

# GRANDE PRAIRIE REGIONAL COLLEGE

## MATH 2150 A3 WINTER 2005

**Course:** MA 2150 3 (3-1-0) UT 60 Hours. Intermediate Calculus II. First order and second order linear differential equations with constant coefficients. Curves, tangent lines, arc length, integration in two and three dimensions, polar, cylindrical and spherical coordinates, line and surface integrals. Green's theorem, divergence, and Stokes' theorem.

**Prerequisite:** MA 2140

**Transfer:** UA, UC, UL, AU, CU, CUC, KUC, AUC.

**Schedule:** Class: Mon 8:30 – 9:50 A308  
Thur 10:00 - 11:20 A308  
Seminar: Mon 1:00 - 1:50 J201

**Instructor:** Dr. Eric Chislett  
Office C409  
Phone 539-2003

**Textbook:** i) Calculus, Early Transcendentals, 4<sup>th</sup> Edition, James Stewart  
Brooks/Cole Publishing Company.  
ii) Student Solutions Manual, by James Stewart, Daniel Anderson,  
Daniel Drucker, Brooks/Cole Publishing Company.

**Grading:** Assignments 20%  
Midterm Exam 30%  
Final Exam 50%

**Assign'ts:** There will be 10 assignments given during the term, approximately one per week.

**Seminars:** The assignments are usually finished during the seminars. But you do not have time in this one-hour period to do all of an assignment.

**Midterm:** The Midterm Exam will be on Thur. Feb. 17.

**Final:** The Final Exam time is set by the Registrar's office.

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### **Detailed Course Description:**

- 1. First order differential equations: Separation of variables, linear with integrating factor, homogeneous and exact. Homogeneous and non-homogeneous second order linear differential equations with constant coefficients.**  
Chapters 10 and 18 of Stewart  
Approximately 2-3 weeks.
- 2. Vector Functions: Vector functions and space curves, derivatives and integrals of vector functions, arc length and curvature.**  
Chapter 14 of Stewart.  
Approximately 2-3 weeks.
- 3. Multiple Integrals: Double and triple integrals over rectangles and general regions, integration in polar, cylindrical and spherical coordinates, surface area, change of variable in multiple integrals, and applications.**  
Chapter 16 and section 13.7 of Stewart.  
Approximately 3-4 weeks.
- 4. Vector Calculus: Vector fields, line and surface integrals, the fundamental theorem of line integrals, Green's Theorem, Curl and Divergence, Surface area, Stokes Theorem, and the Divergence Theorem.**  
Chapter 17 of Stewart.  
Approximately 3-4 weeks.