

Math 180 - Calculus I - Fall 2014

David Dumas

Syllabus

Information about this section

CRN: 13382
Lectures: MWF 12pm in Lecture Center D1
Instructor: David Dumas (ddumas@math.uic.edu) Office hrs: MF 2-3pm SEO 503
TAs: Christopher Gomes (cgomes2@uic.edu) Office hrs: Wed 8-10am SEO 430
Amit Shah (ashah216@uic.edu) Office hrs: Thu 9-10am SEO 430
Xudong Zheng (xzheng20@uic.edu) Office hrs: Fri 8-9am SEO 430

Web page: **For this section:** <http://dumas.io/math180/>
For all of math 180: <http://www.math.uic.edu/math180/>

MyMathLab course id: dumas73298

Course description

Math 180 is the introductory calculus course in our three-semester calculus sequence. As such, its goal is to introduce the study of calculus on the real line, which includes limits, differentiation, and basic integration techniques while also covering applications of said topics.

Calculus is a beautiful and venerable subject, whose main aim is to understand the properties of functions, and how they can be used to describe and predict the behavior of various physical systems. The prominence and importance of such study reaches far beyond the pure mathematical endeavor into numerous applications, among others in engineering, natural sciences, and economics.

Students enter Math 180 from a variety of backgrounds: some of you have taken Pre-Calculus at UIC, some have transferred from other schools, or placed directly into Calculus I following your mathematical studies in high school. Regardless of your background coming in, our goal is to help every one of you succeed, and enjoy yourselves as much as possible in the process!

However, calculus is often a subtle and challenging subject, and experience has taught us (both as students once ourselves, and as educators) that success in Math 180 requires a lot of work, many hours of study and problem solving, and your **active involvement** in learning, both inside and outside the classroom. We have designed our course with the aim of helping you stay constantly involved with the course and the material, and within easy reach of some of your best resources: your instructor, your teaching assistants, and your colleagues! Working (quite hard!) together, you will find that at the end of the semester you have not only learned the basics of the course, but mastered the concepts, their connections, and many of their possible applications!

Required Materials

There are two required course materials:

- * Access to the online homework system **MyMathLab**
- * Access to the textbook, **Calculus, Early Transcendentals, by W. Briggs and L. Cochran**

There are several ways to get access to these materials, so please note the following:

1) When you purchase a MyMathLab access code, *you also gain access to an online-only version of the textbook.* (You will need to download and install a free browser plugin to view the textbook sections.) If you are satisfied with reading the textbook this way, you are not required to buy a separate paper textbook.

2) For students who also want a paper textbook, the UIC Bookstore is selling a special UIC edition of the book *bundled with a MyMathLab access code* for a combined price of \$131.60. (This is a discount: For comparison, the hardcover textbook retails for about \$200, while a MyMathLab access code costs \$90.)

3) It is possible to use the older edition of the textbook, used copies of which can be purchased at various retailers, however you will still need to buy a MyMathLab access code. If using the older edition, you will also need to tolerate occasional minor differences between your text and the newer edition the course is based upon.

4) You can start working on MyMathLab even before you buy an access code using their “free trial” option. You then have 14 days to purchase and enter an access code that will allow your online enrollment to continue.

Course Information

Covered material: This course covers chapters 2-5 in the textbook.

Course Structure: This course consists of three hours of lecture (one hour on each of Monday, Wednesday, and Friday) and two hours of discussion/problem solving (on Tuesday and Thursday) each week. The lecture location and time can be found on the first page of this syllabus. Please see your class schedule for the specific time and location of your discussion/problem solving section. In addition, your instructor and TA will be available during their office hours. Instructor and TA office hours are posted on the course web page.

Prerequisites: Grade of C or better in Math 121 or appropriate performance on the department placement test. The prerequisite is enforced throughout all sections of the course without exceptions. Students that have not met the prerequisite will not be allowed to take the course. Students not meeting the prerequisite who have already registered for the course will have their registration canceled.

