

Instructor: L. Petrov

Office: 433 Lake

Office Hours: MW 10:30–11:30; M 18:00–19:00, or by appointment (I encourage you to make as many appointments as you need if you have a scheduling conflict with my official hours. You can do it by email.)

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TEXTBOOK: *Worldwide Integral Calculus, with infinite series*, by David B. Massey
PDF and printed versions available at: <http://www.centerofmath.org/intcalc.html>

The PDF textbooks contain a link, at the beginning of each section, to one or more free video lectures, by Prof. Massey, on the contents of that section. The PDF's have hyperlinked Tables of Contents, Indices, and cross-references; you may need to activate the Forward and Back buttons in your PDF viewer to take full advantage of the hyperlinks. GoodReader app. is recommended to use the textbook on an iPad.

The PDF textbook is \$9.95; it is printable and bundled with a study guide. A paperback, printed, bound, grayscale (a.k.a. black and white) textbook can be ordered online for \$29.99.

It is absolutely **NOT** required that you purchase a printed textbook.

TESTS:

We will have **quizzes on Thursdays**, at the start of the class every week. There will be **no make-up** quizzes; instead, I will drop the two lowest quiz scores. If you miss a quiz due to illness (**doctor's letter required**), the next quiz in the sequence will be counted twice to replace the missing quiz.

Instead of a single midterm exam, we will have **two 65-minute tests** during the semester: one on **October 6** and the second on **November 10**. Each test will count as 10% of your grade. There will no make-up tests, just as there is no make-up for the final. The two hour, common, commonly graded, **final exam** will count as at least 40% of your grade in this course. You must take the final exam during the time it is scheduled unless you have a registrar-created conflict. **Do not make travel plans that conflict with the exam.**

GRADING:

Letter grades are determined from the numerical grades as follows:

$A > 92$, $92 \geq A^- > 89$, $89 \geq B^+ > 86$, $86 \geq B > 82$, $82 \geq B^- > 79$,
 $79 \geq C^+ > 76$, $76 \geq C > 72$, $72 \geq C^- > 69$, $69 \geq D^+ > 66$,
 $66 \geq D > 62$, $62 \geq D^- > 59$, $F = < 59$

Numerical grade will be curved before a letter grade is assigned.

HOMEWORK: Homework will be assigned daily. Although it will not be collected, all the tests will be based on the homework problems. Therefore, it is essential that you do all the homework. We will **not** be able to go over all homework problems in class,

and even those that we do go over may not get worked out completely. Therefore, if you have a lot of questions on the homework, it will be essential for you to come to see me during my office hours or make special appointments. It is very helpful to work on the homework in groups.

ACADEMIC RULES: The Northeastern University's Rules of Academic Honesty and Integrity apply to this course. The following is taken from the Academic Integrity Policy: "A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University."

For more information please see
<http://www.northeastern.edu/osccr/academichonesty.html>

ADDITIONAL RESOURCES: The Mathematics Department Tutoring Center is in Room 540B, Nightingale Hall. Tutoring should begin there two weeks after the start of classes. The tentative schedule is 10am–9pm on Mondays, Tuesdays, and Wednesdays; 10am–6pm on Thursdays; and 10am–1pm on Fridays. This is walk-in tutoring; no appointment is necessary. If there is a discrepancy between how the tutors present material and how your instructor presents material, you should follow your instructor's presentation, but you should discuss the matter with your instructor.

The PDF textbook contains links at the beginning of each section to online full-length, free, video lectures on the contents of that section. These videos can also be accessed by going to www.centerofmath.org. In addition, there are video solution links for select exercises. If there is a discrepancy between how the videos present material and how your instructor presents material, you should follow your instructor's presentation, but you should discuss the matter with your instructor.

ISSUES WITH THE COURSE/INSTRUCTOR: If you have issues with this course and/or instructor which you are not comfortable discussing with your instructor, you should contact the course coordinator, Prof. Shah, at shah@neu.edu, or the Director of Undergraduate Studies, Prof. D. King, at d.king@neu.edu.

MISCELLANEOUS:

- (1) **Computers and cell-phones:** These must be turned off during the class.
- (2) **Your travel plans:** It will not be possible to change the scheduled time for the final exam. So, do not make your travel plans to conflict with the final exam schedule. The same thing applies to Thanksgiving. We have a lot of material to cover in this course. So there will be a class on Monday, Nov. 21st, covering a new topic.

The schedule is subject to change. You are responsible to keep informed about such changes on your own.

Week	Section	Topic	Assignment
Sept. 7–8	1.1	Anti-derivatives (Review)	2,3,5,11,19

	1.1	Integration by parts	32,33,34,36,37,39,41,43,55
Sept. 12-15	1.3 2.1 2.2	Integration by partial fractions Sums and Differences Prelude to definite Integrals	1,3,7,11,13 1,2,5,12,16,19,29 1,17,19,20,21,25,28,31
Sept. 19-22	2.3 2.4	The definite integral The Fundamental Theorem of Calculus	1,2,3,8,9,14-16,23,35,39 1,2,3,10,11,15-17,23,24,41
Sept. 26-29	2.5 2.6 3.1	Improper integrals. Numerical techniques Displacement and Distance traveled.	1,4,5,9-11 1,20,23,25,26 1,2,10,11,19,26,32,45,46
Oct. 3-6	3.2	Area in the plane First 1 hour exam on Oct. 6	1,3,6,8,11,14,19,36 Read Appendix A: Vectors
Oct. 10		Columbus Day: No Classes	
Oct. 12-13	3.3 3.4	Distance traveled in space, Arc length Area swept out, Polar coordinates	1,3,19,21,24,44 1-3,7,9,10,13,14
Oct. 17-20	3.5 3.7 3.8	Volume Mass and Density Centers of mass and Moments	1,2,8-11,13,28,29,39,48,51 7,15,18,25,27 7,8,15,16,21
Oct. 24-27	3.9 4.1 4.2	Work and Energy Approximating polynomials Approximation of functions	1,3,5,8,9,13,23,25,29,39,42 1-3,7-11,15,16,20 1-3,6,9,11,16,19-21,23,32
Oct. 31 - Nov. 3	4.3 4.4	Error in approximation Functions as power series	1,2,5,13,21 1-3,5,7,11,13,15
Nov. 7-10	4.5	Power series as functions, I Second 1 hour exam on Nov. 10	1,3,6,8,10,13,14,16,23
Nov. 14-17	4.6 5.1	Power series as functions, II Theorems on sequences	1,3,5,10-14,16,27,35-37,40,44 1-9,17,19,20,27,28,30
Nov. 21	5.2	Theorems on series, I	1-5,11-13,21-26,31-33,45,47,51,52,55
Nov. 23-27		Thanksgiving Recess	
Nov. 28 - Dec. 1	5.3 5.4	Theorems on series, II Theorems on series, III	2-7,11-13,17,19,22-25,27,29,31,33,35,38,40,42 1-5,9,10,13,15,21,22,33-36,42
Dec. 5-7		Review	
Dec. 8		Reading Day: No Classes	
TBA		Final Exam	