Angelina College
Division of Science and Mathematics
MATH 1324.L91   FALL 2016
Mathematics for Business & Social Sciences
Instructional Syllabus

I. BASIC COURSE INFORMATION:

A. Mathematics for Business & Social Sciences. The application of common algebraic functions, including polynomial exponential, logarithmic, and rational, to problems in business, economics, and the social sciences are addressed. The applications include mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value. Prerequisite: Meet TSI college-readiness standard for Mathematics; or equivalent. Students are required to have a graphing calculator. Three lecture hours each week.

B. The intended audience includes students majoring in business, management, economics, or the life or social sciences.

C. Instructor: Avrila Klaus
   Office Location/Hours: by arrangement
   Phone: (903) 841-8694
   E-mail Address: aklaus@angelina.edu

II.   INTENDED STUDENT OUTCOMES:

A. Core Objectives Required for this Course (Only the core objectives to be assessed are listed.)

1. Critical Thinking: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

2. Communication: to include effective development, interpretation and expression of ideas through written, oral and visual communication

3. Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

B. Course Learning Outcomes for all Sections

1. Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to solving real-world problems.

 2. Solve mathematics of finance problems, including the computation of interest, annuities, and amortization of loans.

3. Apply basic matrix operations, including the linear programming methods, to solve application problems.

4. Demonstrate fundamental probability techniques and application of those techniques, including expected value, to solve problems.

5. Apply matrix skills and probability analyses to model applications to solve real-world problems.

III. ASSESSMENT MEASURES

A. Assessments for the Core Objectives

[As required, each core objective shall be assessed using a standardized rubric.] [The judgment of how the objectives were met will be in accordance to the pre-designated "developing" level of attainment for this course. In the paragraphs below, an assignment may be an essay, matching or multiple choice questions.]

1. **Critical thinking:** Responses to an assignment will be assessed to determine the level of pertinent knowledge of each student with respect to the critical thinking objective.

2. **Communication:** Students will be instructed in the proper written format and organization of different types of mathematical applications. Students will be instructed how to format and organize visual information (i.e., graphs, tables, etc.). Responses to an assignment will be assessed to determine the level of pertinent knowledge of each student with respect to the communication objective.

3. **Empirical and Quantitative Skills (EQS)** - Students will be instructed on using empirical and quantitative skills and "critical thinking" to draw conclusions from their communications as they apply to real world applications. Responses to an assignment will be assessed to determine the level of pertinent knowledge of each student with respect to this objective.

B. Assessments for Course Learning Outcomes

1. The Course Learning Outcomes for all Sections of para. II. B. are listed below along with how each shall be assessed:

1. *Outcome:* *Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to solving real-world problems.* This Learning Outcome will be assessed via embedded test questions (such as essay, matching or multiple choice questions) to determine the level of pertinent knowledge of each student with respect to these outcomes. A course-specific standardized rubric shall be used.

2. *Outcome:* *Solve mathematics of finance problems, including the computation of interest, annuities, and amortization of loans.* This Learning Outcome will be assessed via embedded test questions (such as essay, matching or multiple choice questions) to determine the level of pertinent knowledge of each student with respect to these outcomes. A course-specific standardized rubric shall be used.

3. *Outcome:* *Apply basic matrix operations, including the linear programming methods, to solve application problems.* This Learning Outcome will be assessed via embedded test questions (such as essay, matching or multiple choice questions) to determine the level of pertinent knowledge of each student with respect to these outcomes. A course-specific standardized rubric shall be used.

4. *Outcome:* *Demonstrate fundamental probability techniques and application of those techniques, including expected value, to solve problems.* This Learning Outcome will be assessed via embedded test questions (such as essay, matching or multiple choice questions) to determine the level of pertinent knowledge of each student with respect to these outcomes. A course-specific standardized rubric shall be used.

5. *Outcome:* *Apply matrix skills and probability analyses to model applications to solve real-world problems.* This Learning Outcome will be assessed via embedded test questions (such as essay, matching or multiple choice questions) to determine the level of pertinent knowledge of each student with respect to these outcomes. A course-specific standardized rubric shall be used.

IV. INSTRUCTIONAL PROCEDURES:

The course is taught using a combination of lectures, discussions, and practice exercises. The amount of time spent using any one technique will vary from class to class and from lesson to lesson as determined to be most appropriate by the instructor.

