

**Course Description**

This course will concentrate on solving, or attempting to solve, mathematics problems and the learning theory that supports problem solving in the classroom. How can one implement problems solving goals and activities in mathematics instruction without first becoming a problem solver?

The much of the emphasis is on exploration of various mathematics contexts to learn mathematics, to pose problems and problem extensions, to solve problems, and to communicate mathematical demonstrations. The problems will come from

many sources and contexts. Inquiry, investigation, exploration will be significant descriptors of what we want to accomplish.

## **Course Assignments**

Each student will define and accumulate a mathematics **problem resource**. The resource may be a Web Site created by the student, or it may be a loose-leaf notebook, or it may be some combination of media or other organization. The substance of the resource is the student's organization of problem material, solutions, comments, and notes.

## **Objectives**

To read, discuss, write about, and present on current learning theory and demonstrate how it is symbiotic with the idea of problem solving.

### **In addition**

**To explore** problem solving in mathematics as

- . . . a curricular goal
- . . . an instructional strategy
- . . . the essential core of mathematics
- . . . a process for doing mathematics

**To develop** a "can do" approach to mathematics problems solving.

**To understand and describe** mathematics problem solving as more process than product.

**To become** a mathematics problem solver.

**To use technology** to solve mathematics problems.

**To use problem contexts** to create mathematics demonstrations.

**To use Contextual Teaching and Learning** concepts.

**To use problem solving** to construct new ideas of mathematics for yourself.

**To engage** in mathematical investigations.

**To engage** in some independent investigations of mathematics topics from the secondary school curriculum or appropriate for that level.

**To communicate** mathematics ideas that arises from mathematics investigations.

**To consider ways to assess** problem solving performance.

## **Attendance**

You are expected to attend class. Since a large portion of your grade will involve your engagement with the discussions and problems presented, being absent from class will obviously impact it.

## **Grades and Requirements**

Grading is based on performance in meeting the requirements of the course. This performance includes the following:

1. Attendance
2. Participation
  - working with others
  - class discussions
  - investigations
3. The "resource" or notebook
  - Problems with solutions, comments for use in class, modifications of problems, extensions
  - Some organization to the resource that makes sense
  - Notes
4. Class presentations
5. Writings

**University Policy:** Students are responsible for knowing and abiding by the policies and information contained in the Tarleton Student Handbook.

**Student Responsibilities:** The student is *solely* responsible for:

- Completing each assignment by the specified due date.
- Obtaining assignments and other materials for classes from which they are absent.
- Utilizing, as needed, all available study-aid options (including meeting with the instructor, referring to outside texts, etc.) to resolve any questions that they might have regarding course material.
- Giving as much of an effort as it takes to pass this course.

**Academic Conduct:** Students guilty of academic dishonesty, cheating, or plagiarism in academic work shall be subject to disciplinary action. The instructor may initiate disciplinary action in any case of academic misconduct.

**Services for Students with Disabilities:** Student Disabilities Services is located in the Mathematics Building, Room 201. Students who have special instructional needs because of a physical handicap or a learning disability should discuss their special needs with Ms. Trina Geye, Director of Student Disabilities Services. Call 968-9400 (or email [disability@tarleton.edu](mailto:disability@tarleton.edu)) to schedule an appointment.

Frequently tutoring through the Teaching and Learning Center (968-9480) is also available (at no charge) for students desiring extra help. The Teaching and Learning Center (968-9480) is located in the Thompson Student Center, Room 15.

**Absence Policy:** Class absence policies will be established and enforced by each individual course instructor. The course instructor may recommend to the Dean of Students that a student be dropped from a course if excessive absences prevent satisfactory progress. Regular attendance is vital to your success in this course!

**Notes:**

- In the event that the university is closed for a scheduled class time, whatever was scheduled for that day and/or whatever was due that day will be scheduled and/or due on the next scheduled class time.
- Please turn off your cell phone (or put it on silent) and put it away during class.
- You are expected to present a TSU ID upon request.
- All items contained in this syllabus are subject to change as the semester progresses. Students will be notified of any changes.