Math 1342 Calculus II for Science & Engineering Spring 2018

Instructor: Brian Hepler
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Office Hours: MW, 1-2:30 p.m.

Class Meetings:

Textbooks: *Worldwide Integral Calculus, with infinite series* and *Worldwide Multivariable Calculus,* by David B. Massey.
PDF and printed versions are available at http://www.centerofmath.org/store/
The PDF textbook has 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. To use the textbook on an iPad, we recommend the GoodReader app. It is absolutely **NOT** required that you purchase a printed textbook.
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 https://www.youtube.com/user/CenterofMath/ In addition, the PDF textbook has links to videos of solutions for selected 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.

Web Materials: All class announcements and material will be posted on Blackboard.

TESTS AND QUIZZES: We will typically have a **quiz** each week. Ordinarily there will be **no make-up** quizzes; instead, I will drop the two lowest quiz scores. A missed quiz will be counted in the dropped lowest score. There may be exceptions to this policy for students due to their participation in university sponsored activities. Students should confer with me about such circumstances as far in advance as possible.

Instead of a single midterm exam, we will have **two 65-minute tests** during the semester: one on Thursday, **February 8** and the second on Thursday, **March 22**. In the rare event that a student misses one of these tests due to a university sanctioned absence or religious observances, the student will be given a makeup test. If a student misses a test for some other reason, then at the instructor's discretion, the student may be given a makeup test. A student's grade on the final exam will not be used in place of a poor grade on a 65-minute test or in place of a missed 65-minute test. The two hour, common, commonly graded, **final exam** will count as 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. Check for **final exam schedule conflicts** as soon as possible. The last day to file a Final Exam Conflict Form with the Registrar is **February 1**. **Do not make travel plans that conflict with the final exam.** There is no make-up for the final.

GRADING:	Final Exam:	40%
	65 min tests:	40% (20% each)
	Quizzes:	20%

Letter grades are determined from the numerical grades as follows:
A: 93-100, A-: 90-92, 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: 0- 59
Border line grades are determined by the final exam score.

As a matter of Math Department policy, the I grade (incomplete) will be given only rarely. It is intended to cover real emergency situations in which a student who is doing reasonably well (C- or better) is unable, due to circumstances beyond the student's control, to complete all course requirements (e.g., is unable to take the final exam due to hospitalization). An I grade may not be used to rescue a failing grade or to postpone the final.

HOMEWORK: Homework will be assigned daily. No homework will be collected. Although homework will not be collected, all 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.

ATTENDANCE: You are expected in class each day. The course moves quickly. You can fall behind in a single day. If you miss class for any reason, I would appreciate your letting me know by e-mail your reason for missing class.

FREE TUTORING: The Mathematics Department Tutoring Center is in Room 540B, Nightingale Hall. The free tutoring center is expected to start by Tuesday, January 16. Hours will be 10am-8pm Monday-Thursday and 10am-1pm on Friday. No weekends. Students sign up through their MyNEU where they can see the available tutors and the classes that each tutor will be able to help you with.

Issues with the Course/Instructor: If you have issues with this course or instructor which you are not able to resolve through conversation with your instructor, contact the course coordinator, Richard Porter at r.porter@northeastern.edu. For matters that remain unresolved, contact the Teaching Director, Professor Robert McOwen 445 LA, 617-373-5678 r.mcowen@northeastern.edu

Academic Honesty: Cheating will not be tolerated. All incidents of cheating will be reported to the Office of Judicial Affairs. The University's policy on cheating and related disciplinary actions are detailed in the Student Handbook and at the following web site (see http://www.northeastern.edu/osccr/academicintegrity).

Computers, Calculators and Cell phones: You should have a graphing calculator. A TI-83 Plus or higher is sufficient. Computers and calculators may be used during class and on some quizzes and tests with the permission of your instructor. Cell phones must be turned off during class. Calculators will allowed on the final exam.

Some Important Dates:
January 29 is the last day to drop a class without a W grade.
February 1 is the last day to file a Final Exam Conflict Form.
April 19 is the last day to drop a class with a W grade.

Additional Items:

1. Any student with a disability is encouraged to meet with the instructor during the first week of classes to discuss accommodations. The student must bring a current Memorandum of Accommodations from the Disability Resource Center (DRC).

2. If you are an athlete and have conflicts with an important class activity (quiz, 65-minute test, or final), you should let your instructor know before the end of second week of classes. You should also bring an official letter from the Office of Athletics.

3. If you must miss a 65-minute hour test, you should let your Instructor know as soon as possible.

4. This syllabus is subject to change**.** It is your responsibility to be aware of any changes to the syllabus announced in class or posted on Blackboard. Students are responsible for all information given when they are absent.

