

**School of Engineering  
University of Guelph**

**ENGG\*1500 Engineering Analysis**

**Course Description & Outline – Winter 2013**

**CALENDER DESCRIPTION**

This course deals with engineering applications of matrix algebra, vector spaces and computer techniques to solve linear systems. Topics include linear transformations, eigenvalues and eigenvectors, diagonalization and their applications. Additional topics include complex variable algebra, multi-variable functions, partial derivatives, maxima and minima.

**PREREQUISITES**    **MATH\*1200** - Calculus

**INSTRUCTOR:**    **Soha Eid Moussa, Ph. D., P. Eng**  
Room 1341, Thornborough Building  
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Office Hours: Open Door Policy

**TEACHING ASSISTANTS** (tutorials will start in the second week of classes)

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**TEXT BOOK**

Daniel Norman and Dan Wolczuk, Introduction to Linear Algebra for Science and Engineering, Second Edition, Pearson Canada Inc., 2012.

**COURSE OBJECTIVES**

The main goal of this course is to give you a solid foundation in the basic concepts of linear algebra that will be needed throughout your engineering career.

## CLASS TIME & LOCATION

<b>Lecture</b>	T-Th	1:00-2:20	ROZH 104	
<b>Tutorials</b>	T01	Monday	9:30-10:20	MACK 307
	T02	Monday	10:30-11:20	MACK 311
	T03	Tuesday	10:30-11:20	MACK 305
	T04	Wednesday	9:30-10:20	MACK 309
	T05	Wednesday	10:30-11:20	MACK 304
	T06	Thursday	10:30-11:20	MACK 304
	T07	Friday	9:30-10:20	MACN 118
	T08	Friday	10:30-11:20	MACK 307
	T09	Monday	1:30-2:20	MACK 316
	T10	Wednesday	1:30-2:20	MACK 315
	T12	Monday	4:30-5:20	MACK 306

## METHOD OF EVALUATION

2 Mid-term Examinations	25% each
Final Examination	50%

**Disclaimer:** *The instructor reserves the right to change any or all of the above in the event of appropriate circumstances, subject to University of Guelph Academic Regulations*

## MID-TERM and FINAL EXAMINATION

<b>MID-TERMS</b>	Date:	February 7 & March 14
	Time:	in class
	Location:	ROZH 104

<b>FINAL</b>	Date:	April 13, 2012
	Time:	19:00-21:00 (7-9) pm
	Location:	TBA

**Disclaimer:** *The instructor reserves the right to change any of the above mid-term dates in the event of appropriate circumstances, subject to University of Guelph Academic Regulations*

## **COMMUNICATION**

All communication for the course will be done through the Courselink website. This includes the distribution of weekly assignments and lecture notes. Courselink can be found at: <http://courselink.uoguelph.ca>

All students are expected to consult with the course site regularly and will be responsible for the material posted on this site.

## **COURSE ORGANIZATION**

The proposed schedule of topics is shown below.

- Euclidean Vector Spaces
- Systems of Linear Equations
- Matrices, Linear Mappings, and Inverses
- Vector Spaces
- Determinants
- Eigenvectors and Diagonalization
- Symmetric Matrices and Quadratic Forms
- Eigenvectors in Complex Vector Spaces

## **UNIVERSITY POLICY ON ACADEMIC MISCONDUCT**

Academic misconduct, such as plagiarism, is a serious offence at the University of Guelph. Please consult the current undergraduate calendar and School of Engineering programs guide, for offences, penalties and procedures relating to academic misconduct.

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>