

Oberlin College

Calculus 132

Spring 2013 King 337
schedule: M W F 9am – 9:50
 3 NS Qp f

Instructor: Kay Knight Drop in Office Hours: Scheduled Office Hours
Office: Peters 114 Tu 3-4 M 10-11 Tu 9-10
Phone: 5 6538 W 11-12 F 2-3 W 3:30-4:30 F 1-2

Text: J. Stewart, Single Variable Calculus, 7th edition, Chapters 3,4,5

Course Objectives:

- Sketch the graphs of curves.
- Solve optimization problems.
 - Find the area under a curve by estimation,
 - limits, Riemann Sums and integration.
- Understand key theorems, proofs and historical key points in Calculus 1.
- Use integration to find the area between curves,
 - volume of solids,
 - volume produced by rotation of curves,
 - and amount of work.
- Solve problems with differentiation, antiderivatives, u substitution,
 - integration and the Fundamental Theorem of Calculus.

Evaluation: Total Points accumulated from the following:

14 Assignments, 15 pts each	210 total
4 practice sets, 20 pts each	80 total
3 "Big" problems (assigned groups)	45 total
4 Exams 100 % each	400 total
<i>February 27, March 22, April 18, May 8</i>	
Quizzes, class work,	~ 90 points
Final, Thursday May 16, 9-11 am	200 points
total	~1025 points

Grades: Percentage of Total Points

100% A+	90, 89% B+	80, 79% C+	69-61% D
99 - 93% A	88 - 83% B	78 - 72% C	below 61%
92, 91% A-	82, 81% B-	71, 70% C-	not passing

Calculus 132

M W F 9 am - 9:50 3 hrs credit 3 NS, full QP **Instructor:** Kay Knight
Textbook: J. Stewart, Single Variable Calculus **Office:** Peters 114, phone 56538

Attendance: *Successful students are in class, on time, every time.*

- Assignments may not be accepted after 4 pm on the date due.

Suggested Plan of Study:

1. The syllabus shows the essential examples that should be studied prior to, or soon after, each class.
2. Practice as many of the examples and problems from each section as possible.
3. Carefully work the assigned problems by the dates due.
4. In preparation for exams re-work specific problems, and formulate clear definitions and explanations for procedures and concepts in your own words. Understand the graphs. Seek to understand problems geometrically, numerically, algebraically and verbally. Exams usually contain a few questions that require thinking about the problems and concepts in a "new" way.

Honor Code Policy: All work must be your own for examinations, quizzes, assignments and problem set. EXAMS must include a hand-written, signed statement of the Honor Pledge:

"I affirm that I have adhered to the Honor Code in this assignment."

In the absence of the honor pledge on an exam a grade may not be recorded.

- Written Work:**
1. Problem Sets, assignments, classwork and exams should be neat and logical.
 2. Show all necessary steps in arriving at your answer.
 3. Clearly identify your answer.
 4. Allow enough space for and between each problem.
 5. Include questions you may have for a specific problem.
 6. Comment if you realize your answer is not reasonable.

The 14 Assignments (5 or 6 problems each) must include written comments and/or explanations for each problem. Perhaps identify a theorem used or explain the procedure. Write 2-5 CORRECT and COMPLETE sentences for each problem in an assignment.

The 4 Practice Sets do not require written explanations, but all necessary steps must be shown.

Study Groups: Join a study group to facilitate cooperative learning for assignments and practice sets, however, make your work your own. Groups will be assigned for the 3 "Big" problems. (You may work the "Big" problem alone; let me know.)

Calculator: Calculators MAY be used during exams or any assignment.

Extra Help: Call me, 56538. E mail. Come by my office. Check the syllabus for opportunities for drop in (with others) or scheduled 20 minutes individual help.

Note: I am always glad to help students with part of the assignments or problem sets. BUT, you must first show that you have begun work on the problem(s) in question.

Tutors for Calculus are available through the department of Student Academic Services, also in Peters 114. The Mathematics Department offers Drop In Tutoring four evenings a week TBA.

