Multivariable Calculus

Week 12

Monday April 17 : *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 #25

Williamson & Trotter, page 376: 1, **2,8,9,14 Extra Credit page 376: 19** AND page 376-377: 22,25,**28,29**,30 **Extra Credit page 376: 33**

Wednesday April 19 *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 #26:

Williamson & Trotter, page 394: 1, 2, **4, 6, 8 Extra Credit page 394-395: 11, 19, 20, 21**

Friday April 21 *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 #27:

Williamson & Trotter, page 408: **3, 4, 6, 7, 10 Extra Credit page 409: 15, 18, 20**

Quiz #11