Schedule

Week	Date	Sections Covered In Class	Notes
1	Monday, August 25, 2014	2.1 The Idea of Limits	Introduction/Syllabus/Policies
	Wednesday, August 27, 2014	2.2 Definitions of Limits	Diagnostic Exam

	Friday, August 29, 2014	2.3 Techniques for Computing Limits	Diagnostic Exam Returned
2	Monday, September 01, 2014	Labor Day -- No Classes	
	Wednesday, September 03, 2014	2.3 Techniques for Computing Limits	
	Friday, September 05, 2014	2.4 Infinite Limits	Last Day to Add Class
3	Monday, September 08, 2014	2.5 Limits at Infinity	
	Wednesday, September 10, 2014	2.6 Continuity	
	Friday, September 12, 2014	3.1 Introducing the Derivative	
4	Monday, September 15, 2014	3.2 Rules of Differentiation	
	Wednesday, September 17, 2014	3.3 The Product and Quotient Rules	
	Friday, September 19, 2014	3.4 Derivatives of Trigonometric Functions	
5	Monday, September 22, 2014	Review	
	Wednesday, September 24, 2014	Review	Evening Midterm 6-8pm (Room TBA)
	Friday, September 26, 2014	3.5 Derivatives as Rates of Change	
6	Monday, September 29, 2014	3.6 The Chain Rule	
	Wednesday, October 01, 2014	3.6 The Chain Rule	
	Friday, October 03, 2014	3.7 Implicit Differentiation	
7	Monday, October 06, 2014	3.8 Derivatives of Logarithmic and Exponential Functions	
	Wednesday, October 08, 2014	3.9 Derivatives of Inverse Trigonometric Functions	
	Friday, October 10, 2014	3.9 Derivatives of Inverse Trigonometric Functions	
8	Monday, October 13, 2014	4.1 Maxima and Minima	
	Wednesday, October 15, 2014	4.2 What Derivatives Tell Us	
	Friday, October 17, 2014	4.2 What Derivatives Tell Us	
9	Monday, October 20, 2014	Review	
	Wednesday, October 22, 2014	Review	Evening Midterm 6-8pm (Room TBA)
	Friday, October 24, 2014	3.10 Related Rates	
10	Monday, October 27, 2014	4.3 Graphing Functions	
	Wednesday, October 29, 2014	4.4 Optimization Problems	
	Friday, October 31, 2014	4.4 Optimization Problems	Last Day to Drop Course
11	Monday, November 03, 2014	4.5 Linear Approximation and Differentials	

	Wednesday, November 05, 2014	4.6 Mean Value Theorem	
	Friday, November 07, 2014	4.7 L'Hopital's Rules	
12	Monday, November 10, 2014	4.8 Antiderivatives	
	Wednesday, November 12, 2014	5.1 Approximating Areas Under Curves	
	Friday, November 14, 2014	5.2 Definite Integrals	
13	Monday, November 17, 2014	5.2 Definite Integrals	
	Wednesday, November 19, 2014	5.3 Fundamental Theorem of Calculus	
	Friday, November 21, 2014	5.4 Working with Integrals	
14	Monday, November 24, 2014	5.5 Substitution Rule	
	Wednesday, November 26, 2014	5.5 Substitution Rule	
	Friday, November 28, 2014	Thanksgiving -- No Classes	
15	Monday, December 01, 2014	Review	
	Wednesday, December 03, 2014	Review	
	Friday, December 05, 2014	Review	
16	Thursday, December 11, 2014	Final Exam (1-3pm) Room TBA	

Course policies

Cell phones: You may not use your phone during lecture or discussion/problem solving sessions for any reason. We ask that you stay focused on the material while attending class. If this becomes a problem, your instructor or teaching assistant will ask you to leave the room.

No calculators: The use of any electronic devices with computing capabilities is prohibited during exams and quizzes.

