Syllabus Fall 2011

Calculus for Engineers 2 (MAC 2282) 4 credits
Calculus-Analytic Geometry 2 (MAC 2312) 4 credits

Prerequisite: MAC 2311 or MAC 2281 with a minimum grade of C.

Instructor:	CRN:
Office: E-mail Address:	Office Hours: Phone number:
Lecture Time:	Lecture Room:

Description: Continuation of MAC 2311/2811. Technique of integration, partial fractions, area, volume, work, analytic geometry, Taylor approximations, sequences and series, polar coordinates and parametric equations.

Objectives, Learning Outcome Goals: Upon successful completion of the course the student will be able to solve problems in the following areas and achieve the quantitative skills required for courses requiring calculus 2:

1. Apply antiderivatives to compute the area between curves, the volume of solids of revolution, arc length of curves, moments, centers of mass, and the motions of bodies.
2. Find antiderivatives by any of the standard techniques of integration.
3. Determine the Taylor series expansion of a function, use it for numerical approximations, and compute an error bound for the approximations.
4. Apply any of the standard convergence tests to determine the convergence of a series, and compute the radius of convergence of a power series.
5. Understand the conceptual foundations of limit and the area under a curve, and their application to other disciplines.
6. Apply the process of mathematical modeling to other disciplines and real-world problem situations, using a variety of functions.
7. Understand parametric and polar representations of functions and graphs and their applications.

IFP General Education Outcomes:

1. Knowledge in several different disciplines;
2. The ability to think critically;
3. The ability to communicate effectively;
4. An appreciation for how knowledge is discovered, challenged, and transformed as it advances; and
5. An understanding of ethics and ethical behavior.

Information available at http://www.fau.edu/deanugstudies/NewGeneralEdCurriculum.php

General Education: This course satisfies, in part, the general education requirements for Foundations of Mathematics and Quantitative Reasoning.
http://www.science.fau.edu/student_services/student_info_gen_edu.php

Software: We are requiring that you use an online system for skill refreshment. The name of the course you will take from www.aleks.com is : Calculus - F 2011 / Preparation for Calculus with Limits.
ALEKS will help you to prepare (review basic algebra) for your calculus material. You are required to get a 90% or above on ALEKS. The due date is Monday, September 5, 2011.

If you get 90 or above on ALEKS, your score will be whatever you got. If you cannot get 90% by the due date, your score will be 0. It will be counted as a percentage of your final grade to emphasize its importance! Every student has to take this review test over ALEKS except those who received an A from Calculus 1. These students may prefer not to take ALEKS in which case the weight of their ALEKS score is shifted to their final exam score.

You'll be asked for an ALEKS course code - Be sure to enter the code FG6K9-9WEWN

Materials: Stewart, J. (2008). Calculus: Early Transcendentals (6th ed.). Brooks Cole, Belmont, CA.

Website: Blackboard (BB) http://blackboard.fau.edu (sign in as to MyFAU). All announcements, supplementary material and solutions will be posted on BB.

Attendance Policy: Regular attendance is expected, including active involvement in all class sessions, and professional conduct in class. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations, or participation in university-approved activities. It is the student's responsibility to notify the instructor prior to any anticipated absence, and within a reasonable amount of time after an unanticipated absence.

Tutoring: For tutoring resources, visit http://www.math.fau.edu/MLC/

Course Grade: The course grade will be calculated using the following table. Grades will be posted on Blackboard. Check your grades regularly to make sure they correctly reflect your scores in the course. *Save all of your worksheets and exams or else a change in grade will not be honored.*

Aleks	10%
In-Class Quizzes	25%
Exams	40%
Comprehensive Final Exam	25%

Grading Scale:

Percentage Score:	90%–100%	85%-89%	80%–84%	76%–79%	70%–75%	60%–69%	0%–59%
Grade:	A	B+	B	C+	C	D	F

Exams: Four unit exams will be given on the days and times stated in the course calendar, in rooms to be assigned. *Every exam will count towards your final grade.* Students are only allowed a number 2 pencil, eraser, scientific calculator without graphic capability with a cleared memory, and a valid picture ID during a testing session. DO NOT BRING CELL PHONES, BOOKS, BOOK BAGS, NOTES, OR ANY OTHER ITEMS TO THE EXAM ROOM! *Entrance to the exam requires a valid picture identification card:* Only FAU Owl Cards, U.S. Passports, or Florida Driver's Licenses will be accepted!

Comprehensive Final Exam: Duration: 150 minutes.
Date: Sunday December 4th, 4.00-6.30 pm. Room: TBA (it will be announced in class).
You must take the final exam to receive a passing grade!

Makeup Exams: Makeup exams will be given only under circumstances which coincide with university policy (see link below under attendance). *If you miss an exam, you must provide a written, verifiable*

excuse, if possible in advance of the scheduled exam. Approval for a makeup exam must be obtained from your instructor.
http://www.fau.edu/academic/registrar/catalog/academics.php#policiesall

Classroom Etiquette: Please refer to the FAU Code of Conduct available at
http://www.fau.edu/regulations/chapter4/4.007_Student_Code_of_Conduct.pdf.

