

# Mathematics for Business and Economics

Austin Community College

Section Summer 2010 / MATH-1324-001 / synonym 11130

Class meetings MTWThF 9:05am-10:35am / NRG 2245

Instructor Herb Ling

Office hours MTWTh 10:40am-11:25am, or by appointment / NRG PB4

Web site <http://www.austincc.edu/herbling/b-math.html>

E-mail [herbling@austincc.edu](mailto:herbling@austincc.edu)

Voice mail 223-1790, 22304

Textbook Barnett, Ziegler, & Byleen. Finite Mathematics. 11th ed. (ISBN 0-13-225570-7)

Other tools 1-inch binder for course notes and homework  
scientific calculator (Casio fx-300ES, TI-30XS, or similar model)

Grading	unit tests (4)	60%
	daily grades	15%
	final exam--cumulative	25%

There will be no make-up tests. A missed test earns a score of zero (0).

Each class meeting you will earn a daily score of up to 10 points. Your attendance and courteous participation can earn you up to 2 points. A quiz may be given in class and may earn you up to 8 points.

June 30 (Wed) is the last day that a student may withdraw from this course.

Any student enrolled in the course after that date must receive a letter grade.

Calendar overview	<u>beginning</u>	<u>topics</u>	<u>reading</u>
	Jun 1	functions, graphs and transformations; nonlinear fns Test 1, in testing center (by Sat, Jun 5)	1.2, 2.1, 2.2, 2.3, 2.4, 2.5
	Jun 7	mark-up/discount; compounding; annuities, FV, PV Test 2, in class (Fri, Jun 11)	notes, 3.1, 3.2, 3.3, 3.4
	Jun 14 Jun 21	lin systems; Gaussian elim, matrix ops, eqns; lin ineqs intro to linear optimization Test 3, in testing center (by Thu, Jun 24)	4.1-4.7, 5.1, 5.2 5.3, 6.1
	Jun 23 Jun 28	counting, inclusion-exclusion; basic probability conditional probability, independence; expected value Test 4, in class (Thu, Jul 1)	7.2, 7.3, 7.4, 8.1, 8.2 8.3, 8.4, 8.5
	Jul 2 Jul 5	mean, median; std deviation, binomial distribution normal distribution Final Exam, in class (Wed, Jul 7)	11.2, 11.3, 11.4 11.5

### **You are more likely to do well if you have enough time and use good strategies.**

Learning anything takes *time*. For this course, you should spend *at least* 8 hours each week *outside* of class, reading, thinking about suggested problems, writing solutions, discussing concepts with each other, and reviewing. Many students will need more study time (15-25 hours a week).

Study “smart”. Work under conditions (light, sound, time of day, lack of distraction) that are best for you. Write neatly and organize your work. Every hour or so, take a five-minute break: get up, move around, get a drink of water. Look for patterns and connections. Smile!

### **Your regular attendance and courteous participation are expected.**

In-class activities and discussions should be very helpful for most students. If you must miss a class, it is *your* responsibility to find out what material you missed and cover it outside of class. If you are absent for 3 or more MTWThF classes, your instructor *is allowed* to withdraw you from the course.

Please be *considerate*. Before class begins, turn off cell phones or other devices that may disturb the class. If you must leave during class, slip out quietly. Listen carefully when anyone else is speaking. Learn patience. Support your classmates as they struggle to learn. This is a *team* effort.

### **There are resources on campus to help you.**

The Learning Lab (NRG 4119) provides free walk-in tutoring in many subjects, including math, reading, and writing. There is also a computer room with tutorial software for practice in basic skills. You can find detailed information about the learning labs on various campuses at <http://www.austincc.edu/tutor/>

The Library (NRG 1223) has books, videotapes, and audio tapes that can help you learn math and/or study more effectively. Most materials can be used in the library or checked out.

The Computer Center (NRG 1203) across the hall from the library has Internet access and productivity software for student use. In particular, you can browse the class web page at the computer center.

The Testing Center (NRG 3237) gives students flexibility in scheduling their tests and reduces the pressure of having to complete tests within a single class period.

Other useful information may be found at <http://www.austincc.edu/faculty/newsemester/>, especially in the “Campus Based Student Support Overview” chart, and in the ACC student handbook at <http://www.austincc.edu/handbook/>

### **Consider your options.**

If you want to change sections or withdraw from this course, please discuss it with your instructor first. He may have suggestions that can help you complete the course.

Incomplete grades (I) will be given only in very rare circumstances. Generally, to receive a grade of "I", a student must have taken all examinations, be passing, and after the last date to withdraw, have a personal tragedy occur which prevents course completion.