5. Please complete the **TRACE** evaluations at the end of the course.

6. **TA Information:** In addition to the Instructors office hours, Teaching Assistants for the course will have office hours available to students in all sections of MATH 1342. I will let you know the times and locations of these office hours as soon as they are available.

Schedule of Topics and Suggested Homework Exercises

Week 1: January 8 - 12
§1.1 Recall anti-derivatives #2, 3, 5, 7, 9, 11, 15, 19, 23, 26
§1.1 Integration by Parts #32, 33, 34, 36, 37, 39, 41
§1.3 Integration by Partial Fractions #1, 3, 7, 9, 11-14

Week 2 (partial): January 15 - 19
§2.5 Improper Integrals #1, 4, 5, 9-11
§2.6 Numerical Techniques #1, 20, 23, 25, 26
Monday, January 15, Martin Luther King Jr.'s Birthday, no classes

Week 3: January 22 - 26
§4.1 Approximating Polynomials #1-3, 7-11, 15, 16, 20
§4.2 Approximation of Functions (1st day) #1-3, 6, 9, 11, 16, 19-21, 23, 32
§4.2 Approximation of Functions (2nd day) #1-3, 6, 9, 11, 16, 19-21, 23, 32

Week 4: January 29 – February 2
§4.3 Error in Approximation (1st day) #1, 2, 5, 13, 21
§4.3 Error in Approximation (2nd day) #1, 2, 5, 13, 21
§4.4 Functions as Power Series #1-3, 5, 7, 11, 13, 15

Week 5: February 5 - 9
§4.5 Power Series as Functions I #1-3, 7, 9-11, 13, 14, 16, 17
§4.6 Power Series as Functions II #11, 12, 13, 14, 16-18, 35-37, 40, 42
Review & **Test 1**

Week 6: February 12 – 16
§5.1 Theorems on Sequences #1-9, 17, 19, 20, 27, 28, 30
§5.2 Basic Theorems on Series #1-5, 11-13, 21-26, 31-33, 45, 47, 51, 52, 55
§5.3 Non-negative Series (1st day) #2-7, 11-13, 17, 19, 22-25, 27, 29, 31, 33, 35, 38, 40, 42

Week 7 (partial): February 19 - 23
§5.3 Non-negative Series (2nd day) #2-7, 11-13, 17, 19, 22-25, 27, 29, 31, 33, 35, 38, 40, 42
§5.4 Series with Positive and Negative Terms #1-5, 9, 10, 13, 15, 21, 22, 33-36, 42
Monday, February 19, Presidents' Day, no classes

Week 8: February 26 – March 2
§3.1 Displacement and Distance Traveled #1, 2, 10, 11, 19, 26, 32, 45, 46
Appendix A: Introduction to vectors
§3.3 Distance Traveled in Space and Arc Length #1, 3, 19, 21, 24
§3.4 Area Swept Out and Polar Coordinates #1-3, 7, 9, 13, 14
Monday, March 5 through Friday, March 9, Spring Break, no classes

Week 9: March 12 – 16
§3.5 Volume #1, 2, 8-11, 13, 29, 39, 48, 51
§3.7 Mass and Density #7, 15, 18, 25, 27
§3.8 Centers of Mass and Moments #7, 8, 15, 16, 21

Week 10: March 19 - 23
§3.9 Work and Energy #1, 3, 5, 8, 9, 13, 23, 25, 29, 39, 42
§1.1 Euclidean Space #1, 4-10, 13-18, 23, 24 (§1.1 through §1.6 are in the multivariable calculus text)
Review & **Test 2**

Week 11: March 26 - 30
§1.2 R^n as a vector space #1, 3, 5, 7, 9, 10, 13-16, 19-21, 23-24, 27, 29, 33, 36, 41-43, 45, 46
§1.3 Dot product, angles, and orthogonal projection #1-4, 9-12, 17-19, 22, 23, 27-30, 33-35, 45-48

Week 12: April 2 – 6
§1.4 Lines, planes, and hyperplanes #1-4, 9-12, 13-17, 19, 21-23, 27-30
§1.5 Cross product #1-4, 9-12, 17-20, 27-29, 31, 35, 37, 41

Week 13: April 9 – April 13
§1.6 Functions of a single variable #1, 4, 5, 7, 9, 10, 18, 19, 21-25, 29, 33-35
Begin review for the final exam

Week 14 (partial): April 16 - 20
Review for the final exam

Monday, April 16, Patriots' Day, no classes; Thursday, April 19, Reading day

April 20 - 27 final exams