

**Mathematics 1361-010 — Precalculus I**  
*Fall 2008*

**Instructor:** Dr. Roger Zarnowski  
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*Office Hours:* 9:00-10:00 and 4:00-5:00 MWF, 9:30-10:30 and 3:00-4:00 TR,  
or by appointment

**Web page for this course:** [www.angelo.edu/faculty/rzarnows/1361aF08.html](http://www.angelo.edu/faculty/rzarnows/1361aF08.html)

**Prerequisites:** College Algebra with a grade of C or better, or a score of 26 or higher on the Mathematics section of the ACT test, or a score of 580 or higher on the Mathematics section of the SAT I test.

**Course Overview:** This course is intended to provide students with an intensive overview of algebra and a study of functions and their properties. The level of the course is above that of College Algebra, with a focus on concepts and methods that will be useful for the later study of Calculus. Students who are not intending to eventually take Calculus should consider alternative courses. Check with me or your major field advisor if you have questions about the appropriateness of this course for your intended degree.

**Text:** *Precalculus: Functions and Graphs*, 11<sup>th</sup> edition, by Swokowski and Cole. The material to be covered is indicated on the attached sheet.

**Grading:** The course grade will be determined using a 90-80-70-60 scale (no curve), applied to the total number of points earned on homework, three regular exams, and the final exam. Your homework average will count as 16% of the overall course grade, and each of the four exam scores will count as 21%.

**Homework:** Homework will be collected nearly every day. Please note the following policies regarding homework:

- (a.) Work must be shown for credit. Answers alone are generally not sufficient.
- (b.) Use only standard size (8.5" × 11") notebook paper with smooth edges (i.e., not ripped out of a spiral notebook, unless edges are trimmed). Write neatly, with problems in order.
- (c.) To facilitate return of homework, please fold your papers in half lengthwise, and write your *name* and *row number* on the outside of the last page.
- (d.) Homework is due at the beginning of each class period. If you arrive late to class, you should turn in your homework immediately upon arrival. We will usually work some of the homework problems at the beginning of class, but no credit will be given for these problems if your paper is turned in afterward. Also, any papers turned in after class will be considered late and will not be accepted for grading. (*See additional information under the section on Attendance and Absences.*)

**Exams:** Dates for the three regular exams will usually be announced at least a week in advance. I generally do not give makeup exams (see below), but your lowest regular exam score will be replaced by your final exam score if this is to your advantage. **The final exam will be cumulative, and is scheduled for Monday, December 8, 8:00-10:00.**

**Attendance & Absences:**

- (a.) In order to comply with University regulations, I will ask that you initial an attendance roster on those days that you are present. Attendance does not contribute directly toward your grade. However, it is important for your success – you should attend class regularly, take good notes, and do all of the homework if you hope to do well in this class.

(b.) Absence from class, even for illness or family emergency, does not automatically entitle you to make up a missed exam or to turn in late homework papers. In general, no late homework papers will be accepted. No makeup exams will be administered except possibly in documented cases of extreme illness or emergency. However, I will replace your lowest exam grade (a 0 if the exam is missed) by your score on the final exam, if this is to your advantage, and I will also drop your three lowest homework scores.

(c.) If you miss class for any reason, *even for University-sponsored activities*, such as athletic events, performances, etc., it is still your responsibility to get your homework turned in (ahead of time if necessary), and to obtain the assignment for the next class period. I intend to post assignments on the web in order to make this easier for you, but this is done only as a service – each student is ultimately responsible for remaining informed about current homework assignments and exam dates. If for some reason this information doesn't appear on the course web site, you may need to call me or contact a classmate.

### **Classroom Expectations and Policies:**

(1.) Students are expected to be present when class begins – habitual tardiness is discourteous and distracting.

(2.) Students who sleep during class may be invited to leave.

(3.) No electronic communication or entertainment devices are allowed during class – turn off and put away your cell phones, iPods and other MP3 players, PDAs, etc.