Calculus 132

Spring 2013

Session/pts	Date	Topic	study
1.	M. Feb. 4	Overview: Significance of Max&Min Optimization, EVT, Def. of Critical # 3.1 ex 1, 2, 3, 4 3.7 ex 2	3.1 #1 - #28
2.	W. Feb. 6	Closed Interval method, critical numbers, graphical combination, using coordinate system, remember implicit? 3.1 ex 10, ex 9, 3.7 ex 2 again, 3.7 ex 5 Group Work 3.1 #7-#14	
15pts. *1st assignment. Due Friday. 3.1 p200 (Sq 4) ex5, ex6, (Sq 6), ex7, ex8, 3.1 #6; 3.7 ex 1			
3.	F. Feb. 8	Fermat, Rolle, MVT 3.2 ex 1, 2, proof of MVT, ex 3, 4, 5; 3.7 #20 CW	
4.	M. Feb. 11	Curves, Concavity, f' f'' What do the derivatives tell us? Handout 3.1 # 60 3.3 # 8 3.3 ex 1,2,3,7, # 41, 3.4 ex 11	study 3.2 #19-#25, not #22 3.3 #1 - #7
15pts. *2nd assignment. Due Wednesday. 3.3 ex 6, # 10, # 34, # 42, # 46.			
5.	W. Feb. 13	Curves with HA and VA 3.4 ex 3, ex4; 3.5 ex1 (according to handout) ex2, 3, GW	study 3.4 #1 - #4 study 3.7 #7,8,9,11
6.	F. Feb. 15	More curves, Newton's Method, and Slant Asymptotes 3.4 # 50; 3.5 ex 4; 3.6 ex 1,2 3; 3.8 ex 1	study 3.5 #1-20 Group work: 3.4 45-56
15pts. *3rd assignment. Due Monday 3.4 #12, 51; 3.8 #7; 3.7 #12 solve only, NO a,b,c,d,e,f; 3.5 ex 2 in your own words			
7.	M. Feb. 18	Family of Curves and Family of Functions from Antiderivatives 3.6 ex 5, # 27; 3.9 ex 2,3 Quiz	study 3.9 #21-40
8.	W. Feb.20	Antiderivatives, Acceleration and the Cliff 3.9 ex 6, ex 7, # 61, # 67; 3.7 # 60	
15pts. *4th assignment. Due Friday 3.6 # 11, #20; 3.7 # 61; 3.9 ex 4, # 57, # 68			
9.	F. Feb. 22	Practice; 3.7 #54, others	
20pts. Practice Problems Due Monday: Review: # 1, 8, 13, 14, 16, 18, 20, 21, 29, 34, 36, 38, 40, 47, 48 b, 49 use Excel, 52 (graphical combination), 56, 58, 63			

10. M. Feb. 25 Review

⇒11. W. Feb. 27 EXAM: Chapter 3 100 pts.

Total points to date: 205

12. F. March 1 Chapter 4: Area and Σ and \int study
Picture p 287; definition 289, 290; (also distance) 4.1 #1-5
Adding areas of rectangles with Left, Right & Mid pts 4.2 #1-11
Appendix E #22, #30; Appendix E #1-30
4.1 ex 1; 4.1 # 2; 4.2 ex 4, # 39, 38 4.2 #33-51

15pts Big Problem Due from Chapter 3 due Monday

13. M. March 4 P 298 T 4; 4.2 ex 2, ex 7 study
5pts 296 (sq 2); Δx and x^* , 4.2 #17-27
properties of \int p 303, 304, 305
4.2 ex 2, # 18. Appendix E ex 4, 5, Group Work 4.2 34-51

15pts. *5th assignment. Due Wednesday; 4.1 #17; 4.2 # 20, 34, 53.

Appendix E ex 6, 4.3 ex 1

14. W. March 6 Sigma Proof and also Property 8. Study more
5pts FTC part 2, p 315 Appendix E # 31, 4.2 #17-27
Appendix E, ex 5, ex 7, # 33
CW: Area with "Big Sigma" and \int (integration)

15. F. March 8 AREA IS... \int study
10pts the FTC parts 1 and 2 p312 & 315 & 317 \square
4.3 # 4, 5, 8, 16, 20, 22 4.3 ex 2, ex4, ex5, ex6
Sigma Proof Quiz 4.3 # 7 – 25 odds

15pts. *6th assignment. Due Monday 4.2 ex8 & 4.3 ex8; 4.3 ex2 & ex3 ; 4.3 #15, 38, 21, 26

16. M. March 11 Using the FTC study
Indefinite or Net, 4.4 ex 3; 4.5 ex 2
Distance or Displacement
U substitution
4.4, p 321 red note, ex 1,2,4, 5, 6; 4.5 ex 1

15pts Big Problem from Chapter 4 Due Wednesday

17. W. March 13 U Substitution & more FTC study
5pts 4.5 ex3, ex4, ex5, ex6 two ways, 4.5 all examples
Group Work 4.3 7-27, 4.5 #7 – 29 or handout

15pts. *7th assignment. Due Friday 4.4 # 50, 56; 4.5 ex 2, ex7, 4.5 # 29, #36

18. F. March 15 Symmetry, more FTC1, and other details
p 333 ex 5, ex 7, 8, 9; p 339 #8, 4.3 #49

15pts. ***8th assignment. Due Monday, Writing Assignment: p 329**
1 page, 2 to 4 paragraphs, IN YOUR OWN WORDS.

