

## Math 205 - Calculus III for Engineers, Section 2, Winter 2016

INSTRUCTOR: Dr. Yulia Hristova

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WEB: <https://umdearborn.edu/canvas>



OFFICE HOURS: (subject to change) M: 2-3 pm; TR: 11:30 am - 12:30 pm, CASL 2079

COURSE MEETING TIMES: TR 12:30 pm - 1:45 pm, CASL 2048

COURSE DESCRIPTION: Vectors in the plane and space, topics from multivariable calculus including partial differentiation and multiple integration, with an emphasis on applications, and line integrals and Green's theorem. Students cannot receive credit for both MATH 205 and MATH 215. 3 credits.

IMPORTANT NOTE: This course covers a large amount of material. In class we will work on understanding the concepts but there will be time for a few examples only. **Students are expected to read the lessons from the textbook or supplement and to complete all examples presented there.**

COURSE OBJECTIVES: Each of the Department's classes emphasizes some learning goals more than others. In this class the concepts of calculus and the mathematical tools that derive from these that were developed in Math 115 and Math 116 are carried over to functions of several variables with special attention paid to the problem-solving needs of engineering students; homework, graded and ungraded, also addresses the application of these tools in specific settings; technology in the form of 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 12 through 16. However, students are not required to purchase the official textbook. The following are other options (all by the same author):

- Calculus, Early Transcendentals, 7th Edition;
- Multivariable Calculus, 7th Edition;
- The 6th edition of the above texts. Problem and section numbers in the older editions differ from the 7th edition. If you use the 6th edition, you will have to coordinate the problem numbers yourself. The Math Learning Center has a copy of the 7th edition, which students are invited to use.

SUPPLEMENT: We will frequently follow Prof. Paul Dawkins's notes available at <http://tutorial.math.lamar.edu/Classes/CalcIII/CalcIII.aspx>

GRADING POLICY: Grades will be based on on-line homework assignments (administered through WeBWorK), quizzes, two 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. **Your grade is based solely on performance, not effort or special circumstances.**

	Quizzes	WeBWorK	2 MT Exams	Final Exam
% of grade	10%	20%	40% (20% each)	30%

GRADING SCALE:

$100 \geq A \geq 94$	$84 > B- \geq 80$	$70 > D+ \geq 67$
$94 > A- \geq 90$	$80 > C+ \geq 77$	$67 > D \geq 64$
$90 > B+ \geq 87$	$77 > C \geq 74$	$64 > D- \geq 60$
$87 > B \geq 84$	$74 > C- \geq 70$	$60 > E$

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, which will be announced in advance. No make-up quizzes will be given, instead, the lowest quiz score will be dropped. Quiz problems will come either from the list of practice problems or WeBWorK.

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 Canvas. WeBWorK problems are usually more challenging than most of the practice problems, so working on the practice problems first helps.

LABS: There will be one or two lab assignments given during 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.

MID-TERM EXAMS: These 50-minute exams will be given in class, according to the following schedule (subject to change): **Exam 1** Tuesday, February 9; **Exam 2** Tuesday, April 5

FINAL EXAM: The final exam will be on Thursday, April 21, starting at 11:30 pm. This 2-hour exam will be comprehensive.

BONUS POINTS: Students will be able to earn up to 2% 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 Study Groups (1 point per report) and possibly other means announced during the semester.

**Study Groups:** Research has shown that students who study with their peers outside of class improve their class performance. 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. 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 in 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 and add with no penalty, January 20, 2016. Last day for selective drop is March 16, 2016. Last day to totally withdraw from all classes, April 19, 2016. Students may purchase tuition insurance should a medical emergency arise. The information about this program is here: [https://umdearborn.edu/rr\\_tuition-fees-refund-plan](https://umdearborn.edu/rr_tuition-fees-refund-plan)

**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/](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](mailto:institutional.equity@umich.edu).

#### EMAIL COMMUNICATION:

##### DO'S

- Read <http://www.wikihow.com/Email-a-Professor>;
- Include the course number in the subject of your e-mail;
- If you have a question on a WeBWorK problem, do send me an e-mail through WeBWorK by clicking on the "Email instructor" button.

##### DON'TS

- Do not 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.

Jan 7 - Jan 26	Chapter 12, Vectors and the Geometry in Space
Jan 28 - Feb 4	Chapter 13, Vector Functions
Feb 9	Exam 1
Feb 11 - Feb 25	Chapter 14, Partial Derivatives
Mar 1 - Mar 3	Spring break
Mar 8 - Mar 10	Chapter 14 continued
Mar 15 - March 31	Chapter 15 Multiple Integrals
Apr 5	Exam 2
Apr 7 - Apr 14	Chapter 16 Vector Calculus
Apr 19	Review
Apr 21	Final exam