Revised 01/17/2018 ak

Angelina College
Division of Science and Mathematics
MATH 1325 Calculus for Business & Social Sciences
Instructional Syllabus

I. BASIC COURSE INFORMATION:

A. **MATH 1325 Calculus for Business & Social Sciences:** This course is the basic study of limits and continuity, differentiation, optimization and graphing, and integration of elementary functions, with emphasis on applications in business, economics, and social sciences. This course is not a substitute for Math 2413, Calculus I.
Prerequisite: MATH 1314 – College Algebra or Math 1324 – Mathematics for Business and Social Sciences

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 calculus to solve business, economics, and social sciences problems.
2. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.
3. Solve application problems involving implicit differentiation and related rates.
4. Solve optimization problems with emphasis on business and social sciences applications.
5. Determine appropriate technique(s) of integration.
6. Integrate functions using the method of integration by parts or substitution, as appropriate.
7. Solve business, economics, and social sciences applications problems using integration techniques.

III. ASSESSMENT MEASURES

A. **Assessments for the Core Objectives**
[Each core objective shall be assessed using a standardized Angelina College rubric.]
1. **Critical thinking:** Students will be required via written questions (such as essay, matching or multiple choice questions) to demonstrate the proper use of critical thinking.
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.). Written responses to written questions will be assessed to determine the level of pertinent knowledge of each student with respect to written, oral, and visual responses.

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

B. Assessments for Course Learning Outcomes

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

1. Apply calculus to solve business, economics, and social sciences problems. This Learning Outcome will be assessed via written 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. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions. This Learning Outcome will be assessed via written 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. Solve application problems involving implicit differentiation and related rates. This Learning Outcome will be assessed via written 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. Solve optimization problems with emphasis on business and social sciences applications. This Learning Outcome will be assessed via written 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. Determine appropriate technique(s) of integration. This Learning Outcome will be assessed via written 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.

6. Integrate functions using the method of integration by parts or substitution, as appropriate. This Learning Outcome will be assessed via written 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.

7. Solve business, economics, and social sciences applications problems using integration techniques. This Learning Outcome will be assessed via written 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: Finite Mathematics and Calculus with Applications, 9th ed., Lial, Greenwell, Ritchey, 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 the AC bookstore or it may be purchased separately. The access code may also be purchased with a major credit card on the website www.angelina.mylabsplus.com. 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 "nDeriv", "fnInt", "dy/dx", ∫f(x)dx", "Draw:Tangent" or equivalent commands **is required**. 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 Maria Lopez or Steve Hudman in room 200 of the Student Center. At a postsecondary institution, you must self-identify as a person with a disability; Ms. Lopez and Mr. Hudman 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 Room 101 of the Student Center. You may also contact Dean Hudman by phone at (936) 633-5292 or by email shudman@angelina.edu

2. **Attendance –** Attendance is required as per Angelina College Policy and will be recorded every day. 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, etc.*) –

1. Your numerical grade will be a weighted average based on the following:
   a. **3-TESTS:** (weight = 1.0 with 100 points max. per exam). The material tested on exam is given on the "Course Outline and Topics" attached to the end of this syllabus. Make-up exams are not routinely given.
2. **Homework and Quizzes:** (weight = 1.0 with 100 max. points total). Homework will be completed on MyLabsPlus and is required.
   a. MyLabsPlus comes with new books from the AC bookstore. The access code may also be purchased with a major credit card on the website www.angelina.mylabsplus.com.
   b. Each homework assignment shall be completed within the allotted 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. **Final Exam:** (weight 1.0 with 100 points max. on the Final)
4. **Note:** Those who drop the course on or before the last-date-to-drop 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 = 300(TESTS) + 100(MML homework) + 100(FINAL EXAM) = 500

Letter grades will be assigned according to the numerical grade scale below:

90% - 100% of the possible points = A (minimum of 450 pts.)
80% - 89% of the possible points = B (minimum of 400 pts.)
70% - 79% of the possible points = C (minimum of 350 pts.)
60% - 69% of the possible points = D (minimum of 300 pts.)

Below 60% of the possible points = F (less than 300 pts.)

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

VIII. 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 1325 Course Outline, Topics and Homework Assignments SPR 2018

For Homework Assignments Go To
www.angelina.mylabsplus.com

Class	Date	Content & Topics
1	1/18	Syllabus R. Algebra Review
2	1-23	11.1 Limits
3	1-25	11.1 Limits- cont. 11.2 One-Sided Limits and Limits Involving Infinity
4	1-30	11.3 Rates of Change
5	2-1	11.4 Tangent Lines and Derivatives [slope and limit definitions]
6	**2-6**	**Test 1: Ch 11.1-11.4 AAPMBAS**
7	2-8	11.5 Techniques for Finding Derivatives [by rules]
8	2-13	11.6 Derivatives of Products and Quotients [by rules]
9	2-15	11.7 The Chain Rule [rule for taking the derivative of a composite function]
10	2-20	11.8 Derivatives of Exponential and Logarithmic Functions [by rules]
11	2-22	11.9 Continuity and Differentiability
12	2-27	Wrap-up Topics, Complete Class Activity, and/or Answer Questions
13	**3-1**	**TEST #2 CH 12.1-12.5 AAPMBAS**
14	3-6	12.1 Derivatives and Graphs
15	3-8	12.2 The Second Derivative [and higher derivatives]
16	3-20	12.3 Optimization Applications
17	3-22	12.4 Implicit Differentiation
18	3-27	12.5 Related Rates
19	3-29	12.6 Curve Sketching
20	4-3	Wrap-up Topics, Complete Class Activity, and/or Answer Questions
21	4-5	Test #3
22	4-10	13.1 Antiderivatives
23	4-12	13.2 Integration by Substitution
24	4-17	13.3 Area and the Definite Integral
25	4-19	13.4 The Fundamental Theorem of Calculus
26	4-24	13.5 Applications of Integrals
27	4-26	13.5 Applications of Integrals -- cont.
28	5-1	13.X Integration by Parts
29	5-3	Wrap-up Topics, Complete Class Activity, and/or Answer Questions
30	5-8	**FINAL EXAM [comprehensive]**