

# Math 255-004 – Applied Honors Calculus III

Assist. Prof. Seth Marvel  
Winter 2013

**Time & place:** M, Tu, W, F 1-2 p.m., 205 Dennison

**Text:** *Multivariable Calculus* by James Stewart, 7th ed., published by Brooks/Cole.

**Prerequisites:** Math 156, or permission of instructor

**CTools:** A CTools page (<https://ctools.umich.edu>) will serve as the only website for the course. Important announcements may be made in class that will *not* appear on the CTools site.

## Coursework:

Component	Grade %	Date & Time
Problem sets	20	10 total; see below
Midterm exam 1	20	Tu, Feb. 19, 6-8 p.m.
Midterm exam 2	20	W, Mar. 27, 6-8 p.m.
Final exam	40	F, Apr. 26, 10:30 a.m.-12:30 p.m.

Class participation may, in some cases, raise or lower the final grade determined from these percentages.

Homework (problem sets) will be posted or distributed at least a week before they are due and are due at the beginning of class (in class) on their due date. Late homework will not be accepted. Your lowest two homework grades will be dropped. Use of Mathematica, MATLAB, Maple, and similar software is encouraged on the problem sets, although complete derivations must be given unless otherwise specified. You are encouraged to discuss the course material and the assigned homework problems with your colleagues, but are responsible for writing up your own solutions. Copying from other class members or other sources is not acceptable.

The exams will be uniform across all sections of Math 255. The exam dates are absolutely firm. All students enrolled must plan to take exams at these schedule times. Conflicting travel is not an acceptable excuse to miss an exam. All exams are cumulative, with material covered since the previous exam weighted more heavily. Calculators are not allowed on exams.

**Description:** Math 255 is part of the applied honors calculus sequence for engineering and science concentrators. Applications and concepts receive equal treatment. Theorems are stated precisely and derived, but technical details are omitted. Examples are given to illustrate the theory. Critical thinking and class participation are encouraged. The goal is to provide students with a solid background needed for subsequent courses in mathematics, engineering, or science. The major content will cover analytic geometry of lines and planes using vector notation, parametric representation of curves and surfaces, multivariable calculus, line surface and volume integrals, vector fields, Green's theorem, Stokes' theorem, the divergence theorem, and applications (e.g. electromagnetic fields and fluid dynamics).

**Course content:** Ch. 12-16 of the text.

**Tentative schedule** (PS  $\equiv$  problem set; u.t.  $\equiv$  up through):

Week	Dates	Content	Due	Events
1	Jan. 9, 11	12.1-12.2		
2	Jan. 14, 15, 16, 18	12.3-12.6		
3	Jan. 22, 23, 25	13.1-13.2	PS 1 (u.t. 12.4)	MLK M (no class)
4	Jan. 28, 29, 30; Feb. 30	13.3-13.4, 14.1	PS 2 (u.t. 13.2)	
5	Feb. 4, 5, 6, 8	14.2-14.4	PS 3 (u.t. 14.1)	
6	Feb. 11, 12, 13, 15	14.5-14.8	PS 4 (u.t. 14.4)	
7	Feb. 18, 19, 20, 22	15.1		Midterm 1 on Tu
8	Feb. 25, 26, 27; Mar. 1	15.2-15.4	PS 5 (u.t. 14.8)	
9	Mar. 2-10			Winter break
10	Mar. 11, 12, 13, 15	15.5-15.7	PS 6 (u.t. 15.4)	
11	Mar. 18, 19, 20, 22	15.8-15.10	PS 7 (u.t. 15.7)	
12	Mar. 25, 26, 27, 29	16.1		Midterm 2 on W
13	Apr. 1, 2, 3, 5	16.2-16.4	PS 8 (u.t. 15.10)	
14	Apr. 8, 9, 10, 12	16.5-16.7	PS 9 (u.t. 16.4)	
15	Apr. 15, 16, 17, 19	16.8-16.10		
16	Apr. 22, 23, 26		PS 10 (u.t. 16.10)	Final on F

**Help:**

**Office hours:** Tu, W, F 2(:10)-3 p.m., 4851 East Hall

**Email:** smarvel@umich.edu (use sparingly)

**Phone:** 734-585-6502 (for emergencies only)

**Science Learning Center (SLC):** Study groups available.

<http://www.lsa.umich.edu/slc>

Students can begin registering online for winter term study groups on W, Jan. 16 at 11 a.m. via the SLC website above. Math 255 registration specifically will open at 2 p.m. on W, Jan. 16. For winter term, study groups will begin meeting on Su, Jan. 20. Typically study groups meet once a week for two hours.

**Math Lab:** Free tutoring from the Mathematics Department.

<http://www.math.lsa.umich.edu/undergrad/mathlab/>

Any student with a documented disability should contact me as soon as possible so that we can discuss arrangements to fit your needs.