I. COURSE INFORMATION

Meeting Time & Place:

Professor: Dr. Alex Sadovski
Office Phone: 825-2477
Office: CI-338

E-mail  alexey.sadovski@tamucc.edu

Office Hours: TR 10:45AM-12:00PM. Others by appointment
For the lab you also need the lab manual which is available on the web at http://math.tamucc.edu/labs/.

II. COURSE DESCRIPTION

In this course we will deal with integrals of functions in one variable. The course begins with basics of integration, substitution rule and logarithms defined as integrals. Then applications of integration and techniques of integration are introduced. Finally, differential equations are introduced followed by some topics on infinite sequences and series.

III. PREREQUISITES FOR THE COURSE
MATH 2413 (Calculus I) or Instructor’s Consent.

IV. TEXT and OTHER SUPPLIES REQUIRED

Text: The required textbook for the course is University Calculus 1st ed. by Hass Weir and Thomas.

Technology: A graphing calculator is not required for this class. The math program support the TI-83 plus or TI-89, but in general you can use any graphing calculator.
V. STUDENT LEARNING OUTCOMES
At the end of the course the student should be able to:

- Evaluate integrals by
  - the Fundamental Theorem of calculus
  - substitution
  - integration by parts
  - trigonometric substitution
  - by using trigonometric identities to simplify an integrand

2. Use integrals to determine volumes
   - by using washers (slicing)
   - by using cylindrical shells

3. Use integrals to determine surface areas or curve lengths
4. Determine whether an integral is an improper integral and determine whether an improper integral converges
5. Determine convergence/divergence of a sequence
6. Determine convergence/divergence of an infinite series
   - by the integral test
   - by a comparison test
   - by the root or ratio test

7. Determine the interval of convergence of a power series
8. Find the Taylor or MacLaurin series for elementary functions
9. Convert between Cartesian and Polar coordinates and graph in polar coordinates.

VI. INSTRUCTIONAL METHODS AND ACTIVITIES
Methods and activities for instruction include: Lectures, demonstrations using technology, and group activities.

VII. EVALUATION AND GRADE ASSIGNMENT
The method of evaluation and the criteria for grade assignment will be based on the following weights:
Quizzes 40%
Labs 20%
Midterm and Final Exams 40%

Grading Scale: Grades will be based on the following percentages:
A = 90.00 - 100%,
B = 80.00 - 89.99%,
C = 70.00 - 79.99%,
D = 60.00 - 69.99%,
F = below 60%

VIII. TENTATIVE COURSE SCHEDULE

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<tr>
<th>Number</th>
<th>Section</th>
<th>Topic</th>
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<td>1</td>
<td>4.8,</td>
<td>Anti-derivatives</td>
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<td>2</td>
<td>5.1, 5.2</td>
<td>Estimating with Finite Sums Sigma notation, Limits of finite sums,</td>
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<td>3</td>
<td>5.3, 5.4</td>
<td>The definite integral, Fundamental Theorem of calculus (The Accumulation Function)</td>
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<td>4</td>
<td>5.5, 5.6</td>
<td>Indefinite Integrals and the Substitution Rule, Substitution and area between curves</td>
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<td>5</td>
<td>5.7</td>
<td>The logarithm defined as an integral</td>
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<td>6</td>
<td>6.1</td>
<td>Volumes by slicing and rotation about an axis</td>
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<td>7</td>
<td>6.2</td>
<td>Volumes by cylindrical shells</td>
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<td>8</td>
<td>6.3</td>
<td>Lengths of plane curves</td>
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<td>9</td>
<td>6.4</td>
<td>Areas of surfaces of revolution</td>
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10 6.5 Exponential Change and Separable Differential Equations

11 Exam #1 (covering sections 4.8 - 6.2) old exam #1 different textbook

12 6.6, 6.7 Work, Moments and centers of mass

13 7.1 Integration by parts

14 7.2, 7.3 Trigonometric integrals, Trigonometric substitutions

15 7.4 Integration of rational functions by partial fractions

16 7.7 Improper integrals

17 Exam #2 (covering sections 6.3 - 7.4)

18 8.1 Sequences

19 8.2 Infinite series

20 8.3 The integral test

21 8.4 Comparison tests

22 8.5 The ratio and root tests

23 8.6, 8.7 Alternating series, absolute and conditional convergence, Power Series

24 8.8 Taylor and MacLaurin series

25 Exam #3 (covering sections 7.7 - 8.7)

26 8.9-10 Convergence of Taylor series, The binomial series

27 9.1 Polar coordinates

28 9.2 Graphing in polar coordinates

29 Review

IX. CLASS POLICIES
I. Official Part

- This class is run for the mathematical development of all participants. All students must accept responsibility for participating and consequences of not participating.
- You are the only person responsible for your registration. No one will drop you for not attending class. Please make sure that you drop the class yourself if you are not able to continue coming to class. Please note that the last day to drop the class with a grade of "W," whatever that is. Note that grades of SA (stopped attending) are converted to F's by the Registrar.
- Please turn off phones and beepers before coming to class. Please limit email and chatting to breaks during the computer lab.
- Attendance is expected. It is the only way to do in-class work.
- All absences from exams, quizzes, and the final exam will be considered unexcused unless they are documented in advance as excusable with the instructor or as soon as possible in the case of emergencies. No credit will be awarded for unexcused absences.
- I will not use class roll at any time, because it is your responsibility to be in class and attend to the process of learning (see also II.2.).
- Please, print your name on all assignments and tests: your professor is not a decoding device.
- If you have questions you MUST ask, you have the right to interrupt lecture or discussion at any time (see also II.1).
- I am always open for all questions and discussions during the class and office hours. You can always arrange meeting with me at any other time suitable for both sides.
- No multi-choice tests and quizzes. All tests will consist of problems you have to solve from the beginning to the end. Partial credit will be given for any parts of problems solved. The policy is open books and notes, no talking, no cheating.
- No open books and notes during quizzes.
- Home works must be turned on time.
- There is no social promotion in my classes. Grades are given only for knowledge acquired (see also II.9.).

II. Unofficial part

- II.1. There are no "stupid" questions, there are only bad teachers.
- II.2. All you do, you do it for yourself, not for the professor.
- II.3. Do not be concern about grades, be concern of knowledge, because grades are the steepest increasing function of knowledge (here is an example of math language).
II.4. Do not be afraid of problems, let them be afraid of you.

II.5. Only doing nothing may be without mistakes. If you don’t make errors, you don’t learn anything.

II.6. Do not be nervous - it may be only worse.

II.7. Common sense is the base of all decisions, together with knowledge they can do almost everything (even pass this course!).

II.8. Keep your particles together.

II.9. The only valid excuse for not knowing the subject is a sudden death.

X. ACADEMIC HONESTY

Academic Honesty: university students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, forgery or plagiarism.

XI. DISABILITY SERVICES

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Disability Services Office at (361) 825-5816 or go to the office at Driftwood 101.

XII. GRADE APPEALS PROCESS

As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.