Diagnostic exam: Given the variety of students taking the course, it is important to ensure that every one of you has the necessary mathematical background which allows you to fully focus on the wealth of new material which you must learn in Math 180. Therefore your instructor will administer a 20-minute diagnostic exam on **Wednesday, August 27**. This exam will consist of problems based on topics from basic algebra and pre-calculus that are required for Math 180. It will be graded based on a simple **Satisfactory** or **Unsatisfactory** system. The results of the diagnostic exam will not affect or in any way be counted towards your final grade for the course. A grade of **S** means you have demonstrated substantive knowledge of the prerequisite material, but the student should still be encouraged to look back at any material that was not completely correct on the exam. The grade of **U** means that your current skills may not be sufficient to continue in Math 180 without substantial difficulties and danger to fail the course, unless you take steps to improve. If you receive a **U**, you are encouraged to talk to your instructor/advisor to discuss your options. Those may include (re)taking Math 121, enrolling in the 4-week review session that runs weeks 2 through 5,

enrolling in additional ESP-sections, seeking tutoring help, etc. All these options are subject to availability, so you have to act quickly.

Attendance: As explained in the course description, your active involvement in learning is essential in order to successfully complete the course! A basic requirement of the course is therefore a serious commitment on your part to attend both the lectures and the discussion/problem sessions.

Attendance in the course will be taken as follows:

In lectures: Attendance will be taken on random days through a pop quiz. There will be a minimum of 14 pop quizzes throughout the semester. The pop quizzes will be 5-10 minutes in length..

In discussion/problem sessions: The TAs will take attendance in each discussion/problem session.

At the end of the semester, a student who does not have an attendance percentage (in-lecture pop quizzes and discussion/problem sessions combined) of at least 80% will receive an F for the course.

Excused Absence Policy: In order to be excused from attendance, students must inform the instructor and/or TA (as appropriate) in advance (except in cases of emergency), and must provide documentation (for example, a letter from a doctor).

Methods of evaluation and grading policies: Your final grade in Math 180 will be determined by the number of points you earn on the following scale:

Over 85 points -- A
70 -- 84 points -- B
55 -- 69 points -- C
40 -- 54 points -- D
Below 40 points -- F

There will be no curve for the final grade.

You can earn points as follows:

Up to 20 points on Midterm 1;
Up to 20 points on Midterm 2;
Up to 30 points on the Final exam;
Up to 20 points on the Homework;
Up to 5 points on the Quizzes given in lecture;
Up to 5 points on attendance and participation in the Problem Sessions.

Midterm grades: It is MSCS policy to assign midterm grades to all students in Math 180.

They will follow the same cut-offs as for the final course grades, but with the following contributions:
40% HW+
10% Quizzes (lowest 10% of quiz grades, or at least 1, dropped)

10% Attendance
40% Midterm 1

Tips on interpreting your midterm grade can be found at

http://tigger.uic.edu/depts/oaadvising/student_midterm.html

Quizzes, homework, exams

Pop Quizzes: Unannounced quizzes will be given on a regular basis, graded by the instructor, and returned in lecture. As stated above, there will be a minimum of 14 quizzes given throughout the course. There will be no make-up quizzes given, but only the largest 80% of quiz grades (rounded up the nearest whole quiz) will be considered when computing the points corresponding to the Quizzes on the final grade. The pop quizzes will be 5-10 minutes in length at the end of the lecture and will be problems either directly from the MyMathLab homework or similar-type problems. The instructor reserves the right to not accept a quiz from a student who was not present during a significant portion of lecture on that day; in other words, a student cannot walk in for the last 10 minutes and take the quiz and count that as attending class that day.

Homework: Homework for the course is assigned in two ways.

Online Homework – Basic problems will be assigned regularly through the online homework system MyMathLab. You must enroll in the course on MyMathLab using the course id on the first page of the syllabus. The purpose of these online problems is to give you instant feedback on some exercises that cover basic material of the course. The online homework will be graded by MyMathLab but will not count towards your course grade.

