

# **GRANDE PRAIRIE REGIONAL COLLEGE**

## **MATH 2150 A3 WINTER 2009**

**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:**

<b>Class:</b>	<b>Mon</b>	<b>01:00 – 2:20</b>
	<b>Fri</b>	<b>11:30 – 12:50</b>
<b>Seminar:</b>	<b>Fri</b>	<b>10:00 - 10:50</b>

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

**Textbook:** i) Calculus, Early Transcendentals, 6<sup>rd</sup> Edition, James Stewart  
Brooks/Cole Publishing Company.  
ii) Student Solutions Manual, by James Stewart, Daniel Anderson,  
Daniel Drucker, Brooks/Cole Publishing Company.

<b>Grading:</b>	<b>Assignments</b>	<b>10%</b>
	<b>Quizzes</b>	<b>10%</b>
	<b>Term #1 Exam</b>	<b>25%</b>
	<b>Term #2 Exam</b>	<b>25%</b>
	<b>Final Exam</b>	<b>30%</b>

**Assign'ts:** There will be 8 – 10 quizzes and 5 assignments given during the term.

**Midterm:** The The first Term Exam will be on Fri., Feb 13.

**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. Applications of first order differential equations to the Law of Natural Growth and the Logistic Equation. Homogeneous and non-homogeneous second order linear differential equations with constant coefficients. Application of second order differential equations.  
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.