V. COURSE REQUIREMENTS AND POLICIES:

A. Required Textbooks, Materials and Equipment –

1. Required Textbook: Mathematics with Applications In the Management, Natural, and Social Sciences, or Finite Mathematics with Applications 11th ed., Lial, Hungerford, Holcomb, Mullins; Pearson publisher. An electronic copy is acceptable. Ref. 2. below.

2. Access to www.angelina.mylabsplus.com is required. The access code is included with a new book bought at AC bookstore or the code may be purchased separately. An electronic copy of the text is provided as part of the MyLabsPlus access.

3. Specific equipment required of all students: A graphing calculator with matrix and "finance-TVM Solver" applications **is required**. The calculator must be able run TI software. Classroom demonstrations and instruction will support the use of calculator models TI-83+ or model TI-84; hence, one of these models is highly recommended.

4. Additional text(s) and supplementary materials for the individual instructor: See instructor.

5. Specific equipment required by the individual instructor: Cartesian-coordinate Graph Paper, straight edge.

B. Course Policies – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.

1.   Academic Assistance –If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you should see Sellestine Hunt Associate Dean of Student Services, Student Center, Room 200. At a post-secondary institution, you must self-identify as a person with a disability; Ms. Hunt will assist you with the necessary information to do so. To report any complaints of discrimination related to disability, you should contact Mr. Steve Hudman, Dean of Student Affairs, in Student Center, Room 101, (936) 633-5292 or by email shudman@angelina.edu.

2.   Attendance – Attendance is required as per Angelina College Policy and will be recorded every class. Any student with three (3) consecutive absences of four (4) cumulative absences may be dropped from the class. Records will be turned in to the academic dean at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. **You must officially drop a class or risk receiving an F**. This is official Angelina College Policy.

3. Additional Policies Established by the Instructor
- No eating, drinking, or smoking is allowed in any classroom.
- Children and other guests are not allowed in the classroom. Any child care problems must be handled outside the classroom. Children are not allowed to wait in the hall unsupervised. See Student Services for ongoing problems.
- On most questions on assignments or tests, it is necessary for you to show your work completely. Our concern is usually with procedures, not just with answers.

- Daily quizzes may be given without notice and cannot be made up. These may include homework quizzes.
- Students are expected to do all assignments and be prepared to discuss them during the next class period.
- *Please turn off beepers, cellular phones, i-pods, and other non-calculator electronic devices and store them out of sight.*
- Students are expected to participate in the class room through courteous, relevant comments and questions.
- Behavior that interferes with the learning environment is not tolerated.
- Any student or students caught cheating (plagiarism, collusion, copying, etc.) on an exam or an assignment will receive a zero for that exam or assignment.
- Conferences outside of class are available by appointment

VI. COURSE OUTLINE:
A. See attachment entitled "**Course Outline and Topics**"

VII. EVALUATION AND GRADING
A. Grading Criteria (*percents, extra credit, weights, etc.*)   –
   Your numerical grade will be a weighted average based on the following:

1. **Regular Exams- 5 exams: (weight = 1.0 with 100 points max. per exam**). The material tested on each regular exam is stated on the "Course Outline and Topics" table at the end of this syllabus. Make-up exams are not routinely given. At the end of the semester, you have the option of replacing your lowest regular exam grade with the Final Exam grade. Missing two exams will result in a "0" on one of the exams.

2. **Homework and Quizzes: (weight = 1.0 with 100 max. points total**). Homework is assigned using Angelina.MyLabsPlus. Angelina.MyLabsPlus must be used to complete the homework assignments.
   a. An Angelina. MyLabsPlus access code comes with a new book when purchased from the AC bookstore. The code may also be purchased with a major credit card on the website www.angelina.mylabsplus.com. A hardcopy of the textbook is not required.
   b. Homework will have due dates and penalties for late work. Each homework assignment may be accessed until after the MML+ due date and time.
   c. The homework may be done on your home computer. There are limited campus sites available at the library and at the math labs in Rooms S223 and S110. These may be used on a limited space available basis.
      (No printing or surfing may be done except in the library.)
3. **Assignment to evaluate Core Objectives: (weight = .20 with 100 max. points total**).
4. **Final Exam: (weight 1.5 with 100 points max. on the Final**): The final exam covers the topics noted on the attachment "Course Outline and Topics".
5. Note: Those who drop the course on or before the last-date-to-drop date will receive a grade of "W". Dropping a course is the student's responsibility.

