

# MAT133Y5Y - Calculus and Linear Algebra for Commerce

## University of Toronto at Mississauga - Summer 2010

**Instructors:** Saša Kocić e-mail: s.kocic@utoronto.ca  
Office: SE 2110 Q

Sylvain Bonnot e-mail: sylvain.bonnot@utoronto.ca  
Office: CC 4029

**Teaching Assistants:** Byron Man e-mail: byron.man@utoronto.ca  
Charles Tsang e-mail: ck.tsang@utoronto.ca  
Abdul Rahman Ayoub e-mail: abdul.ayoub@utoronto.ca

**Textbook:** Introductory Mathematical Analysis, 12th edition, by Haeussler, Paul, and Wood.

**Lectures:** Mondays and Wednesdays 6pm-9pm, SE 2082.

**Calculator:** The only calculators allowed for using during the term tests and the final exam are TI-30X, TI-30XIIB or TI-30XIIS.

**Tutorials:** There are four tutorial groups for the course, as follows:

<b>Tutorial section</b>	<b>Time</b>	<b>Location</b>	<b>Teaching Assistant</b>
TUT 6001	Mon 4pm-6pm	SE 3031	
TUT 6002	Wed 4pm-6pm	SE 3031	
TUT 6003	Mon & Wed 5pm-6pm	SE 1130	
TUT 6004	Mon & Wed 5pm-6pm	SE 2028	

Each student must be registered in one of the four tutorials (on ROSI), and attend it regularly. In tutorials, the TA will review the material taught in the lectures, and provide examples that will prepare you for the questions in the assignments and on the tests. You will also have the opportunity to ask questions and work on practice problems with other students.

Tutorials will begin on May 17 (second week of classes).

### **Course website**

You can access the course website through the University of Toronto Portal (<https://portal.utoronto.ca/>).

After logging in, click on the course title under 'My Courses' to enter the website.

Homework problems and other important material will be posted on the website, so you should check it regularly. You will also be able to see your marks for the problem sets and the term tests online. Some important information may be sent by email, so you should also check your email regularly.

### **Problem Sets**

There will be NINE problem sets, due almost every week. Problem sets will be posted on the website at least a week before the due date. You must submit your work to your TA **at the beginning of the**

## **tutorial.**

You are encouraged to work on questions from the assignment with your fellow students. However, the writing of your assignment must be done without anybody's assistance.

Your problem set mark will be determined by eliminating the worst problem set (provided that you handed in all of them), and computing the average mark of the remaining problem sets.

## **Term Tests**

There will be two term tests, held during regular lecture times.

Term Test 1	Wednesday, June 16, 2010
Term Test 2	Wednesday, July 28, 2010

Each term test will be 2 hours. More details about the term tests will be given as the test date approaches. You will be allowed to use a calculator (TI-30X, TI-30XIIB or TI-30XIIS only) during the term tests and the final exam.

You **must** bring your student card to the term tests.

## **Missing a Test**

If you believe that you cannot write a term test because of special reasons, you should contact the instructor to try to obtain a special prior permission not to take the test. You must provide proper documentation. Anyone who misses a term test without prior approval will not get any credit for that test, unless the absence is due to illness (properly documented). If you cannot show up for a test because of illness, you should submit your medical documentation to the instructor no later than **one week** after the day of the test.

There will be **NO make-up tests**. The instructor will adjust the marking scheme properly for students who have missed a test because of illness or any other (approved) legitimate reason.

## **Final Exam**

The final exam of the course will take place during the examination period in August, and will be 2 hours long. It will cover all of the material presented in lectures, tutorials and in the problem sets.

## **Marking Scheme**

Your Final grade will be computed in the following way:

$$20\% \text{ Problem sets} + 20\% \text{ First term test} + 20\% \text{ Second term test} + 40\% \text{ Final exam}$$

## **Code of Behaviour / Plagiarism**

Students should become familiar with and are expected to adhere to the Code of Behaviour on Academic Matters which can be found in the UTM Calendar or at:

<http://www.utm.utoronto.ca/regcal/WEBGEN120.html>

<http://www.utm.utoronto.ca/regcal/WEBGEN87.html> (Academic Honesty)

<http://www.utoronto.ca/writing/plagsep.html> (Advice on avoiding plagiarism)