19. M. March 18 Practice Group Work: 4.5 1-12, 35-48
5pts
20pts **Practice Problems due Wednesday: Review p 338 exercises:**
#2 a, b, c, # 5, 7, 8, 10, 12, 13, 15, 22, 24, 33, 36, 40, 44, 45, 47, 48, 49

20. W. March 20 review

⇒21. F. March 22 EXAM: Chapter 4

240 additional points. Total points to date: 445

BBB**BREAK**BBB

22. M. April 1 e, ln, logs & 3 rules Concepts from 6.2 – 6.4
suggested examples to study: p 397 sq 8, 6.2 ex 2, 3, ex 8,9; pp 381-416
6.3 ex 1, 4, 5; 6.4 ex 1, 2, 3, page 413 sq 3 sq4, ex 8, 9,10 study p 337 # 67-78
page 415, sq 6 sq 7, ex 12, 13,

23. W. April 3 Using concepts from 6; 5.1 AREA between curves study
5.1 ex 1,2,4; # 1, # 4, # 8 5.1 #1-13 odds

24. F. April 5 Area and Volume with dy or dx study
5pts 5.1 # 11, # 51, 5.2 ex 2, ex 3; CW 5.2 #1-9

15 pts; ***9th assignment, Due Monday, p320 #73, 74, 77; p329 #72; 5.1 ex6, 5.1 #1**

25. M. April 8 Volume slices or washers & shifts study
5.2 ex 4, ex 5, ex 6 5.2 #19-30

26. W. April 10 Volume with Shells study
5.2 #15; p 364 bottom box, 5.3 # 1, 5.3 ex 2, 3, 4 5.3 #3-19
15pts ***10th assignment Due Friday 5.1 # 47, 50, 55; 5.2 #10 with shells & slices; 5.3 ex 1**

27. F. April 11 Volume WITHOUT rotation
5.2 ex 7, # #56, 57, 59
15pts ***11th assignment Due Monday p420 #85, 86; 5.2 #21, 26 either shells or slices; 5.3 # 8**

28. M. April 14 Volume practice
5 pts 5.2 ex 1, shells & slices, Handout for Volume of solids. CW

20pts **Practice Problems due Wednesday: p378 1, 2, 3, 6, 7, 8, 10,**
12 & 14 (set up only) 15a,b,c, 16a,b,c, 23, 24, p368 #41, #45 with shells and with slices

29. W. April 16 Volume/Area review 5.1, 5.2, 5.3
10pts Quiz

⇒30. F. April 18 EXAM part of Chapters 5 and 6

185 more points Total points to date:630

31. M. April 21 Work and Springs study 5.1
5.4 ex 4, ex 2, ex 3(springs) #5, # 13, 16(bucket) #7-17 (not # 12)

32. W. April 23 More work & Average Value study
5.4 ex 5; # 21, #17; 5.5 ex 1, ex 2 5.5 #1-10

15pts ***12th assignment Due Friday, 5.4 ex 1, # 1, 2, 8, 15; 5.5 #8**

33. F. April 25 More work & Average Value 5.4 and 5.5
5pts 5.4 # 20; 5.5 # 15 CW

15 pts **Big Problem from Chapter 5 due Monday**

34. M. April 28 Curves, Optimization, Antiderivatives, Area, Volume,
Work and Average Value

15pts ***13th assignment Due Wednesday 5.5 # 10, 14; 5.4 10, 16, 17, 19,**

35. W. May 1 Practice Whatever
5.5 # 23

36. F. May 3 practice
10 pts p 379 # 31, CW Quiz

20 pts **Practice Problems due Monday: p378 #24, 25, 26a, 27, 28, 29,a, 32a,b,c,d;
5.1 #3, 29, 44, 53; 5.2 #58, p367 #37&38 set up only, p368 #45, p420 #84, 88**

37. M. May 6 review

⇒38. W. May 8 4th EXAM Chapter 5

180 points more Total points to date: 810

20pts ***14th assignment Due Friday**

work 5 "good problems" that illustrate optimization, curve sketching, using integration for finding area,
volume and work. Also state and explain the FTC parts 1 and 2

39. F. May 10
Total points before final: 830 Final 200 points Total 1030 points
Final: Thursday, May 16, , 9-11 am