DEPARTMENT OF PHYSICS AND MATHEMATICS
TENNESSEE STATE UNIVERSITY
SPRING 2013 COURSE SYLLABUS

MATH 1710: Pre Calculus Mathematics I
Boswell room 146
MWF:9:10-10:05

INSTRUCTOR:
OFFICE: 315D Physics and Math bldg   **PHONE: 615-963-5849**

OFFICE HOURS: MW: 10-11am,2-3pm,4-5pm
TR: 11-12am,4-5pm   **EMAIL: mmirani@tnstate.edu**

PREREQUISITES: Students entering this course must have completed two years of high school algebra and one year of high school geometry.

COURSE AUDIENCE: This course is designed for all science and some non-science programs.

COURSE DESCRIPTION: Along with MATH 1720, this course provides the student with the foundation necessary to enter the calculus sequence. The topics include the study of functions (polynomial, rational, exponential and logarithmic), operations on functions, graphing of functions, properties of logarithms, systems of equations and applications, sums of terms, sequences and series.

PURPOSE/RATIONALE: This course is designed to provide knowledge of fundamentals for all science and some non-science majors and provide a foundation necessary to study MATH 1720 and MATH 1910.

GOALS and OBJECTIVES: The student is expected to gain knowledge and skills essential for the study of Functions and their graphs, systems of equations, rational expressions, and series.

TEXT and COVERAGE: Swokowski, *PreCalculus*, 11th edition, Chapters 2.4 - 4, 8.1, 8.2, 8.10, 9.1 - 9.3 (A list of recommended problems is attached)

ADDITIONAL LEARNING RESOURCES: Virtual math resources available on Elearn (instructions provided below), On-line tutorials accompanying the text, Science and Mathematics Tutorial Center, Academic Intervention Center, Trio Program, Learning Resources Center Mathematics Lab, ICAN Program and Engineering Tutorial Lab.

Please register for the virtual math resources using the instructions below:

Link on the following to get into elearn. https://elearn.tnstate.edu/

Please login to elearn by clicking on https://elearn.tnstate.edu/, then click on Self Registration...Attached is a video link on how this can be done. http://ctltmedia.tnstate.edu/selfreg/index.html

Enroll in 1710 Pre Calculus .

BTW...the videos won't play on an iPad if they are in Flash format.

INSTRUCTIONAL METHODOLOGY: The primary method of instruction used will be the Lecture/Discussion.   Additional instructional methods may involve a number of traditional and non-traditional methods including cooperative learning, computer-assisted activities, and board and media presentations.

LEARNING COMPETENCIES: Upon successful completion of Math 1710, the student will be able to:

1. Determine the range, domain, zeros and asymptotes of a function.
2. Determine where a function is increasing/decreasing.
3. Determine if a function is one-to-one, restrict the domain
4. Add, subtract, multiply and divide functions.
5. Compose functions and invert a function.
6. Graph, find the equation of and the vertex of a parabola
7. Graph exponential and logarithmic functions.
8. Use logarithmic properties to solve problems.
9. Solve a system of equations (both linear and nonlinear).
10. Graph a system and its solution set.
11. Recognize the pattern of a sequence.
12. Set up a sequence from a description
13. Recognize, set up, and determine the next term of arithmetic and geometric sequences.

EVALUATION PROCEDURE: Students will be evaluated on their performance on various combinations of homework, quizzes and exams. Exam questions will be posed at the level of problems from the textbook and will be directly connected to the learning competencies. Furthermore, exam questions will be designed to evaluate the intellectual level of the students' mastery of the learning competencies.

Students mastery of the Learning Competencies will be evaluated according to the following criteria:

1. Writing: Proper use of mathematical notation and symbolism as well as the proper use of spelling and grammar on any work that requires a written response.
2. Reading: Knowledge and application of the appropriate mathematical definitions required to solve problems.
3. Creative Thinking: The ability to draw on prior mathematical knowledge to develop solutions to unfamiliar problems.
4. Integrated Learning: The ability to solve application problems from other subject areas.

