

Syllabus for Calculus Section 3

Interphase Edge 2013

Lecture: MWF 10:45am-12:15pm in 36-153

Workshop: TR 2:50pm-4:00pm
(Section D) 36-112 / (Section E) 36-144

Instructor: Paul Hand (hand@mit.edu), Office Hours: Monday 7-9pm at Maseeh Basement

Course Assistants: Jose Lara (jlara@mit.edu), Office Hours: Tuesday 7-9pm at Maseeh Basement

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Text: Edwards & Penney “Multivariable Calculus”

Supplemental Resource: You can find many practice problems with solutions at www.leadinglesson.com

Material to be Covered: This course will cover the key ideas from chapters 12-15 of E&P. This is a subset of the syllabus for 18.02 (Multivariable Calculus).

Problem Sets: There will be five problem sets. PSETs #1 and #3 will be due on a Monday in lecture. PSETs #2 and #4 will be due on a Wednesday in lecture. PSET #5 will be due on a Monday night. Students are encouraged to work with others, but each student must write up his or her own solutions. Students must list the names of all collaborators on the front page of the problem set.

Exams: There will be a midterm on Wednesday July 10, another midterm on Wednesday July 24, and a final exam on Thursday August 8. The midterms will occur during the lecture period.

Grading:

- 10% Class/workshop participation
- 10% Midterm I
- 20% Midterm II
- 30% Final exam
- 30% Problem sets

Course Schedule

M	1 July	1. Review of Series Convergence and Taylor/Maclauren Series, Vectors	
W	3 July	2. Dot Product, Cross Product, Matrices, Determinants, Projections	
F	5 July	3. Geometric Proofs with Vectors, Lines and Planes	
M	8 July	4. Parametric Equations, Motion in Space, Velocity, Speed, Acceleration, Quadratic Surfaces	Pset 1 Due
W	10 July	MIDTERM I (covering lectures 1-3)	
F	12 July	5. Functions of Several Variables, Level Sets, Partial Derivatives	
M	15 July	6. Partial Derivatives, Gradients, Directional Derivatives, Tangent Planes	
W	17 July	7. Unconstrained Optimization, Critical Points, LaGrange Multipliers	Pset 2 Due
F	19 July	8. Double Integrals in Cartesian Coordinates, Area and Volume	
M	22 July	9. Polar Coordinates, Double Integrals in Polar Coordinates	Pset 3 Due
W	24 July	MIDTERM II (covering lectures 1-8)	
F	26 July	10. Cylindrical and Spherical Coordinates, Triple Integrals in Cartesian, Cylindrical, and Spherical Coordinates	
M	29 July	11. General Change of Variables, Vector Fields	
W	31 July	12. Line Integrals, Conservative Vector Fields	Pset 4 Due
F	2 Aug	13. Green's Theorem	
M	5 Aug	14. Surface Integrals	Pset 5 Due
W	7 Aug	Course review	
R	8 Aug	FINAL EXAM (covering lectures 1-14)	

Course schedule is tentative and subject to change.