

**SYLLABUS: Mathematics 142 (Calculus II)**  
**Professor W. R. Wade (Ayres 308)**

OFFICE HOURS

Monday 8:30- 9:00, 11:00-11:30 AM and 2:00-3:30 PM, Tuesday 9:00-10:00 AM and 10:55-11:45 AM, Wednesday 8:30-9:00, 11:00-11:30 AM and 1:30-3:30 PM, Friday 11:00-11:30 AM, or by appointment.

**THE COURSE.** This course is an introduction to integral calculus. It is essential that you have taken a course in differential calculus (e.g., Calculus I) BEFORE enrolling in this one. In particular, we assume that you are familiar with all the rules of differentiation. If you got a D or lower in Calculus I, repeat it now; take Calculus II later.

**THE CLASS PERIODS.** We shall cover Chapters 5–8 of the 3rd edition of Stewart’s CALCULUS: concepts and contexts, but not in order (see schedule below). Since there are many things that come up in class which are not in the book, daily attendance is extremely important.

A typical class meeting has four components: 1) questions on the preceding lecture’s homework assignment, 2) possibly a quiz on that assignment, 3) a lecture on new material, 4) a homework assignment on that material (see schedule below). In particular, there will be classes without quizzes, but a quiz is always possible.

You should start doing the homework soon after lecture in order to discover any deficiencies in your understanding of the material, and to begin to prepare for a possible quiz on that material in the next class meeting. You cannot survive these quizzes if you procrastinate doing the homework until a few minutes before the next class meeting. Come prepared!

The quizzes will be very simple, and just like the homework. When a quiz is given, you will have about 6 minutes to write your solution. At my signal, fold this quiz LENGTH-WISE like a book with your name of the FRONT COVER, and pass it forward.

**THE GRADE.** In addition to the homework and quizzes, there will be three hour exams (announced one week in advance) spread evenly throughout the semester (see schedule below), and a comprehensive final exam, which will be given in our regular room on **Tuesday morning, May 6 from 10:15 to 12:15.**

Each hour exam is worth 100 points, the aggregate score on the quizzes is worth 100 points, and the final examination is worth 100 points or 200 points (depending on whether you drop an hour examination). At the end of the semester I will average your scores and assign grades according to the following scale:

91-100 A,      81-90 B,      70-80 C,      65-69 D.

The homework will be used to assign “plus” grades for students in borderline situations.

**MAKE-UP POLICY.** Please note that it is not possible to make up a quiz, nor to drop a quiz score. If you are absent during a quiz, you will get a zero that day. Since the quizzes collectively count as one hour exam, absences may be extremely harmful to your final grade. I will consider giving a make-up for an hour exam if you have a legitimate excuse. However, be advised that the make-up will be more difficult than the exam given to the rest of the students because I have already used up the simplest questions on the in class exam.

**Subject of Lecture**

**Homework assignment due NEXT class period**

1. Antiderivatives	p. 332: 1, 3, 9-12, 25-26, 40, 45-46
2. Definite integrals	p. 352: 1a, 13-14; p. 364; 7-8, 17-20
3. (continued)	p. 365: 27-28, 32, 34-39, 42-43, 49
4. Evaluating integrals	p. 374: 1-4, 6-7, 11-15, 23-24, 26
5. (continued)	p. 374: 27-29, 31, 41-43, 47-49
6. Fundamental Theorem of Calculus	p. 383: 2, 6, 9-13, 21-22
7. Substitution	p. 392: 1-10, 37-38
8. (continued)	p. 392: 13-20, 26-32, 44-49, 52
9. (continued)	p. 393: 57-59, 62-64,

10. Integration by parts	p. 398: 1-4, 6-7, 17-20
11. (continued)	p. 398: 9-12, 15-16, 21-23, 37-38; p. 404: 1-2, 5, 13-14
12. REVIEW	
13. FIRST HOUR EXAM (February 1)	
14. Partial fractions	p. 405: 17, 20, 24-26
15. (continued)	p. A57: 10, 11, 16, 20
16. Improper integrals	p. 431: 1-2, 5-10, 13, 15-16
17. (continued)	p. 431: 18-20, 29-31, 41-42
18. Polar coordinates	p. A66: 1c, 3a,b, 4a,c, 7-12
19. (continued)	p. A72: 1-3, 5-10
20. Areas of regions	p. 446: 1-3, 6-7, 11-14
21. (continued)	p. 446: 8-9, 15-16, 22, 29, 35, 37
22. Volume	p. 457: 1-5, 7-8, 15-16
23. (continued)	p. 458: 18, 22, 36-38, 42, 49
24. Arc length	p. 465: 1, 3-6, 20
25. Engineering applications	p. 479: 4-6, 10-11, 14
26. (continued)	p. 485: 27-30
27. Probability applications	p. 492: 1-4, 7-8
28. REVIEW	
29. SECOND HOUR EXAM (March 3)	
30. Sequences	p. 565: 1-2, 4-8, 10-12
31. (continued)	p. 565: 13-16, 20-22, 24-25
32. (continued)	p. 565: 30, 34, 36-39, 43-44
33. Geometric series	p. 574: 11-16, 33-34
34. Simple tests	p. 574: 17-19, 27-29, 35-36, 50
35. Algebra of series	p. 574: 20-22, 24-25, 42, 51-54
36. The integral test	p. 585: 1-2, 5, 7-8, 12, 15, 18, 27, 35
37. The comparison tests	p. 585: 3-4, 9-11, 13-17, 20-23, 29, 33-34
38. Alternating series	p. 592: 3-8, 12
39. The Ratio Test	p. 592: 2, 19-25, 31-32
40. Power series	p. 598: 3-5, 7-10
41. (continued)	p. 598: 11-16, 24-25
42. Short-cuts	p. 604: 3-7, 11, 16, 23, 28
43. Taylor series	p. 615: 3-6, 13, 15-18
44. (continued)	p. 615: 7-10, 31-36, 42-43
45. Applications	p. 628: 3-6
46. (continued)	p. 628: 7-8, 12
47. REVIEW	p. 632: 9-12, 19, 30-32
48. REVIEW	
49. THIRD HOUR EXAM (April 15)	
50. Numerical integration	p. 421: 7, 13, 25
51. Differential equations	p. 503: 1-2, 7a, 8a; p. 511: 1-2
52. Separable equations	p. 519: 1-4, 7-8, 14, 33
53. Growth and decay	p. 532: 1-3, 11
54. The Logistic Model	p. 542: 3-4, 6, 8-9
55. REVIEW	
56. REVIEW	