EXAMINATION DATES: : Final Examination for Fall 2013-TBA

(Place to be announced)Dec 6, 2013

The Final will be based on the course common competencies and constitute 30% of the grade; No hand calculators, formula sheets, etc. may be used on the Final. (Place to be announced)

GRADING POLICY: Letter grades for the class will be assigned as follows:

Tests: 60%
Final Exam: 30%
Homework: 10%

*<u>**For all courses offered through the Physics and Mathematics Department, any incidence of academic dishonesty carries a minimum penalty of a non-removable zero for that work.**</u>

ATTENDANCE POLICY: As outlined in the 2005-2007 University Undergraduate Catalog (page 28) and subject to the same restrictions, the Department of Physics and Mathematics recognize the following reasons for granting an excused absence:

1. an official University activity
2. the death of an immediate family member
3. an admittance of the student to a hospital

<u>**REMARKS**</u>:
1. No active cellular phones, pagers, beepers, computers or other electronic devices are permitted in the classroom. Usage of or an attempt to use any of these devises in exams carries a minimum penalty of non-removable zero for that exam.

2. If you have a physical, psychological, medical or learning disability that may impact on your ability to carry out assigned course work, please contact the staff in the Disabled Student Services (DSS) Office, DSS will review your concern and determine what accommodations are necessary and appropriate. All information and documents of disability are confidential.

<u>**REFERENCE MATERIALS:**</u>
Gechtman, Murray, *Precalculus*, W.C. Brown, 1992
Grossman, *Precalculus with Applications*,
Rose/Phillips, *Elementary Functions*, Scott/Foresman, 1978
Schaum's Outline: *College Algebra*
Smith, Karl, *Precalulus*, 5th ed., Wadsworth, 1993

PRECALCULUS I (Math 1710)
Recommended Problems: Pre Calculus (11th Edition)
Last Revision: January 9, 2011

Chapter 1   Review (Optional)   ELEARN lessons available on line

1.2   19, 23, 31, 35, 37, 39, 41, 43, 45, 47, 53, 54, 71, 73, 75, 77   M1.2, M1.3
1.3   3, 7, 9, 19, 21, 31, 33, 39, 41, 43, 49, 51,   M1.4, 1.5, 1.6
1.4   5, 9, 11, 13, 15, 17, 19, 21, 27, 29, 39, 45, 47, 49   M2.1, M2.3, M2.6, M2.8
1.5   3, 5, 11, 13, 15, 17, 19, 25, 29, 31, 35, 37, 39, 43, 49   M2.5
1.6   7, 9, 13, 19, 23, 27, 31, 33,   M1.1, M2.7

 Chapter 2   Review (Optional)

2.1   1-13 (Odd), 15, 16, 17-29 (Odd)   M1.1, M3.1
2.2   31-41 (Odd), 47-55 (Odd), 57, 59   M3.1
2.3   1-33 (Odd), 39, 43   M3.1, M3.2, M3.3

Chapter 2

2.4   3, 7, 9, 11, 13, 15, 17, 21, 23, 25, 47, 49   M4.1
2.5   15-23 (Odd), 27-33(Odd) , 40, 41(Omit g and h), 42 (Omit g and h)   M3.4
2.6   1-25 (Odd)   M2.3
2.7   (2,4,5,7; a only), 9,11,13,18, (21,23; a only), 37, 38   M4.1

Chapter 4

4.1   1-10 (All), 11, 13, 17, 37, 38
4.2   1-11 odd   M5.1
4.3   1,3,5,7,9,11,21,25,31   M5.1
4.4   1-17 (Odd),20,24,25,26,31, 35 (a-g only)   M5.3
4.5   1, 3, 5, 7, 9, 11, 17, 18, 19, 20, 21, 25   M5.5
4.6   11,14,17,19,21,23,25,27, 31,34,35,39   M5.6

Chapter 3

3.1   13, 17, 19, 21
3.2   2,5,9,12,17,20,23,30,34,35
3.3   1-4, 15-20, 23-26
3.5   1, 3, 5, 11, 13, 17, 21, 29, 31
3.6   1-6, 13,14   M3.5

Chapter 8

8.1   1, 3, 5, 7, 9, 17, 18, 23, 27, 39
8.2   1, 3, 5, 9, 13, 14, 15, 19, 21, 22, 25, 26
8.10   1-10 only

Chapter 9

9.1   1,4,9,11, 21, 23, 27, 29, 33, 27, 43, 45, 47
9.2   3-21 (Multiples of 3), 30-36 (Multiples of 3), 22-28 (Optional)
9.3   1-17 (Odd), 18, 20

First Homework

1.   Register for my virtual math resources.
2.   Watch the clips on chapters 1 and 2.1-2.3
3.   Do the suggested problems on the course syllabus
4.   First quiz is on Wednesday over the material above.