#### *Statement on Students with Disabilities*

Each ACC campus offers support services for students with documented physical or psychological disabilities. Students with disabilities must request reasonable accommodations through the Office of Students with Disabilities on the campus where they expect to take the majority of their classes. Students are encouraged to do this three weeks before the start of the semester.

Students who are requesting accommodation must provide the instructor with a letter of accommodation from the Office of Students with Disabilities (OSD) at the beginning of the semester. Accommodations can only be made after the instructor receives the letter of accommodation from OSD.

#### *Statement on Student Discipline*

Classroom behavior should support and enhance learning. Behavior that disrupts the learning process will be dealt with appropriately, which may include having the student leave class for the rest of that day. In serious cases, disruptive behavior may lead to a student being withdrawn from the class. ACC's policy on student discipline can be found on page 32 of the Student Handbook.

#### *Statement on Scholastic Dishonesty*

Acts prohibited by the college for which discipline may be administered include scholastic dishonesty, including but not limited to, cheating on an exam or quiz, plagiarizing, and unauthorized collaboration with another in preparing outside work. Academic work submitted by students shall be the result of their thought, work, research or self-expression. Academic work is defined as, but not limited to, tests, quizzes, whether taken electronically or on paper; projects, either individual or group; classroom presentations; and homework.

Students who violate the rules concerning scholastic dishonesty will be assessed an academic penalty which the instructor determines is in keeping with the seriousness of the offense. This academic penalty may range from a grade penalty on the particular assignment to an overall grade penalty in the course, including possibly an F in the course. ACC's policy can be found on page 33 of the Student Handbook.

#### *Statement on Academic Freedom*

Institutions of higher education are conducted for the common good. The common good depends upon a search for truth and upon free expression. In this course the professor and students shall strive to protect free inquiry and the open exchange of facts, ideas, and opinions. Students are free to take exception to views offered in this course and to reserve judgment about debatable issues. Grades will not be affected by personal views. With this freedom comes the responsibility of civility and a respect for a diversity of ideas and opinions. This means that students must take turns speaking, listen to others speak without interruption, and refrain from name-calling or other personal attacks.

#### *Course Description*

MATH 1324 MATHEMATICS FOR BUSINESS AND ECONOMICS (3-3-0). A course in finite mathematics for business students including sets, basic algebraic properties, linear equations and inequalities, functions and graphs, the exponential and logarithmic functions, the mathematics of finance, systems of linear equations and matrices, linear inequalities and linear programming, the simplex method, and an introduction to probability. Prerequisites: MATD 0390 or satisfactory score on the ACC Assessment Test. Credit can be earned for only one of MATH 1324 or BUA 2103. (MTH 1643)

#### *Instructional Methodology*

This course is taught in the classroom primarily as a lecture/discussion course.

### *Course Rationale*

This course is required in certain degree plans, such as Accounting, Computer Information Systems and Economics. For some students, this is the first half of a two-semester finite mathematics/business calculus sequence. This is also a preparation course prior to taking two semesters of business calculus, although the preferred preparation for two semesters of business calculus is MATH 1314. Finally, some students take this course as a general mathematics elective.

A steady pace must be maintained throughout the semester in order to complete all required topics in a thorough manner. Students experiencing a great deal of difficulty in Sections 1.2 and 2.1 through 2.3 should review (on their own) Appendices A or should consider taking MATD 0390 (Intermediate Algebra) before returning to this course. Students who discover difficulty during the first class of the semester should consider changing their registration during late registration to MATD 0390.

### *Common Course Objectives*

Mathematics for Business and Economics has five main mathematical topics: functions, matrices, linear programming, probability and statistics. The objectives of the course are for students not only to know the mathematics of these concepts, but also to be able to apply the concepts to analyze and interpret information in business and financial application problems.

1. Identify the basic graphs and properties of polynomial, rational, exponential, and logarithmic functions. Apply the knowledge of functions to business applications such as simple, compound or continuous compound interest, ordinary annuities, finding the maximum or minimum for quantities which are quadratic functions, and finding break-even points.
2. Perform basic operations with matrices, and use matrix methods to solve systems of linear equations. Apply the knowledge of matrices to business problems such as inventory, production, and total cost.
3. Use geometric method to solve linear programming problems. Interpret information as an objective function with constraints, set up the linear programming problem, solve the problem and interpret the result in the context of the problem.
4. Use basic counting techniques and calculate probabilities, including conditional probabilities. Apply the mathematical knowledge of probability to business problems and interpret the results.
5. Calculate measures of central tendency and measures of dispersion. Apply the mathematical skills to problems in various business settings and interpret the results.