

Math 116 - Calculus II, Section 7, Fall 2015

INSTRUCTOR: Dr. Yulia Hristova

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EMAIL: yuliagh@umich.edu (see e-mail do's and don'ts below)



WEB: canvas.umich.edu

OFFICE HOURS: (subject to change) M 1 – 1:50 pm and 3 – 3:50 pm; TR 5 – 5:50 pm

DEARBORN DISCOVERY CORE CATEGORY: None

COURSE MEETING TIMES: M 4:00 pm - 4:50 pm, CASL 2046; TR 3:30 pm - 4:45 pm, CASL 2046

STUDENT MENTOR: TBA

STUDENT MENTOR HOURS: TBA

COURSE DESCRIPTION: Transcendental functions, techniques of integration, improper integrals, infinite sequences and series, Taylor's theorem, topics in analytic geometry, polar coordinates, and parametric equations.

This class requires at least ten hours of study per week, outside of class.

COURSE OBJECTIVES: Each of the Department's classes emphasizes some learning goals more than others. In this class the concepts of calculus introduced in Math 115 and the mathematical tools that derive from them with respect to functions of one variable are extended to various transcendental and inverse functions; the concept and use of power series representation of functions is introduced; there is group work in the computer labs culminating in collaborative written reports; homework, graded and ungraded, also addresses the application of these tools in specific settings; technology in the form of computer labs, in-class computer demonstrations and the use of on-line resources is an important feature of the course.

REQUIRED MATERIALS: The official text for the course is Calculus (7th edition) by James Stewart, chapters 6 through 11. However, students are **not required** to purchase the official textbook. Instead, any of the following options would work:

- The "thick" Calculus 7e (ISBN-13: 978-0538497817) containing all chapters, 1 through 16.
- Single Variable Calculus 7e, Volume 2 (ISBN-13: 978-0538497855) containing chapters 4 through 11.
- The bundle offered by the university bookstore (ISBN-13: 978-1-133-61329-9)
- The least expensive option (approx \$30): use the 6th edition of Stewart's Calculus (ISBN-13: 978-0495011606). Be careful not to buy the Early Transcendentals version! Problem and section numbers in this older edition differ a bit from the 7th edition, but there is no significant difference otherwise.

GRADING POLICY: Grades will be based on on-line homework assignments (administered through WeBWorK), quizzes, labs, two gateway exams, three 50-min midterm exams, and a 2-hour comprehensive final exam. Opportunities to improve your grade will be given (see Bonus Points section below). Requests for regrading mid-term exams and quizzes must be made within one week after the items in question have been returned to the class.

	Quizzes & Labs	WeBWorK	Gateways	3 MT Exams	Final Exam
% of grade	14%	14%	2%	45% (15% each)	25%

GRADING SCALE:

$$\begin{array}{l|l|l}
 100 \geq A \geq 94 & 84 > B- \geq 80 & 70 > D+ \geq 67 \\
 94 > A- \geq 90 & 80 > C+ \geq 77 & 67 > D \geq 64 \\
 90 > B+ \geq 87 & 77 > C \geq 74 & 64 > D- \geq 60 \\
 87 > B \geq 84 & 74 > C- \geq 70 & 60 > E
 \end{array}$$

PRACTICE PROBLEMS: Ungraded homework from the textbook is posted on Canvas. It is essential for your success in this class to regularly work on the assigned practice problems.

QUIZZES: There will be several in-class quizzes, usually on Tuesdays, which will be announced in advance. No make-up quizzes will be given, instead, the lowest quiz score will be dropped.

WEBWORK: WeBWorK assignments are administered on-line. With some exceptions, these will be due on Sunday evenings. New WeBWorK assignments will be announced in class, through e-mail or on the course website. WeBWorK problems are usually more challenging than most of the practice problems, so working on the practice problems first helps.

LABS: There will be several lab assignments given throughout the semester. Students are expected to work in teams of two to three. For each lab you will be given a set of problems to complete using the computational program *Mathematica*. You do not have to buy this software, as you can use the computers in the labs (CASL 2046, CASL 2048) or at the Math Learning Center (MLC) located in CASL 2076. At the MLC there are tutors who can help with *Mathematica* and other Calc II questions.