B.   Determination of Grade (*assignment of letter grades*):
   Total possible points = 500(regular exams) **+ 100**(MML homework) **+20**(assignment)**+ 150**(Final Exam) **=**
   = **770 points**
   Letter grades will be assigned according to the numerical grade scale below:
   90% - 100% of the possible points = A   .90(770) = 693,   earned points ≥ 693
   80% - 89% of the possible points   = B   .80(770) = 616 ≤ earned points < 693
   70% - 79% of the possible points   = C   .70(770) = 539 ≤ earned points < 616
   60% - 69% of the possible points   = D   .60(770) = 462 ≤ earned points < 539
   Below   60% of the possible points = F.   earned points < 462

The instructor reserves the right to adjust grades upward from this scale.

SYLLABUS MODIFICATION –   The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.

FYI

Angelina College's campus security is available 24 hours a day by contacting 936-676-2563. Please use this number only as necessary for security issues.

Should classes for Angelina College be cancelled due to weather emergencies or other contingencies, notification will be available through local television and radio. Notification for day classes will be available by 6:00 am and for night classes by 3:00 pm. You may also call the main switchboard (936-639-1301) for information.

Math 1324 [TR] Course Outline and Topics   DRAFT   FALL 2016

Class	Date	Content & Topics	For Homework Assignments go to www.angelina.mylabsplus.com
1	08/25	•Syllabus and Calculator requirements •5.1 Simple Interest and Discount	
2	08/30	•5.2 Compound Interest - via algebra & TVM •Solve equations with technology - intersection method	
3	09/01	•5.3 Annuities, Future Value, and Sinking Funds - via algebra & TVM	
4	09/06	•5.4 Annuities, Present Value, Amortization - via algebra & TVM	
5	09/08	Wrap-up Topics, Complete Class Activity, and/or Answer Questions	
6	09/13	TEST # 1 (Sections 5.1-5.4)	
7	09/15	•1.2 Polynomials •1.6 First-Degree Equations – omit Absolute-Value Eqs.	
8	09/20	•1.7 Quadratic Equations •2.1 Graphs	
9	09/22	•2.2 Equations of Lines •2.3 Linear Models – include regression	
10	09/27	•3.1 Functions •3.2 Graphs of Functions	
11	09/29	•3.3 Applications of Linear Functions	
12	10/04	Test #2 (Sections 1.2-3.3)	
13	10/06	•3.4 Quadratic Functions and Applications •3.5 Polynomial Functions •3.6 Rational Functions	
14	10/11	•4.1 Exponential Functions •4.2 Applications of Exponential Functions	
15	10/13	•4.3 Logarithmic Functions •4.4 Logarithmic and Exponential Equations	
16	10/18	TEST # 3 (Sections 3.4-4.4)	
17	10/20	•6.1 Systems of Two Linear Equations in Two Variables •6.2 Larger Systems of Linear Equations- via rref()	
18	10/25	•6.3 Applications of Systems of Linear Equations	
19	10/27	•6.4 Basic Matrix Operations •6.5 Matrix Products and Inverses	
20	11/01	•6.6 Applications of Matrices	
21	11/03	Test #4 (Sections 6.1-6.6)	
22	11/08	•7.1 Graphing Linear Inequalities in Two Variables •7.2 Linear Programming: Graphical Method	
23	11/10	•7.3 Applications of Linear Programming Graphing •7.4 The Simplex Method: Maximization	
24	11/15	•7.5 Maximization Applications	
25	11/17	Wrap-up Topics, Complete Class Activity, and/or Answer Questions	
26	11/22	TEST #5 (Sections 7.1-7.5)	
27	11/29	•8.3 Introduction to Probability •8.4 Basic Concepts of Probability	
28	12/01	•8.5 Conditional Probability & Independent Events •9.1 Probability Distributions and Expected Value	
29	12/06	Wrap-up Topics, Complete Class Activity, and/or Answer Questions	
30	12/08	Review	
31	Date?	Comprehensive Final Exam 8:00 -10:00?	• Bring a scantron – 50 questions