### **Some University Policies:**

(1.) Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is available on the web at <http://www.angelo.edu/forms/pdf/honorcode5.pdf>. In particular, students are expected to adhere to the rules on Academic Honesty specified in Chapter VI, Section 5.3 of the Student Handbook. Violators will be penalized in accordance with University policy.

(2.) Persons with disabilities which may warrant academic accommodations must contact the Student Life Office, Room 112 University Center, in order to request such accommodations prior to any accommodations being implemented. You are encouraged to make this request early in the semester so that appropriate arrangements can be made.

### **Miscellaneous Remarks:**

(1.) This course covers a lot of material at a rapid pace. You should plan on allocating at least  $1\frac{1}{2}$ -2 hours per day (*every* day) for study in order to do well. Some students will need to spend more time than this.

(2.) A calculator will be required for some portions of the course, but an ordinary scientific calculator, typically available for less than \$10, will be adequate. However, *calculators will NOT be allowed on exams.*

(3.) Because I drop three homework scores and allow you to replace one regular exam score by the final exam score, I do not then again curve grades at the end of the semester. My 90-80-70-60 scale means what it says.

(4.) Please come by during Office Hours if you need extra help with the material or if you need to discuss anything pertaining to the course. However, please note that Office Hours are not intended as personal tutoring sessions for students who intentionally miss class.

(5.) Free tutoring is available in the “Math Lab”. Tentative hours are MTWR 2:00-5:00 in MCS 215, MTWR 6:00-8:00 in MCS 211, and F 2:00-4:00 in MCS 215.

(6.) The main keys to success in this course are : attending class regularly, taking good notes, completing all assigned homework, reviewing material on a continuous basis, and asking for help when needed; do all of these, and you will probably do well in this class!

## Mathematics 1361 – Precalculus I

### Student Learning Outcomes

- 1. The students will demonstrate an understanding of factual knowledge including the mathematical notation and terminology used in this course.** Students will read, interpret, and use the vocabulary, symbolism, and basic definitions used in precalculus pertaining to the real and complex numbers, exponents, radicals, polynomials, factoring, rational expressions, equations and inequalities, functions, polynomial and rational functions, inverse functions, exponential and logarithmic functions, and graphs and their transformations.
- 2. The students will describe the fundamental principles including the mathematical rules and theorems arising from the concepts covered in this course.** Students will identify and apply the laws and formulas that result directly from the definitions; for example, rules of exponents, exponential and logarithmic properties, the quadratic formula, slope and formulas for the equations of lines, and theorems relating to the zeros of polynomial functions.
- 3. The students will apply course material using techniques and procedures covered in this course to solve problems.** Students will utilize the facts, formulas, and the techniques learned in this course to simplify algebraic expressions, graph functions, and to solve equations and systems of equations.
- 4. The students will develop specific skills, competencies, and thought processes sufficient to support further study or work in this field or related fields.** Students will acquire a level of proficiency in the fundamental concepts and applications in precalculus necessary for success in calculus.

### Course Content

**Textbook:** *Precalculus: Functions and Graphs*, Eleventh Edition, by Swokowski and Cole. Content consists of the following topics, listed according to the corresponding chapters in the text. (See textbook “Contents.”)

- 1. Topics from Algebra:** Real Numbers, Exponents and Radicals, Algebraic Expressions, Equations, Complex Numbers, Inequalities.
- 2. Graphs and Functions:** Rectangular Coordinate System, Graphs of Equations, Lines, Definition of Function, Graphs of Functions, Quadratic Functions, Operations on Functions.
- 3. Polynomials and Rational Functions:** Polynomial Functions of Degree Greater Than 2, Properties of Division, Zeros of Polynomials, Complex and Rational Zeros of Polynomials, Rational Functions, Variation.
- 4. Inverse, Exponential, and Logarithmic Functions:** Inverse Functions, Exponential Functions, The Natural Exponential Function, Logarithmic Functions; Properties of Logarithms; Exponential and Logarithmic Equations.
- 8. Systems of Equations and Inequalities:** Systems of Equations, Systems of Linear Equations in Two (or Three) Variables, Systems of Inequalities