Written Homework – Each week, the course coordinator will publish a set of homework problems that are to be turned in during discussion/problem solving sessions. These assignments will be posted on the “Homework” tab of the course web page (<http://www.math.uic.edu/coursepages/math180/homework>). These problems will be more challenging than the online homework and will require you to show your full work. You are strongly encouraged to work together with colleagues on these (and any) homework problems, but you must write and understand your own solutions.

Some subset of the written homework problems will be chosen from each homework assignment and will be graded by the TAs. It is very important to note that the solutions to the selected problems will be graded in full, and writing just an answer with no supporting work will not earn any credit. You should pay a lot of attention to the comments made by your TA on each graded homework, since the midterms and the final exam will be graded in a very similar way.

Homework will be due on the specified date (listed on the homework itself) at the beginning of your discussion class. No late homework will be accepted. Each student must submit their own homework directly to the TA, on paper. Electronic submission of homework is not allowed.

The goal of these written problems is to help you learn how to write mathematics as you will need to do on the midterms and final exam. Solutions to the written homework will be posted online along with grading rubrics for the problems. We will also try to post anonymized incorrect solutions to help students learn from their and others' mistakes.

Exams

Midterm 1: The first midterm is a 2-hour exam which will be given in the evening of Wednesday, September 24 from 6-8pm. It will cover the material from Sections 2.1 - 3.4.

Midterm 2: The second midterm is a 2-hour exam which will be given in the evening of Wednesday, October 22 from 6-8pm. It will cover material from Sections 3.5 - 4.2 (minus Section 3.10).

Final Exam: The final exam will take place on Thursday, December 11 from 1-3pm and will cover the material from the whole semester.

Models of midterm and final exams can be found by clicking the link “Exams” above. Note that in previous semesters the midterm exams were each given one week earlier than the current schedule, and so there are corresponding slight differences in the topics these older midterms covered.

Academic Integrity Policy

As an academic community, UIC is committed to providing an environment in which research, learning, and scholarship can flourish and in which all endeavors are guided by academic and professional integrity. All members of the campus community—students, staff, faculty, and administrators—share the responsibility of insuring that these standards are upheld so that such an environment exists. In particular, students are expected to follow the *Guidelines for Academic Integrity*:

<http://www.uic.edu/depts/dos/docs/Guidelines%20for%20Academic%20Integrity.pdf>

Instances of academic misconduct by students will be handled pursuant to the *Student Disciplinary Policy*:

<http://www.uic.edu/depts/dos/docs/Student%20Disciplinary%20Policy.pdf>

Academic Deadlines

Current academic calendar and the list of deadlines can be found at

<http://www.uic.edu/ucatalog/CA.shtml#f>

Disability Policy

The University of Illinois at Chicago is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at UIC. Students with disabilities who require accommodations for access to and/or participation in this course are welcome, but must be registered with the Disability Resource Center (DRC). You may contact DRC at 312-413-2183 (v) or 312-413-0123 (TTY) and consult the following:

http://www.uic.edu/depts/oaad/disability_resources/faq/accommodations.html

Religious Holidays

Students who wish to observe their religious holidays shall notify the faculty member by the tenth day of the semester of the date when they will be absent unless the religious holiday is observed on or before the tenth day of the semester. In such cases, the student shall notify the faculty member at least five days in advance of the date when he/she will be absent. The faculty member shall make every reasonable effort to honor the request, not penalize the student for missing the class, and if an examination or project is due during the absence, give the student an exam or assignment equivalent to the one completed by those students in attendance. If the student feels aggrieved, he/she may request remedy through the campus grievance procedure.

<http://www.uic.edu/depts/oea/docs/ReligiousHolidaysFY20122014.pdf>

Grievance Procedures

UIC is committed to the most fundamental principles of academic freedom, equality of opportunity, and human dignity involving students and employees. Freedom from discrimination is a foundation for all decision making at UIC. Students are encouraged to study the University's *Nondiscrimination Statement*. Students are also urged to read the document *Public Formal Grievance Procedures*. Information on these policies and procedures is available on the University web pages of the Office of Access and Equity:

www.uic.edu/depts/oea