**Grande Prairie Regional College**
**Department: Academic Upgrading**

COURSE OUTLINE—FALL 2007

## INTRODUCTION TO MATH 0131

Instructor: _____     Phone number: _____
Instructor's office: _____     Email: _____

## Calendar Description:

MA 0131 Mathematics Grade 12 Calculus Equivalent 5 (5-0-0) Time: 75 Hours

Description: This course includes slopes and tangents, distance, velocity and acceleration, maxima and minima, sequences, limits and derivatives, derivatives of functions, tangents, derivatives and graphs, further applications of derivatives and anti-derivatives.
Prerequisite: MA 0120 or equivalent (Pre- or Co requisite MA 0130).

## Resource requirements:

Scientific calculator
Package of MA0131 Modules (2007)

## Attendance:

Regular attendance is expected of all students in all mathematics courses. Your success in math is directly linked to your attendance. Attendance will be taken during class. Any student **missing more than 15 classes may be debarred from writing the final exam**.

## Course Delivery and Evaluation:

This course is divided into 9 separate units called modules. The instructions for each topic are given in the modules, followed by several examples and exercises. Study the instructions and work through the examples before starting each exercise. The answers for each exercise are given at the end of the module. Check your work **often** to make sure you understand each new topic.

 **The key to success** in working with modules is to **ask questions** whenever you have difficulty understanding the instructions, the examples, or the exercises. **Do not hesitate to ask for help.**

After each module you must write a test. When writing a test, be sure to show all of your work on the test paper. Marks are given for method as well as final answer. A passing mark of 50% is required on the test before continuing on to the next module. If you are unable to attain this mark, you must review the material and rewrite the test. The first and second test mark will be averaged.

A 50-minute midterm, which will cover the first four modules, must be written by **Monday, October 22**. If you miss this date, you will receive a mark of 0% on your midterm. Upon completion of all the course modules, you will write a three hour final exam. Be sure to leave time to prepare for these important exams!   They are worth a large percentage of your final grade.

The recommended test date for each module and the midterm is on the next page. Follow these dates as closely as you can.  You are encouraged to write a test early if you are prepared. **Consult your instructor immediately if you find yourself falling behind schedule.**  Your instructor may need to reassess your math skills to ensure that you are placed in a course where you can be successful. **All tests must be written by Friday December 7, 2007.**

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**Bonus**
When you write your module tests on or before the given date, you will be awarded an additional 2% on your score for each test.

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Your final mark is determined by:

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|---|---|
| 9 module tests | 45% |
| Midterm | 15% |
| Final Exam | 40% |

Final grades are given as follows:

| Alpha Grade | 4-Point Equivalent | Percentage Guidelines | Designation |
|---|---|---|---|
| A+ | 4.0 | 90 - 100 | Excellent |
| A | 4.0 | 85 - 89 | |
| A- | 3.7 | 80 - 84 | First Class Standing |
| B+ | 3.3 | 76 - 79 | |
| B | 3.0 | 73 - 75 | Good |
| B- | 2.7 | 70 - 72 | |
| C+ | 2.3 | 67 - 69 | Satisfactory |
| C | 2.0 | 64 - 66 | |
| C- | 1.7 | 60 - 63 | |
| D+ | 1.3 | 55 - 59 | Minimal Pass |
| D | 1.0 | 50 - 54 | |
| F | 0.0 | 0 - 49 | *Fail* |

**MA0131 – WINTER 2007**

| Module | TOPIC/DESCRIPTION | Recommended Time & Test Date | Date written | Your mark |
|---|---|---|---|---|
| 1 | Review<br>-review of factoring, rational expressions, rationalizing numerators & denominators, functional notation, graphs of functions. | 6 days<br>September 13<br>Thursday | | |
| 2 | Limits<br>-limits of sequences and series<br>-left and right-hand limits; continuity | 7 days<br>September 24<br>Monday | | |
| 3 | The Derivative<br>-secants, tangents and normals<br>-derivatives from first principles<br>-power rule; sum or difference rule; derivative of a constant; derivative and slope relation | 8 days<br>October 4<br>Thursday | | |
| 4 | More Derivatives<br>- chain rule, product rule, quotient rule<br>-implicit differentiation<br>-derivatives of higher order | 9 days<br>October 18<br>Thursday | | |
| | **MIDTERM** - must be written on or before | **Monday October 22** | | |
| 5 | Curve Sketching<br>-graph sketching using first and second derivatives | 5 days<br>October 29<br>Monday | | |
| 6 | Applications: Maximum/Minimum<br>-maximum/minimum problems involving numbers or geometry<br>-extreme values of distance and time | 6 days<br>November 6<br>Thursday | | |
| 7 | Applications: Rate of Change<br>-applications involving velocity, acceleration, area, volume, related motion | 7 days<br>November 16<br>Friday | | |
| 8 | Anti-derivatives and Area<br>-introduction to antiderivatives; families of curves<br>-differential equations<br>-the antiderivative as an area<br>-position from velocity, velocity from acceleration | 9 days<br>November 29<br>Thursday | | |
| 9 | Derivatives of Trigonometric Functions<br>-trigonometric identities<br>-limits of trigonometric functions<br>-derivatives of trigonometric functions | 6 days<br>December 7<br>Friday | | |
| | **FINAL EXAM  - 3 HOURS** | **To be announced<br>(Dec. 10 – 19)** | | |