

CALCULUS TECHNIQUES AND APPLICATIONS (MATH 03-125-04)
SYLLABUS FOR SPRING 2007 (CRN#21990), ROWAN UNIVERSITY
MW 3:15-4:30 pm, WIL 205, 3 sem. hrs.

INSTRUCTOR: Dr. M. Herman (herman@rowan.edu)

OFFICE: Robinson Hall, 2nd Floor, Mathematics Department, 856-256-4500 x 3539

OFFICE HOURS: MW 10:45 am - 12:00 noon, and by appointment

TEXT: Tan, S.T. 2006. *Calculus for the Managerial, Life, and Social Sciences* (7th ed.). Belmont, CA: Thomson Brooks/Cole. ISBN 0-534-41986-0

TECHNOLOGY: A graphing calculator (TI-83/84, Texas Instruments) is required for this course. Also, email will be used as a communication tool between Dr. Herman and students. Email from Dr. Herman will be sent to students' Rowan email accounts throughout the semester. Once grades are finalized at the end of the semester, Dr. Herman will most likely not respond to emails.

COURSE DESCRIPTION: This course introduces students to the techniques of differential and integral calculus. Topics include Functions; Differentiation; Interpretation and Applications of the Derivative as a Rate of Change; Applications Involving Maxima and Minima; Integration; and Additional Applications to Various Disciplines and Fields of Study. Students are expected to have completed an equivalent of the course College Algebra prior to this course.

OBJECTIVES: This course serves general education, technology, business, and economics students in achieving the following objectives: (1) develop the concepts of the limit, derivative, and anti-derivative of a function, and also of the definite integral; (2) consider applications of the derivative and definite integral, and (3) provide experience with and information about the significance and specific uses of calculus in today's world. Emphasis is placed on practical applications of limits, derivatives, and integrals.

GRADING SCHEME:

2 Midterm Exams, plus one Final Exam (Exams make up approximately 60% of the course grade.)

Homework / Quizzes / Class Participation / Worksheets / Labs / Group Work (40% of course grade)

Cut-offs: A 93 A- 90 B+ 87 B 83 B- 80

 C+ 77 C 73 C- 70 D+ 67 D 63 D- 60

Final semester grades will be reported online and will not be changed once finalized at the end of the semester.

STUDENTS WITH DISABILITIES AND SPECIAL NEEDS: Disabilities and special needs are documented at the Office of Disability Resources in the Academic Success Center in Savitz Hall (x4233 or x4234). Students who wish for special services must provide a Notification of Accommodation letter from the Office of Disability Resources to the instructor as soon as possible at the beginning of the semester. The instructor is not responsible for providing accommodations until she receives the notification letter.

ACADEMY HONESTY: All work on exams must be your own. The penalty for a cheating offense will minimally be an automatic zero (0) on the related exam (or assignment), up to an automatic F in the course with a report to the Provost's Office. Procedures regarding dishonesty will follow Rowan University policies, as outlined in the Academic Honesty portion of the Student Information Guide available online.

ATTENDANCE: Students are expected to attend class regularly and will sign an attendance sheet on a daily basis. Absences and/or excessive lateness may result in a lowered final grade. As shown in the grading scheme above, exams construct most of the course grade. Attendance at all exams is required. Absence on the day of a regularly scheduled test will automatically result in a grade of zero (0). Permission to be excused from an exam will be given only when confirmation of a serious reason for the absence is provided. No make-up exams or assignments will be administered.

WITHDRAWAL POLICY: Students will be updated on their overall course grade after each midterm exam and any time by request (typically on email). Dates and policies regarding withdrawal from the course will follow Rowan University protocol, including the three deadlines for withdrawal during the semester. Note that the university's policy on course withdrawals during the last four weeks of the semester is that a student may withdraw only if there are circumstances beyond his/her control which prevent him/her from completing the course requirements.

CALC T/A CALENDAR
DR. M. HERMAN, SPRING 2007
ROWAN UNIVERSITY

MONDAY	TUES.	WEDNESDAY	THURS.	FRI.
JAN 15 NO ROWAN CLASSES	JAN 16 SP 07 BEGINS	JAN 17 Sections 1.3, 1.4, 2.1, 2.3 Various Functions	JAN 18	JAN 19
JAN 22 Sections 2.3, 5.1, 5.2 Various Functions	JAN 23	JAN 24 Sections 2.4, 2.5 Limits and Continuity	JAN 25	JAN 26
JAN 29 Sections 2.4, 2.5 Limits and Continuity	JAN 30	JAN 31 CBR Activity Rates of Change	FEB 1	FEB 2
FEB 5 Section 2.6 Slopes of Secants and Tangents	FEB 6	FEB 7 Section 2.6 Derivatives by Limit Definition	FEB 8	FEB 9
FEB 12 Catch Up & Review	FEB 13	FEB 14 EXAM 1	FEB 16	FEB 17
FEB 19 Section 3.1 Basic Rules for Derivatives	FEB 20	FEB 21 Section 3.2 Product Rule, Quotient Rule	FEB 22	FEB 23
FEB 26 Section 3.3 Chain Rule	FEB 27	FEB 28 Section 3.5 Higher Order Derivatives	MAR 1	MAR 2
MAR 5 Sections 5.4, 5.5 Exp and Log Derivatives	MAR 6	MAR 7 Section 5.6 Word Problems	MAR 8	MAR 9
SPRING BREAK		SPRING BREAK		
MAR 19 Sections 4.1, 4.2, 4.3 Derivatives and Shapes of Curves	MAR 20	MAR 21 Sections 4.1, 4.2, 4.3 Derivatives and Shapes of Curves	MAR 22	MAR 23
MAR 26 Sections 4.4, 4.5 Optimization	MAR 27	MAR 28 Section 3.6 Implicit Differentiation, Related Rates	MAR 29	MAR 30
APR 2 Catch Up & Review	APR 3	APR 4 EXAM 2	APR 5	APR 6 NO ROWAN CLASSES
APR 9 Section 6.3 Reimann Sums, Definite Integral Notation, Area under a Curve	APR 10	APR 11 Section 6.1 Integration Rules	APR 12	APR 13
APR 16 Sections 6.2 Integration Rules (Substitution)	APR 17	APR 18 Section 6.4 Fundamental Theorem of Calculus	APR 19	APR 20
APR 23 Section 6.5 Definite Integrals	APR 24	APR 25 Section 6.6 Area between Curves	APR 26	APR 27
APR 30 Catch Up & Review	MAY 1 ROWAN FINAL EXAMS	MAY 2 ROWAN FINAL EXAMS	MAY 3 ROWAN FINAL EXAMS	MAY 4 ROWAN FINAL EXAMS
MAY 7 ROWAN FINAL EXAMS				

