

The University of Texas at El Paso  
Department of Mathematics

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**Course Number:** MATH 1320 - 13027

**Course Title:** Mathematics for the Social Sciences I

**Credit Hours:** 3

**Term:** Fall 2009

**Course Meeting Time:** MWF 9:30 am-10:20 am

**Location:** LART 206

**Prerequisite Courses:** Math 0311, or Accuplacer Score of 35 or higher

**Course Website:** <http://www.math.utep.edu/classes/math1320/index.html>

**Drop Deadlines:**

\*The last day to drop the course without a "W" is Wednesday, SEP 9.

\*The last day to drop the course with a "W" is Friday, OCT 30.

\*The instructor will NOT drop students from the course.

## Instructor

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**Name:** ORDAZ, Ruth Ann

**Office:** Classroom Building 404A

**Phone #:** 443-9287 (Cell); 747-8834 (Office)

**Email:** Raordaz@utep.edu; WingerDing@aol.com

**Fax #:** +1.915.747.6502

**Office Hours:** MF 10:30 a.m. – 12:00 p.m.

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## Required Textbook

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*Finite Mathematics & Applied Calculus by Waner and Costenoble, 4th Edition.*

The nine-chapter single edition is for Math 1320 only. The fourteen-chapter combined edition is for students that will take both Math 1320 and Math 2301.

## Required Technology

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MS Excel and a WebAssign account.

**WebAssign:** <http://www.webassign.net/>

**STEP 1:** You must get an access code by either:

Purchasing a new textbook, or

Purchasing an access code on the WebAssign website.

**STEP 2:** When first signing onto WebAssign, click on the red “Log In” button on the left hand side of the page.

**STEP 3:** Use your 800- UTEP ID number as both your User Name and Password. It is important that you remember this information so you can log in for the remainder of the class.

## General Information About the Course

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Math 1320 is a pre-calculus course for liberal arts, business, and other non-science majors. The topics covered include:

Linear, quadratic, exponential and logarithmic functions;

Systems of linear equations;

Matrix algebra;

The mathematics of finance;

The algebra of sets; and

Probability.

Students will learn mathematical concepts and methods used in management, social science, and business. Students will develop the view that mathematics is an evolving discipline that is interrelated with human culture. Students will also understand the connections of mathematics to other disciplines.

# Course Objectives

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## 1. Linear Functions:

- \* Calculate the slope of a line; graph a line; find the equation of a line.
- \* Use linear concepts in a business context (e.g.: supply/demand and break-even analysis).
- \* Understand the concept of linear regression and use MS Excel to apply it to real-world data to make predictions.

## 2. Nonlinear Functions:

- \* Calculate the difference quotient using a nonlinear function.
- \* Read information from graphs and sketch graphs of nonlinear functions.
- \* Identify the vertex of a parabola as the maximum or minimum of a quadratic formula and apply this concept to real-world problems (e.g.: maximize the profit and minimize the cost).
- \* Solve exponential and logarithmic equations.
- \* Construct exponential models in applications problems (e.g.: radioactive decay and bacteria population growth).
- \* Understand the concept of quadratic and exponential regression and use MS Excel to apply it to real-world data to make predictions.

## 3. Linear Systems of Equations:

- \* Use substitution and elimination to solve systems with two variables and two equations.
- \* Use the method of Gaussian elimination to solve systems with three variables and three equations by hand.
- \* Use technology (MS Excel or graphing calculators) to solve systems.
- \* Solve real-world problems involving systems of equations.

## 4. Financial Mathematics

- \* Solve applications problems using simple interest and compound interest.
- \* Find the present value of or payments made on an annuity or loan.
- \* Find the future value of or payments made into a sinking fund.
- \* Use technology to solve financial math problems.

## 5. Sets and Operations

- \* Find the union, intersection, complement, and Cartesian product of sets. Also, find the cardinality of these if they are finite.
- \* Draw Venn diagrams from real-world data.
- \* Do applications-based problems involving: the addition principle, the multiplication principle, permutations, and combinations.

## 6. Probability

- \* Identify the sample space of an experiment.
- \* Understand the properties of a probability distribution.
- \* Be able to solve probability (including conditional probability) problems.

## Course Activities/Assignments

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1. Take lecture notes.
2. Complete homework on time.
3. Participation in the in-class assignments/quizzes.
4. Take exams at the given time.

## Assessment of Course Objectives

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Student understanding of the course and ability to meet the objectives will be measured by assignments, exams and class participation.

## Grading Policy

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| <i>Breakdown</i>                     | <i>Percentage</i> |
|--------------------------------------|-------------------|
| Attendance and take-home assignments | 15%               |
| In-class work and Quizzes            | 15%               |
| Exams (Three exams, each worth 20%)  | 45%               |
| Final Exam (Comprehensive)           | <u>25%</u>        |
|                                      | 100%              |

**Grading  
Scale:**

|           |   |
|-----------|---|
| 90-100%   | A |
| 80-89%    | B |
| 70-79%    | C |
| 60-69%    | D |
| Below 60% | F |

## Make-up Policy

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Absolutely NO late assignments will be accepted.

No make-up exams, quizzes or other assignments will be given anytime. If necessary, you may take an exam early, but never after the scheduled exam date.

In extraordinary circumstances which must be **documented** with written proof within two days, we will work together to find an alternative.

## Course Requirements

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### ***General requirements:***

Any assignment shall be done individually unless you are asked to work in a group.

It is your responsibility to keep a complete record of all the original work and grade you receive for each assignment/exam. In case a discrepancy occurs between our records when calculating the grade for this class, you will need to provide your graded work as your proof.

### ***Attendance:***

Students are expected to read the textbook before coming to class and to be familiar with that day's topic by following the attached schedule.