## Course Outline

<b>Date</b>	<b>Sections to be covered</b>	<b>Comments</b>
Mon, May 10	5.1 - Compound Interest 5.2 - Present Value 5.3 - Interest Compounded Continuously	No tutorials.
Wed, May 12	5.4 - Annuities 5.5 - Amortization of Loans	No tutorials.
Mon, May 17	6.1 - Matrices 6.2 - Matrix Addition and Scalar Multiplication 6.3 - Matrix Multiplication 6.4 - Solving Systems by Reducing Matrices	Submit Problem Set 1 (TUT6001)
Wed, May 19	6.5 - Solving Systems by Reducing Matrices (cont.) 6.6 - Inverses	Submit Problem Set 1 (TUT6002,6003,6004)
Mon, May 24	Victoria Day - NO CLASSES.	
Wed, May 26	6.7 - Leontief's Input-Output Analysis 7.1 - Linear Inequalities in Two Variables	Submit Problem Set 2 (TUT6002,6003,6004)
Mon, May 31	7.2 - Linear Programming 7.3 - Multiple Optimum Solutions	Submit Problem Set 2 (TUT6001)
Wed, June 2	10.1, 10.2 - Limits 10.3 - Continuity	Submit Problem Set 3 (TUT6002,6003,6004)
Mon, June 7	11.1 - The Derivative 11.2 - Rules of Differentiation 11.3 - The Derivative as a Rate of Change	Submit Problem Set 3 (TUT6001)
Wed, June 9	11.4 - Product and Quotient Rule 11.5 - The Chain Rule and the Power Rule 12.1 - Derivatives of Logarithmic Functions	Submit Problem Set 4 (TUT6002,6003,6004)
Mon, June 14	12.2 - Derivatives of Exponential Functions 12.3 - Elasticity of Demand 12.4 - Implicit Differentiation	Submit Problem Set 4 (TUT6001)
Wed, June 16	TERM TEST 1	
Mon, June 21	12.5 - Logarithmic Differentiation 12.6 - Newton's Method 12.7 - Higher Order Derivatives	
June 22 - July 2	BREAK - NO CLASSES.	
Mon, July 5	13.1 - Relative Extrema 13.2 - Absolute Extrema on a Closed Interval 13.3 - Concavity	Submit Problem Set 5 (TUT6001,6003,6004)
Wed, July 7	13.4 - The Second Derivative Test 13.5 - Asymptotes 13.6 - Applied Maxima and Minima	Submit Problem Set 5 (TUT6002)
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<b>Date</b>	<b>Sections to be covered</b>	<b>Comments</b>
Mon, July 12	14.2 - The Indefinite Integral 14.3 - Integration with Initial Condition	Submit Problem Set 6 (TUT6001,6003,6004)
Wed, July 14	14.4 - More Integration Formulas 14.5 - Techniques of Integration	Submit Problem Set 6 (TUT6002)
Mon, July 19	14.6 - The Definite Integral 14.7 - The Fundamental Theorem of Integral Calculus 14.9 - Area	Submit Problem Set 7 (TUT6001,6003,6004)
Wed, July 21	14.10 - Area between Curves 14.11 - Consumers' and Producers' Surplus	Submit Problem Set 7 (TUT6002)
Mon, July 26	15.1 - Integration by Parts 15.2 - Integration by Partial Fractions 15.3 - Integration by Tables (Tables NOT used)	
Wed, July 28	TERM TEST 2	
Mon, August 2	Civic Holiday - NO CLASSES.	
Wed, August 4	15.4 - Average Value of a Function 15.5 - Differential Equations 15.7 - Improper Integrals	Submit Problem Set 8 (TUT6002,6003,6004)
Mon, August 9	17.1 - Functions of Several Variables 17.2 - Partial Derivatives 17.3 - Application of Partial Derivatives	Submit Problem Set 8 (TUT6001)
Wed, August 11	17.5 - Higher Order Partial Derivatives 17.6 - Chain Rule	Submit Problem Set 9 (TUT6002,6003,6004)
Mon, August 16	17.7 - Max. and Min. for Functions of Two Variables 17.8 - Lagrange Multipliers	Submit Problem Set 9 (TUT6001)

We wish you GOOD LUCK in the course!