GATEWAYS: Two gateway exams will be given during the semester. The purpose of these exams is to make sure all students have mastered certain fundamental topics in the course. The first gateway, Derivative Rules and Integration, covers material from Calculus I. The second gateway focuses on more advanced techniques of integration. You can take each gateway at the math Learning Center (MLC) at most 3 times per day during a two week period after the gateway has been assigned.

MID-TERM EXAMS: These 50-minute exams will be given in class, according to the following schedule (subject to change): **Exam 1** Tuesday, October 6; **Exam 2** Tuesday, October 27; **Exam 3** Tuesday, November 24.

FINAL EXAM: The final exam will be on Friday, December 18, starting 3:00 pm. This 2-hour exam is comprehensive.

BONUS POINTS: Students will be able to earn up to 3% towards their final percentage grade in the course by completing bonus activities. Ten bonus points translate to 1% towards the final grade. Bonus points can be earned by Class Participation (1 point per presentation), Study Groups (1 point per report)

and possibly other means announced during the semester.

Class Participation: Students are encouraged to write the solutions of problems on the board before a class period starts. The problems must come from the list of practice problems (but **not** from WeBWorK). The presentation does not have to be completely correct, but it must show a very good effort and must be written in a way that all students can follow (i.e. legible writing, include enough details and correct mathematical symbols). We will discuss the problem in class so everybody can learn from the presentation. The presentations can be made on any day except on an exam day. No more than 3 students can present on any one particular day. A student can write up to 2 problems during each of the months September, October, November and December. Each presentation is worth 1 bonus point.

Study Groups: Students are encouraged to form study groups and meet regularly. If a study group fills out and presents me a report about the work done during a study session, each member of the group will receive 1 bonus point. Study group reports must be submitted no later than one week after the study session. Multiple study sessions throughout one day will be counted as one. The study group report form can be found on the course website.

MISSED EXAMS POLICY: Missing an exam is permitted only for very serious and unavoidable extenuating circumstances, and only if you notify me in advance. In all cases of absence from exams a written excuse is required. Otherwise you will get a score of 0 on the exam. Even if you are excused from taking a midterm exam, you will not be given a make-up. Instead, the following procedure will apply: at the end of the semester, two grades will be computed for a student who missed a midterm, and the highest of the two grades will be the one awarded for the class; the first grade will be determined by giving appropriate extra weights to the other two midterm exams, while the second grade will be determined by giving extra weight to the final exam. Except in truly exceptional situations, a student who misses the final exam will fail the course.

PROGRAM GOALS: The Department of Mathematics and Statistics Learning Goals for its classes are itemized below. 1) Increase students' command of problem-solving tools and facility is using problem-solving strategies, through classroom exposure and through experience with problems within and outside mathematics. 2) Increase students' ability to communicate and work cooperatively. 3) Increase students' ability to use technology and to learn from the use of technology, including improving their ability to make calculations and appropriate decisions about the type of calculations to make. 4) Increase student's knowledge of the history and nature of mathematics. Provide students with an understanding of how mathematics is done and learned so that students become self-reliant learners and effective users of mathematics.

ANNOUNCEMENTS AND UPDATES: All announcements and updates will be either posted on Canvas, made in class or communicated through e-mail.

IMPORTANT DATES: Last day to **drop** with **no penalty**: **September 22**; Last day to selectively **drop** a course with **penalty**: **November 10**.

UNIVERSITY ATTENDANCE POLICY: A student is expected to attend every class and laboratory for which he or she has registered. Each instructor may make known to the student his or her policy with respect to absences in the course. It is the student's responsibility to be aware of this policy. The instructor makes the final decision to excuse or not to excuse an absence. An instructor is entitled to give a failing grade (E) for excessive absences or an Unofficial Drop (UE) for a student who stops attending class at some point during the semester. **ATTENDANCE POLICY FOR THIS CLASS:** Attendance is very highly recommended. You are responsible for all material covered in class and all assignments. Experience shows

that poor attendance most often results in a poor grade.

CALCULATORS: Calculators are not required for this course, but students are welcome to use them during lectures. Calculators or other electronic devices are not allowed on quizzes and exams.

DISABILITY STATEMENT: The University will make reasonable accommodations for persons with documented disabilities. Students need to register with Disability Resource Services (DRS) every semester they are enrolled. DRS is located in Counseling & Support Services, 2157 UC (http://www.umd.umich.edu/cs_disability/). To be assured of having services when they are needed, students should register no later than the end of the add/drop deadline of each term. If you have a disability that necessitates an accommodation or adjustment to the academic requirements stated in this syllabus, you must register with DRS as described above and notify your professor.

