

Larisa Alikhanova
Spring 2006
Calculus II, Math 256, 4 credit hours

Spring 2007

Pre-requisite: Calculus I, MAT 254

Text: Calculus by James Stewart, 5th Edition

Supplementary

Material: TI Graphing Calculator is required.

Course Description: The course is continuation of Calculus I. The topics include: techniques of integration, applications of integration, vectors and operations on vectors, sequences and series

Measurements: Quizzes, projects - 15%, each test – 20%, and final exam - 25%. Only one make up exam will be allowed during the last week of the semester and only if prior arrangements are made with me.

Grading: A 94-100; A – 90-93; B+ 87-89; B 83-86; B- 80-82; C+ 77-79; C 73-76; C- 70-72; D+ 67-69; D 63-66; D- 60-62; F below 60

Attendance: Given that there are only 15/16 in-class sessions, it is very important that you attend **ALL** classes. Your attendance in the classroom, participation in classroom work /projects and preparation for each class is required and is essential to your success in the course.

Support Services: Tutorial services. Meeting with me for an extra help.

Office Hours: M and W, 2:00 p.m. – 3:30 p.m., and T 4:30 p.m. – 5:30 p.m., Room 204, Thames Valley Campus, Phone 885-2375.

E-mail alikhanova@trcc.comnet.edu Check your e-mail regularly for test/quiz/homework announcements. Check you email and WebCT Vista for class cancellations.

Disabilities

Statement: Students with disabilities, who may require special accommodations and support services, are encouraged to notify:

1. Chris Scarborough, who is coordinating services to students with disabilities.
2. The instructor during the first two weeks of class.

Course Outline, Content, and Assignments

Section	Topic	Exercises
4.2	Definite Integral (review)	216/15 – 21, 39 – 42
4.3		
4.4	Evaluating definite integrals (review)	225/1 - 27
4.5	The fundamental Theorem of Calculus (review)	234/1 – 11, 19
4.6	Substitution (review)	241/1 – 47
5.2	The natural Logarithmic Function (review)	261/ 13 – 31, 51 – 61
5.3	The Natural exponential function (review)	266/ 21 – 35, 57- 63
5.4	General logarithmic and Exponential Functions (review)	274/ 23 – 45
5.6	Inverse Trigonometric Functions	288/ 17 – 25
5.8	Indeterminate Forms and L'Hospital's Rule	301/1 - 35
6.1	Integration by parts	311/ 1 - 15
6.2	Trigonometric Integrals and Substitution	321/1 – 25, 41 - 53
6.3	Partial Fractions	329/ 1 – 23
6.4	Integration with Tables	336/ 1 – 13
6.5	Approximate integration	345/7 – 13
6.6	Improper integrals	347/5 - 31
TEST		
7.1	Areas between curves	363/ 1 – 17
7.2	Volumes	372/ 1 - 11
7.3	Volumes by Cylindrical Shells	378/ 1 - 19
7.4	Arc Length (time permitting)	385/3 – 7
7.5	Applications to Physics and Engineering	396/1 – 9, 21
7.6	Differential Equations	406/ 1 – 13, 37, 39
5.5	Exponential Growth and Decay	281/1, 3, 9
TEST		

8.1	Sequences	420/1 – 25, 33 – 37
8.2	Series	429/3 – 19
8.3	The integral and comparison tests	438/ 7 - 19
8.4	Other convergence tests	448/ 3 - 7
8.5	Power series	453/1 - 11
8.6	Representing functions as power series	458/ 3 - 7
8.7	Taylor and Maclaurin series	471/5 – 17, 23
8.8	Applications of Taylor polynomials (time permitting)	478/ 3, 7

9.1	Parametric Curves	488/1 - 15
9.2	Calculus with parametric curves	496/1, 3, 5, 9, 13
9.3	Polar Coordinates	504/1-5, 13- 19
9.4	Areas and Lengths in Polar Coordinates	510/1-9

TEST

10.2	Vectors	531/5-13, 21
10.3	Dot Product	537/3- 9, 15
10.4	Cross Product	545/1-5, 11

FINAL EXAM

Course Outcome:

Student should be able to:

1. Integrate the functions using substitution, integration by parts, the method of partial fractions, trigonometric substitutions, Tables
2. Perform approximate integration
3. Show that the improper integral converges and find its value, or show that it diverges
4. Find the area bounded by the curves.
5. Find the volumes of revolution: disks, washers, and cylindrical shells.
6. Find the arc length.
7. Use integration on various applications to physics and engineering
8. Find general and particular solution of separable differential equations; first order linear differential equations
9. Compute the limit of the convergent sequences.
10. Determine whether the geometric series converges or diverges, and find the sum of each convergent series.
11. Test the p-series, telescoping series, log-power quotient series for convergence or divergence.
12. Use divergence test, limit comparison test, Ratio test, Root test, Integral test, direct comparison test, Zero-infinity limit comparison test to test the series for convergence.
13. Represent functions as power series, Taylor and Maclaurin series
14. Plot polar-form points.
15. Convert from polar to rectangular coordinates and from rectangular coordinates to polar
16. Find areas and lengths on polar coordinates
17. Graph in polar coordinates.
18. Find the derivative of equations of curves defined by parametric equations.
19. Find the arc length of a curve defined by parametric equations.
20. Perform operations on vectors.
21. Find the standard representative of a vector.
22. Compute a resultant vector.
23. Find the dot and the cross product of two vectors.