CALC T/A HOMEWORK ASSIGNMENTS
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Asgnmt #	Homework Section from <i>Calculus for the Managerial, Life, and Social Sciences</i> book and Problems
1	As you complete each of the following problems, classify the problem as one of: Linear, Quadratic, Cubic, Quartic, Abs. Value, Exponential, Logistic, or Piecewise 1.3: # 37 , 41 1.4: # 1-6, 73, 75 2.1: # 11, 15 , 35, 43, 49, 51, 53, 55, 67, 79 2.3: # 29, 31, 37
2	2.3: Regression Worksheet on Finding the Best Fit 5.1: # 39 , 41 5.2: # 51
3	Limits by Graphing 2.4: # 1, 5, 7 , 63, 65, 67, 69, 71 2.5: # 9, 11, 13 , 15, 17, 19, 39, 41, 43, 61, 63
4	Rules for Finding Limits 2.4: # 23, 27, 31, 35, 39 , 51, 53, 55, 57, 59, 61, 73, 75, 77, 79, 85 2.5: # 37, 57, 59, 67 , 69
5	CBR 2.6: # 5 , 7
6	2.6: # 27, 29, 30 , 32
7	2.6: # 17, 19, 21, 23 , 25
8	3.1: # 41, 43, 45, 47, 48 , 53, 59 , 72 , 73
9	3.2: # 39 , 41 , 43 , 45, 51, 55
10	3.3: # 1 , 5, 9, 15, 29 , 39 , 61, 62, 63, 64
11	3.5: # 21 , 23, 27, 30, 35
12	5.4: # 1, 5, 9, 15, 21 , 25, 33 5.5: # 1, 3, 5, 7, 11 , 15 , 25, 31, 35, 47
13	5.6: # 4 (use $N(t) = 5.3 e^{0.0198t}$), 7 (use $P(a) = 15 e^{-0.00004558 a}$ where "a" represents altitude), 9 (use $D(t) = 100 e^{-0.0488t}$), 17 (use the given equation in the problem), 23 (use $f(t) = 3000 / [1 + 9 (2/3)^t]$)
14	4.1: # 1, 3, 5, 7, 9 , 35 , 37, 39, 41, 43-46, 69, 71, 73, 77 , 79 4.2: # 1, 3, 5, 7, 9 , 11, 77, 81, 85, 89 4.3: # 33-36, 65
15	4.4: # 1, 3, 5, 39 , 45 , 61 4.5: # 3 , 5
16	3.6: # 39 , 49 , 58 (use $V = \pi r^2 h$), 60 , 61
17	6.3: # 1 , 3 , 5 , 7 (repeat the problem with right endpts, left endpts, and midpoints), 17
18	6.1: # 1 , 3, 5 , 7, 25 , 29, 33 , 41 , 51, 53, 71, 77 , 85
19	6.2: # 1, 3, 5, 7, 9, 19, 23, 57
20	6.4: # 1, 3, 5, 7, 13 , 41 , 44 , 45 6.5: # 41 , 45 (use $(1/5)\int v(t)dt$), 47 (use $(1/10)\int N(t)dt$), 67
21	6.6: # 1, 5, 7 , 17 , 21, 35 , 37, 39

Homework Presentation Grade Sheet

Name: _____

Date: _____

HW Problem: _____

Note: Generally speaking, homework presentations should be between five minutes and ten minutes in length. You may use any available technology during your presentation in addition to the blackboard.

I. Introduction -- Read the problem and explain what was asked (10 pts.):

2 – Poor to nonexistent -- does not provide overview of problem

6 – Vague objectives and presentation direction

10 – Good attention grabber; lays clear foundation of presentation objectives; closes with clear results

Score: ____

II. Content (20 pts.):

7 – Wrong approach in solution; fails to answer question

14 – Achieves answer with minor math errors, but has trouble explaining answer; struggles to use correct terminology

20 – Fully covers the question; clearly understands the material; explains things in non-technical terms

Score: ____

III. Eye Contact/Hands & Body Movement/Articulation & Semantics (10 pts.):

2 – Poor eye contact; distracting movements; hard to hear

6 – Moderate eye contact; somewhat comfortable; struggles for words

10 – Makes eye contact with everyone in the room; little reliance on notes; completely comfortable; movements never seem awkward; speaks in clear sentences; excited about topic and conveys enthusiasm

Score: ____

IV. Visual Aids (5 pts.):

1 – Poorly designed; sloppy writing on board

3 – Average attempt

5 – Excellent integration of slides or board work resulting in enhanced learning

Score: ____

V. Conclusion/Questions (5 pts.):

1 – Poor responses to questions; clearly does not understand material

3 – Struggles explaining an understood concept

5 – Answers clearly and succinctly to questioner's satisfaction

Score: ____

Total Score: ____ / 50