NON-DISCRIMINATION POLICY: The University of Michigan is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, national origin, age, marital status, sex, sexual orientation, gender identity, gender expression, disability, religion, height, weight, or veteran status in employment, educational programs and activities, and admissions. Inquiries or complaints may be addressed to the Senior Director for Institutional Equity, and Title IX/Section 504/ADA Coordinator, Office for Institutional Equity, 2072 Administrative Services Building, Ann Arbor, Michigan 48109-1432, 734-763-0235, TTY 734-647-1388, institutional.equity@umich.edu.

EMAIL COMMUNICATION:

DO'S

- Read [- If you have a question on a WeBWorK problem, do send me an e-mail through WeBWorK by clicking on the "Email instructor" button.](http://www.wikihow.com>Email-a-Professor;• Include)

DON'TS

- Never send me e-mails through Canvas!
- If you have a question on a WeBWorK problem, do **not** send me an e-mail through your mailbox. Instead, use WebWorK.

INCOMPLETES: These will be given only in extraordinary circumstances. More precisely, I will consider giving you an incomplete if you have successfully completed all but a small portion of the work of the course and some severe, unexpected event prevents you from completing the course. This means that you must have taken at least 2 midterms and must be doing work at the C level or better. You will have to sign a contract detailing what you have to do to complete the course. I will not give you an incomplete simply because you are behind in your work; in the latter case you should try to drop the course.

ACADEMIC INTEGRITY POLICY: The University of Michigan-Dearborn values academic honesty and integrity. Each student has a responsibility to understand, accept, and comply with the University's standards of academic conduct as set forth by the Code of Academic Conduct (<http://umdearborn.edu/697817/>), as well as policies established by each college. Cheating, collusion, misconduct, fabrication,

and plagiarism are considered serious offenses and violations can result in penalties up to and including expulsion from the University.

COMMUNICATION AND ELECTRONIC DEVICES USAGE IN CLASS: The use of mobile communication devices and music players disrupts the class. Please be considerate of both your fellow students and your instructor and either turn-off or silence your cell phones, pagers, PDAs, or similar communication devices and turn-off and put away your music players during scheduled classes. Given the fact that these same communication devices are an integral part of the University's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a university emergency exists. If that is not the case, the devices should be immediately returned to silent mode and put away.

CAMPUS SAFETY:

- Program 911 into your cell phones. You should also program Public Safety's phone number (313) 593-5333 into your cell phone. In case of emergency you should first dial 911. If the situation allows also call UM-Dearborn Public Safety to ensure the quickest response time possible.
- All students are strongly encouraged to register in the campus Emergency Alert System, for communications during an emergency. The following link includes information on registering as well as safety and emergency procedures information: <http://umemergencyalert.umd.umich.edu/>. Please note that the system will only communicate through an individual's UM-Dearborn email account so students who primarily use other non-university accounts should forward their UM-Dearborn email to their primary account.

TENTATIVE COURSE OUTLINE:

I will try to adapt the pace of the class to the needs of the students, hence the schedule below is subject to change. The numbers of the listed sections refer to Calculus, 7th edition, by James Stewart.

Week	Section(s)	Contents
1	Review	Main concepts of Calc I
2	6.1, 6.2, 6.3	Inverse functions, exponential and logarithmic functions
3	6.4, 6.6	Exponential and logarithmic functions, inverse trig functions
4	6.8, 7.1	Indeterminate forms, L'Hospital's rule, integration by parts
5	Exam 1, 7.2, 7.3	Techniques of integration
6	7.4, 8.1	Techniques of integration, applications of integration
7	8.2; 7.8	Applications of integration; Improper Integrals
8	Exam 2, 11.1	Sequences
9	11.2, 11.3	Series, Tests for convergence or divergence of series
10	11.4, 11.5, 11.6, 11.8	Tests for convergence or divergence of series, Power series
11	11.8, 11.9, 11.10	Power series, Taylor Series
12	Exam 3	
13	10.1, 10.2, 10.3	Parametric curves, polar coordinates
14	10.4	Areas and lengths in polar coordinates
15	Exam week	Comprehensive final exam