SPSU SYLLABUS   MATH 2254-009 CALCULUS II   SPRING 2013

Prerequisite: MATH 2253

Content: A continuation of MATH 2253. Topics include differentiation and integration of transcendental functions, integration techniques, indeterminate forms, L'Hopital's rule, improper integrals, infinite sequences and series, Maclaurin and Taylor series, conic sections, and polar coordinates.

Section: 009 (CRN 21265) **Time**: 2:00-3:40 pm   **Days**: T R   **Room**: D 201   **Credit**: 4 Credit Hours
Instructor: Dr. Bi Roubolo Vona   **Office**: D 152
Office Hours: M T W R: 1:00-1:50 PM; M W: 4:30-5:30 PM, and by appointment (limited)

Tel: 678-915-7235   **Email**: bvona@spsu.edu

Assessment:
   Four Tests (pick best 3):   20% each.   Bi-Weekly Quizzes: 10%
   Final exam (cumulative):   25%.   Attendance & Participation: 5%

Standard Grade Scale**:**   90-100 = A;   80-89 = B; 70-79 = C; 60-69 = D; Below 60 = F.

A homework assignment shall be given every Thursday. A short quiz will be given in class at the beginning of the class on the 2nd following Tuesday on the topics of the homework. Homework will not be collected. There will be no make up for the bi-weekly quizzes. The two (2) lowest quiz grades will be dropped. Additional homework practice problems are listed on pages 2-3 of this syllabus. The four regular written tests will be based mainly (content wise) on the intervening weekly homework sets, with some problems taken from the additional practices material. Any request for a make-up for a regular test (not quiz, not final exam) must be received by the instructor prior to the starting time of the scheduled test. Students are restricted to at most one make-up test (not quiz). The final exam will be cumulative.

Text: *Calculus, 7th e*, James Stewart (Brooks/Cole).   **Calculator**: TI-83/TI-84 Family of calculators.

Learning Outcome: Upon successfully completing this course students should be able to:
1. Compute derivatives and integrals for common transcendental functions, and analyze their graphs.
2.   Find indefinite and improper integrals using different integration techniques, apply l'Hopital's
      rule for indeterminate forms.
3. Use various tests to determine series convergence, perform standard operations with convergent
      power series, find Taylor and Maclaurin representations.
4. Write parametric equations of conic sections; sketch their graphs in polar and Cartesian
      coordinates, use conic sections to solve applied problems.

Miscellaneous Dates:
   - **Classes begin**: Monday, January 7
   - **Martin Luther King Jr. Holiday**: Monday, January 21
   - **Last day to withdraw with a grade of W**: Tuesday, February 26
   - **Spring Break**: Sunday, March 3 – Saturday, March 9
   - **Last day of classes**: Monday, April 29
   - **Final Exams**: May 1-May 7 (Exact Date & Time to be determined later)
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Quiet Learning Environment:

Telephones, pagers, and other communication devices must be set for inaudible signal while in the classroom**.** Eating, foul language and excessive talking, and unauthorized visitors will not be tolerated. The instructor reserves the right to exclude student(s) exhibiting such disruptive behavior from the class session.

Students with disabilities who believe that they need accommodations in this class are encouraged to contact the counselor working with disabilities at 678-915-7244 as soon as possible to better insure that such accommodations are implemented in a timely fashion.

Academic Misconduct: Information about the SPSU Honor Code and the misconduct procedure may be found at http://spsu.edu/honorcode/.

Course Outline, Practice Exercises, and Tentative Exam Schedule

Text: *Calculus,7E,* by James Stewart, 7th edition (Brooks/Cole)

NC = do not use any calculator, with the exception noted below; C = use the calculator without restriction.
NOTE: For some problems marked NC, it is allowable (and useful) to use the calculator for graphing ONLY.

Week	Topic	Section (in Stewart)	Homework	Test/Exam
1	Inverse functions, Exponential Functions and their Derivatives	6.1, 6.2	(pg. 390) NC: 3-13, 21, 23, 25, 27, 33, 35-42 (pg 428) NC: 1-9odd, 11-14, 15, 17-37odd, 49, 65-74	
2	Logarithmic Functions, Derivatives of Logarithms Functions	6.3, 6.4	(pg. 434) NC: 1-14, 21, 23, 27-51odd, 53, 81-92 (pg. 444) NC: 3-10, 25-41odd; C: 11, 15	
3	Inverse Trigonometric functions, Indeterminate forms & l'Hôpital's rule	6.6, 6.8	(pg. 459) NC: 1-11odd, 22, 23-33, 38, 59-70	
4	Indeterminate forms & l'Hôpital's rule	6.8	(pg. 477) NC: 1, 3, 7-25odd, 29-35odd, 41, 49, 55, 57, 59, 61	
				Test 1
5	Integration by parts, Trigonometric integrals	7.1, 7.2	(pg. 492) NC: 1, 2, 3-23odd, 27-35odd, 37, 39 (pg. 500) NC: 1-39odd	
6	Trigonometric substitution, Partial fractions, Strategies for Integration	7.3, 7.4, 7.5	(pg. 507) NC: 1, 2, 3, 5-19odd, 23, 25, 27, 29 (pg. 516) NC: 1-4, 7, 9, 11-27odd, 39, 41, 47	
7	Strategies for Integration, Improper integrals	7.5, 7.8	(pg. 523) NC: 1-51odd (pg. 551) NC: 1, 2, 5-39odd, 41, 49-54	
8	Sequences	11.1	(pg. 724) NC: 1, 3, 5, 9, 13, 23-51odd, 73, 75, 77	
				Test 2

9	Series, Integral test, Comparison tests	11.2, 11.3, 11.4	(pg 735) NC: 1, 5, 7, 16, 17, 27-47odd, 57, 59, 61, 63 (pg. 744) NC: 1, 3-25odd, 27, 29 (pg. 750) NC: 1, 3-31odd	
10	Alternating series, Absolute convergence and the ratio and root tests	11.5, 11.6	(pg. 755) NC: 1, 3-19odd, 27, 29 (pg. 761) NC: 1, 3-29odd, 31, 35	
11	Convergence testing strategies, Power series	11.7, 11.8	(pg. 764) NC: 1-27odd, 31-37odd (pg. 769) NC: 3-19odd, 23, 25, 27	
				Test 3
12	Representation of functions as power series, Taylor & Maclaurin series,	11.9, 11.10	(pg. 775) NC: 3, 5, 9, 15, 17, 25, 29 (pg. 789) NC: 5, 7, 9, 13, 15, 16,17, 19, 29, 31, 33, 47, 49	
13	Applications of Taylor Polynomials, Curves defined by parametric equations	11.11, 10.1	(pg. 798) NC: 3, 5, 7, 9; C: 13, 17, 19 (pg. 665) NC: 5, 7, 9, 11, 13, 14	
14	Calculus with parametric curves, Polar coordinates	10.2, 10.3	(pg. 675) NC: 1, 3, 5, 7, 11, 13, 17 (pg. 686) NC: 1-6, 7-12, 29-43odd	
15	Areas in polar coordinates, Conic sections	10.4, 10.5	(pg. 692) NC: 1, 2, 6, 9, 17, 19, 23, 27 (pg. 700) NC: 1-7odd, 11, 13, 15, 19, 21, 23, 25, 27, 29	
				Test 4

				Final Exam