Academic Honesty: Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility.   Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001 at
http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf

Students With Disabilities: In compliance with the Americans with Disabilities Act (ADA), students who require special accommodation due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) and follow all OSD procedures. In Boca Raton, SU 133 (561-297-3880); in Davie, MOD 1 (954-236-1222); in Jupiter, SR 117 (561-799-8585); or at the Treasure Coast, CO 128 (772-873-3305). OSD website at http://www.osd.fau.edu.

Included course topics are subject to reasonable changes at the discretion of the instructor.

Weekly Calendar (Tentative)

Week 1:
Syllabus
5.1: Areas and Distances
5.2: The Definite Integral
5.3: The Fundamental Theorem of Calculus
5.4: Indefinite Integrals
5.5: The Substitution Rule
6.1: Areas between Curves

Homework assignments:
5.3: 7, 13, 15, 17, 19, 23-26, 38, 40, 53, 55, 70
5.4: 1-3, 5-7, 9, 11, 15-17, 27, 29-31, 33, 39, 41, 44, 47-49, 51, 52, 59, 61
5.5: 1, 3, 5-8, 11, 14, 19, 21, 22, 23, 25, 27, 29, 30, 31, 39, 43, 46, 48, 50,55, 57, 59, 60, 67, 69
6.1: 1,3, 5, 6, 9, 13, 15, 23, 31, 40, 48, 49, 51, 53

Examinations (In-Class):
Quiz 0

Week 2:
6.2: Volumes
6.3:Volumes by Cylindrical Shells

Homework assignments:
6.2: 1, 2, 6, 7, 11, 13, 19, 21-23, 25-31, 33, 35, 49-51
6.3: 1-5, 8, 9, 17-19, 21, 23, 24, 37-41

Week 3:
6.4: Work
6.5: Average Value of a Function

Homework assignments:
6.4: 1, 3, 4, 8, 12, 14, 18, 23
6.5: 1, 5-7, 10, 12, 19

Examinations (In-Class):
Quiz 1

Week 4:
7.1: Integration by parts
7.2: Trigonometric Integrals

Homework assignments:
7.1: 1, 3, 5-9, 11, 12, 18, 23, 26, 29, 30, 58
7.2: 1-6, 13-29 (odd), 30, 31, 33-35, 41, 43, 46-49

Examinations (In-Class):
Exam1

Week 5:
7.2: Trigonometric Integrals
7.3: Trigonometric Substitution

Homework assignments:
7.3: 1-3, 5, 6, 9, 12, 13, 19, 24, 28, 29, 31, 32

Week 6:
7.4: Integration of Rational Functions by Partial Fractions
7.5: Strategy for Integration

Homework assignments:
7.4: 1, 2(b), 3(a), 6, 7, 9, 11, 16, 17, 25, 26, 28, 33, 39, 41, 43, 46, 48, 50, 51, 57, 58
7.5: 1, 2, 5, 9, 13-21(odd), 22, 24, 36, 39, 44, 45, 55, 56, 65, 68, 75

Examinations (In-Class):
Quiz 2

Week 7:
7.8 Improper Integrals

Homework assignments:
7.8: 2(a), 2(b), 3, 5, 6, 8, 13, 15, 16, 18, 24, 28, 31, 38, 49-55

Examinations (In-Class):
Exam2

Week 8:
8.1: Arc Length
8.2: Area of a Surface of Revolution

Homework assignments:
8.1: 1, 2, 4, 6-9, 10, 12, 15, 17, 31, 35, 37
8.2: 1-3, 5, 7, 10, 11, 13, 15, 25, 26

Week 9:
8.3: Applications to Physics and Engineering
8.5: Probability

Homework assignments:
8.3: 1, 3-5, 10, 12, 14, 17, 21, 23, 25, 27, 29-32
8.5: 3-6

Examinations (In-Class):
Quiz 3

Week 10:
11.1: Sequences

Homework assignments:
11.1: 5, 7, 9, 10, 12, 14, 17-19, 21-23, 31-33, 37, 39, 45, 46, 52, 61, 62, 67, 69

Examinations (In-Class):
Exam3

Week 11:
11.2: Series

Homework assignments:
11.2: 9, 11, 13, 15-17, 21-25, 27, 33-35, 37-39, 47, 49, 52, 55, 75

Week 12:
11.3: The Integral Test and Estimates of Sums
11.4: The Comparison Tests
11.5: Alternating Series
11.6: Absolute Convergence and the Ratio and Root Tests

Homework assignments:
11.3: 1,3, 5, 7, 8, 11-13, 15, 16, 19, 21-23, 25, 27, 29, 40
11.4: 3-11, 16, 17, 21, 30
11.5: 5-10, 14
11.6: 2-5, 10, 11, 14, 15, 17, 18, 23, 29-32, 38(a)

Examinations (In-Class):
Quiz 4

Week 13:
11.7: Strategy for Testing Series

Homework assignments:
11.7: 1-11, 13, 14, 16, 19, 23, 27, 32-35, 37, 38

Examinations (In-Class):
Exam4

Week 14:
11.8: Power Series
11.9: Representations of Functions as Power Series

Homework assignments:
11.8: 3-10, 13-15, 17, 19, 20, 24, 26, 31
11.9: 3, 4, 6, 7, 13, 14, 23, 32, 35

Examinations (In-Class):
Quiz 5

Week 15:
Review

Final Exam: Sunday December 4th, 4:00 - 6:30 PM. Location: TBA.