

BARUCH COLLEGE  
DEPARTMENT OF MATHEMATICS

MTH 3035 SYLLABUS  
Vector Calculus

Textbook or ebook: Calculus – 11<sup>th</sup> Edition by Larson and Edwards, Cengage Learning Publisher.  
The WebAssign homework correlates with the section number and topic in the textbook.

<u>Lesson #</u>	<u>Topics</u>	<u>Reading</u>	<u>Homework Problems</u>
1	Vector-valued functions	12.1	P. 825: 11, 12, 15, 19, 21, 27, 31, 55, 61,67, 69
	Calculus and vector-valued Functions	12.2	P. 834: 3 – 15 (odd), 19, 23, 35, 41, 71
	Vector fields	15.1	P. 1053: 5 – 8, 10, 19, 23, 29, 31, 37, 38, 41, 45, 57, 58, 62
2-7	Line integrals	15.2	P. 1065: 11, 15, 19, 29, 33, 47, 49, 53, 55
	Conservative vector fields	15.3	P. 1076: 3, 4, 7, 9, 11, 13, 23, 25, 27
	Green's theorem	15.4	P. 1085: 5, 7, 11, 15, 19, 29, 30, 31
	Parametric surfaces	15.5	P. 1095: 3 – 9, 11, 17, 19, 21, 33, 37, 38
	Surface integrals	15.6	P. 1108: 5, 7, 9, 15, 18, 25, 27
	Divergence theorem	15.7	P. 1116: 3 – 11, 27
	Stokes's theorem	15.8	P. 1123: 3,4, 5, 6, 7, 9, 20

**LEARNING GOALS OF COURSE:** Upon completion of this course, students will be able to:

- evaluate line integrals and surface integrals;
- use the major theorems in vector calculus (the Fundamental Theorem of Line Integrals, Green's theorem, Stokes's theorem, and the Divergence theorem);
- apply vector analysis to potential and conservation of energy problems.