



EAST TENNESSEE STATE
UNIVERSITY

College of Business and Technology

Department of Economics and Finance

ECON 2070

Quantitative Methods of Business I

Textbook & Materials:

Tan, Soo T. 2016. Applied Mathematics for the Managerial, Life, and Social Sciences, 7th Edition. You may wish to bring the textbook to class as well as a calculator (not your cell phone). Handouts may also be posted on D2L.

Course Description:

Prepares students in the quantitative methods and data analysis methods commonly used in business with an emphasis on business applications utilizing methodologies such as fundamental algebra, systems of linear equations, differentiation, and optimization. Translation of real-life business problems to appropriate mathematical formats for analysis and problem solving is emphasized.

Learning Objectives: Upon the completion of this course (Econ 2070: Quantitative Methods for Business I), students should be able to:

- Understand basic mathematical concepts such as exponents, roots, factoring, solving equations, and solving inequalities.
- Apply mathematical and algebraic concepts such as linear and quadratic functions to business and economic problems.
- Apply the Gauss-Jordan method to solve linear systems of business and economic problems such as investments and scheduling.
- Apply simple calculus concepts such as limits and derivatives to business and economic problems.
- Translate real-life business problems to appropriate mathematical formats for analysis and problem solving.
- Understand optimization problems (i.e., maximization, or minimization) as it applies to revenue, cost, and profit and other economic concepts.

Homework: Problems will be assigned from the book and will not be graded.

Instructional Methodology: Lecture, class discussions and activities, outside reading and homework assignments.

Attendance Policy: Class attendance and participation are strongly encouraged.

Course Assessment: There will be three exams during the semester. Homework will be assigned throughout the semester. If a student misses an exam, a doctor's note or evidence of an emergency must be presented to the professor before the student will be allowed to make up the exam. Students who know they will miss an exam should consult the professor prior to the scheduled exam date.

Performance Evaluation and Grading: Grades will be determined by performance on the three exams. Each exam will constitute a third of your final grade. The grading scale will apply as follows:

B+: 87 – 89.99	A: 92 – 100	A-: 90 – 91.99
C+: 77 – 79.99	B: 82 – 86.99	B-: 80 – 81.99
D+: 67 – 69.99	C: 72 – 76.99	C-: 70 – 71.99
F: 0 – 59.99	D: 62 – 66.99	D-: 60 – 61.99

Academic Honesty: Students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct includes all forms of cheating, such as illicit possession of examinations or examination materials, forgery, or plagiarism which is presenting another's work as your own. Students who engage in such activities should expect a failing grade on the test or assignment or in the course.

Equal Opportunity: Any student who has a disability that may affect academic performance is encouraged to contact Disability Services at 423-439-8346.

Academic and Classroom Misconduct: Students are expected to conduct themselves appropriately at all times. Academic and classroom misconduct will not be tolerated. Students must read ETSU policy #3.13, October 1, 1979 for an understanding of what will be expected of them within the academic setting. See <http://www.etsu.edu/reg/academics/syllabus.aspx> for additional information.

An unprofessional attitude will negatively impact your final grade. This includes cell phone use during class, including texting. A first incident of unprofessional behavior will result in a warning. A second incident will result in a ten-point deduction from your final grade. A third incident will result in notification to the Dean of Students and a request that you be removed from the class.

Please silence all electronics before class begins.

Course Outline: The following is a tentative schedule of the topics we will cover

- 1** **Fundamentals of Algebra**
- 1.1 Real Numbers
- 1.2 Polynomials
- 1.3 Factoring Polynomials
- 1.4 Rational Expressions
- 1.5 Integral Exponents
- 1.6 Solving Equations
- 1.7 Rational Exponents and Radicals
- 1.8 Quadratic Equations
- 1.9 Inequalities and Absolute Value

Exam 1: Friday, February 19

- 2** **Functions and Their Graphs**
- 2.1 The Cartesian coordinate system and Straight Lines
- 2.2 Equations of Lines
- 2.3 Functions and Their Graphs
- 2.4 The Algebra of Functions
- 2.5 Linear functions
- 2.6 Quadratic Functions
- 2.7 Functions and Mathematical Models

Exam 2: Friday, March 26

- 5** **Systems of Linear Equations and Matrices**
- 5.1 Systems of Linear Equations: An Introduction
- 5.2 Systems of Linear Equations: Unique Solutions

- 9** **The Derivative**
- 9.1 Limits
- 9.3 The Derivative
- 9.4 Basic Rules of Differentiation
- 9.5 The Product and Quotient Rules; Higher Order Derivatives
- 9.6 The Chain Rule
- 9.8 Marginal Functions in Economics

- 10** **Applications of the Derivative**
- 10.1 Applications of the First Derivative
- 10.2 Applications of the Second Derivative

Final Exam: Monday, May 3