
Multivariable Calculus

Math 212 Fall 2005

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Fowler 307 MWF 9:30pm - 10:25am

<http://faculty.oxy.edu/ron/math/212/05/>

Weeks 13, 14 and 15

Monday November 21 *Class 25:*

Change of Variables and Jacobi's Theorem. We'll examine what happens when you want to compute an integral in a new coordinate system.

Reading:

Williamson & Trotter, (Chapter 7)

Homework:

Williamson & Trotter, page 363: 5,11,16,17,21,35,40,43,44,49 **Extra Credit page 365: 48, 50**

Quiz #10

Monday November 28 *Class 27:*

Path Integrals and the Fundamental Theorem of Calculus. We'll begin Chapter 8 by learning about line integrals (also sometimes called path integrals), i.e. the integral of a vector function along a given curve or path in space.

Reading:

Williamson & Trotter, (Section 8.1)

Homework

Williamson & Trotter, page 376: 1,2,8,9,14 **Extra Credit page 376: 19**

Williamson & Trotter, page 376-377: 22,25,28,29,30 **Extra Credit page 376: 33**

Wednesday November 30 *Class 28:*

Grad, Div and Curl. We'll be introduced to some new vector operators important in the analysis of Vector Fields.

Reading:

Williamson & Trotter, (Section 8.4)

Homework:

Williamson & Trotter, page 394: 5, 6, 7, 8, 18 **Extra Credit page 395: 21**

Quiz #11

Monday December 5 *Class 29:*

Green's Theorem. We'll examine the trinity of important theorems (Green's, Gauss' and Stokes') which apply to vector fields. They are all basically multi-dimensional correspondences of the Fundamental Theorem of Calculus.

Reading:

Williamson & Trotter, (Section 9.1)

Homework:

Williamson & Trotter, page 408–409: 4, 7, 8, 10, 11 **Extra Credit page 409: 15, 18, 20**

Wednesday December 7 *Class 30:*

Conservative Vector Fields. We'll examine the properties of a particularly important class of vector fields.

Reading:

Williamson & Trotter, (Section 9.2)

Homework:

Williamson & Trotter, page 418–419: 3,4,12,13,19, 20, 22 **Extra Credit page 419: 25, 27**