

# **MAT 1339 A - Introduction to Calculus and Vectors**

## **Fall 2016**

**Instructor:** Jason Bramburger

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**Office:** KED B07-B

**Lectures:** Tuesday: 13:00 - 14:30 HNN 013

Thursday: 11:30 - 13:00 HNN 013

**DGD:** Tuesday: 16:00 - 17:30 FTX 232

**Note:** You are strongly encouraged to attend each DGD. Problems that you encounter in this course will be similar to those covered in the DGD.

**Office Hours:** Tuesday: 11:30 - 12:30 KED B007-B

Wednesday: 13:00 - 14:30 KED B007-B

**Course Content:** Instantaneous rate of change as a limit, derivatives of polynomials using limits, derivatives of sums, products, the chain rule, derivatives of rational, trigonometric, exponential, logarithmic, and radical functions. Applications to finding maxima and minima and graph sketching. Concavity and points of inflection, the second derivative. Optimization in models involving polynomial, rational, and exponential functions. Vectors in two and three dimensions. Cartesian, polar and geometric forms. Algebraic operations on vectors, dot product, cross product. Applications to projections, area of parallelograms, volume of parallelepipeds. Scalar and vector parametric form of equations of lines and planes in two and three dimensions. Intersections of lines and planes. Solution of up to three equations in three unknowns by elimination or substitution. Geometric interpretation of the solutions.

**Prerequisites:** Ontario 4U Functions (MHF4U) or MAT1318 or equivalent. The courses MAT1339, Ontario 4U Calculus and Vectors (MCV4U) or any equivalent cannot be combined for credits.

**Textbook:** Calculus and Vectors 12 by McGraw-Hill Ryerson

**Evaluation:**

**Assignments:** Assignments will be posted on Blackboard approximately two weeks before they are due. They are to be handed in at the start of lecture on the due dates. Late assignments will not be accepted. Assignments are worth **20% (5% per assignment)** of your final grade. **Assignments must be stapled.**

- **Assignment 1 Due: Thursday, September 29**
- **Assignment 2 Due: Thursday, October 20**
- **Assignment 3 Due: Thursday, November 10**
- **Assignment 4 Due: Thursday, December 1**

**Tests:** There will be **2 (Two)** tests in the classroom **each worth 15%** of your final grade.

**Test 1: Thursday, October 6**

**Test 2: Thursday, November 17**

**Final Exam:** The final exam will be worth **50%** of your final grade and will be held during the exam period.

**Notes:**

1. This course may be taken for upgrading purposes or as an admission requirement. In all cases, credits for this course do not count as part of any program requirements. The **S/NS grading scheme** will be used where **S (Satisfactory)** is the symbol used for a successfully completed course that is not included in grade point average calculations and **NS (Not satisfactory)** is the symbol used for a failed course that is not included in grade point average calculations. You will be given an alphabetic grade by your instructor that will be converted to S (if you get any of D to A+) or NS (if you get E or F). If you get the letter grade E, you will have the possibility to write a supplemental exam and your grade S/NS will be finalized after the exam.

2. If your final exam mark is **below 40%**, then your final grade will be **NS** regardless of your other marks.
3. If a test is missed for a valid reason, its percentage weight will be transferred to the final exam provided you notify me (Jason Bramburger) by e-mail before the test is written and submit a proper justification (e.g. certificate from UO Health Services) when you return to class.
4. Any attempt at copying is treated as a case of academic fraud, as is the facilitation of copying by others. Students must take reasonable care to prevent others from copying their work. Academic fraud comes with very harsh consequences ranging from failing the course to expulsion from the university.
5. The University of Ottawa does not tolerate any form of sexual violence. Sexual violence refers to any act of a sexual nature committed without consent, such as rape, sexual harassment or online harassment. The University, as well as student and employee associations, offers a full range of resources and services allowing members of our community to receive information and confidential assistance and providing for a procedure to report and incident or make a complaint. For more information, visit:

<http://www.uOttawa.ca/sexual-violence-support-and-prevention>

**Drop-In Centre:** The math help centre is an excellent resource for first year students who need help in mathematics. It is located in **TBT C115**. The staff can help you with any problem you encounter in this course, so please feel free to visit as often as necessary. Their schedule is as follows:

**From September 12 to December 2 (Except October reading break)**

Monday and Wednesday: 10:00 - 19:00

Thursday: 10:00 - 17:00

Friday: 10:00 - 15:00

**October Reading Break Hours (October 24 - 28)**

Monday and Tuesday: Closed

Wednesday, Thursday and Friday: 10:00 - 15:00

All other information can be found at their website:

<https://science.uottawa.ca/mathstat/en/help-centre>