Students are also expected to arrive on time, participate in the class, and stay for the entire class period. If you must leave early for any reason, please inform me beforehand. Don't walk away from a lecture in progress.

If you are unable to attend class, you are still responsible for material covered during that class period. Please ask one of your classmates for notes given in class since similar questions and covered content might be tested later.

### ***Homework:***

Homework will be assigned and completed using WebAssign. Similar questions to the homework will be tested in quizzes during subsequent classes.

***In-class work and Quizzes:***

Please be aware that In-class work and/or a quiz will be given almost every class we meet so the examples in the notes/text and the assigned homework questions are very important in order for you to be well prepared.

If you miss an assignment in class for any reason, your grade for that assignment is a zero.

***Exams:***

Three exams are given on the days indicated in the schedule that follows.

***Final Exam:***

The comprehensive final exam will be given on Wednesday, December 9<sup>th</sup> from 10 a.m. to 12:45 p.m.

## Information About Math 0120

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Students who scored 35-50 on the AccuPlacer Math Test, and who have not passed Math 0311 with a C or better, are permitted to enroll in Math 1320 if they are concurrently enrolled in an associated Math 0120 support lab. Attendance in Math 0120 is required. Students who either withdraw from the lab or are withdrawn by a Math 0120 instructor will also be withdrawn from this course.

## Electronic and Wireless Devices

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Please do not use cell phones, pagers, iPods, MP3 players, blue tooth devices, etc. during class. Cell phones and pagers should be set off. Please do not wear headsets or blue tooth devices during class. Cell phone calculators can not be used on quizzes or exams.

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## Academic Integrity Policy

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The University of Texas at El Paso prides itself on its standards of academic excellence. In all matters of intellectual pursuit, UTEP faculty and students must strive to achieve based on the quality of work produced by the individual. In the classroom and in all other academic activities, students are expected to uphold the highest standards of academic integrity. Any form of scholastic dishonesty is an affront the pursuit of knowledge and jeopardizes the quality of the degree awarded to all graduates of UTEP. It is imperative, therefore, that the members of this academic community understand the regulations pertaining to academic integrity and that all faculty insist on adherence to these standards.

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an exam for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the Handbook of Operating Procedures and available in the Office of the Dean of Students, may result in sanctions ranging from disciplinary probation, to failing grades on the work in question, to failing grades in the course, to suspension or dismissal, among others.

## Disabled Student Services

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If a student has or suspects he/she has a disability and needs an accommodation, he/she should contact the Disabled Student Services Office (DSSO) at 747-5148 or at <dss@utep.edu> or go to Room 106 Union East Building. The student is responsible for presenting to the instructor any DSS accommodation letters and instructions.

## Military Statement

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If you are a military student with the potential of being called to military service and/or training during the semester, please contact me by the end of the first week of class.

## Course Schedule

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(Subject to Change)

| <b>Week</b>       | <b>Dates</b>      | <b>Sections Covered</b>  | <b>Events</b>   |
|-------------------|-------------------|--|---|
| 1                 | 8/24-8/28         | 1.1 Functions – Algebraic Viewpoint<br>1.2 Functions – Graphical Viewpoint<br>1.3 Linear Equations |   |
| 2                 | 8/31 – 9/4        | 1.3 Linear Equations (Continued)<br>1.4 Linear Models<br>1.5 Linear Regression                     |   |
| 3                 | 9/7 – 9/11        | 1.5 Linear Regression (Continued)<br>9.1 Quadratic Functions & Models                              | No Classes – Monday (9/7)                               |
| 4                 | 9/14 – 9/18       | 9.1 Quadratic Functions & Models (Cont.)<br>9.2 Exponential Functions                              | <b>Exam 1 – Fri. 9/18</b>                               |
| 5                 | 9/21 – 9/25       | 9.2 Exponential Functions (Continued)<br>9.3 Logarithmic Functions                                 |   |
| 6                 | 9/28 – 10/2       | 2.1 Systems of 2 Eqns/2 Unknowns<br>2.2 Using Matrices to Solve Systems                            |   |
| 7                 | 10/5 – 10/9       | 2.3 Applications of Systems of Equations<br>5.1 Simple Interest                                    |   |
| 8                 | 10/12 – 10/16     | 5.2 Compound Interest<br>5.3 Sinking Funds, Annuities and Loans                                    |   |
| 9                 | 10/19 – 10/23     | 5.3 (Continued) Annuities and Loans  | <b>Exam 2 – Fri. 10/23</b>                              |
| 10                | 10/26 – 10/30     | 6.1 Sets and Set Operations<br>6.2 Cardinality<br>6.3 Addition & Mult. Principles                  | Drop Deadline – Friday(10/30)                           |
| 11                | 11/2 – 11/6       | 6.3 Addition & Mult. Principles (Cont.)<br>6.4 Permutation & Combinations                          |   |
| 12                | 11/9 – 11/13      | 7.1 Sample Spaces & Events<br>7.2 Est. & Theoretical Probabilities                                 |   |
| 13                | 11/16 – 11/20     | 7.3 Properties of Prob. Distributions<br>7.4 Prob. & Counting Techniques                           |   |
| 14                | 11/23 – 11/27     | 7.4 Prob. & Counting Techniques<br>7.5 Conditional Probability                                     | <b>Exam 3 – 11/25</b><br>No Classes – Th, Fri(11/26,27) |
| 15                | 11/30 – 12/4      | 7.6 Bayes' Theorem & Applications  | No Classes – Friday                                     |
| <b>Final Exam</b> | <b>12/09 Wed.</b> | <b>Final Exam 10:00am – 12:45pm</b>  | <b>Comprehensive</b>                                    |