



**MSCI 5010 (A01)**  
**MATHEMATICS FOR MANAGEMENT**  
**Fall 2009**

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**INSTRUCTOR**

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**COURSE DESCRIPTION**

This is a remedial course in linear and matrix algebra and calculus; with applications to elementary management problems.

**COURSE OBJECTIVES**

Mathematics for Management is a remedial course in matrix algebra and calculus, and their applications. It also has some content of mathematics of finance and data analysis. It is designed for graduate students who have not previously studied mathematics at a university level. The course will attempt to:

1. Introduce you to various mathematical concepts that are required for use in other MBA courses.
2. Make you comfortable with mathematical material.
3. Introduce you to mathematical models, particularly models that are frequently used by managers to aid their decision-making
4. Give you a mathematical vocabulary and an understanding of the mathematical approach to problem solving so that in your professional career, you may be able to effectively communicate with experts who may help you with problem solving.

Note: The emphasis of this course is on the applications of mathematics in the formulation and solution of business problems. Memorization of theorems and proofs is not encouraged.

**COURSE MATERIALS**

Applied Mathematics for the Managerial, Life, and Social Sciences, by S.T. Tan, Brooks/Cole, CA, U.S.A., 2009, 5<sup>th</sup> Edition.

## **COURSE ASSESSMENT**

You need 65% to pass the course.

Assignments	20%
Mid Term Examination	30%
Final Examination	50%

## **COURSE CONTENT AND SCHEDULE**

Lecture #	Topic	Book Sections
1	Functions, their graphs and linear functions (Pick up assignment #1)	2.1 - 2.5
2	System of linear equations	5.1 - 5.3
3, 4	Matrix algebra (Hand in assignment #1 and pick up assignment #2 during week 3)	5.4 - 5.6
5	Quadratic, exponential and logarithmic functions (Hand in assignment #2 and pick up assignment #3)	2.6, 3.1 - 3.3
6	The derivative	9.1 - 9.5, 9.7
7, 8	Applications of the derivative, optimization	10.1 - 10.4
	Mid Term Examination during the 7 <sup>th</sup> week (Hand in assignment #3 and pick up assignment #4)	
9	Mathematics of Finance	4.1 - 4.2
10	Mathematics of Finance (Hand in assignment #4)	4.3

## **ACADEMIC REGULATIONS**

Students are encouraged to contact Disability Services at 474-6213 or the instructor should special arrangements need to be made to meet course requirements.



## ACADEMIC INTEGRITY

I.H. Asper School of Business. The University of Manitoba

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It is critical to the reputation of the I. H. Asper School of Business and of our degrees that everyone associated with our faculty behaves with the highest academic integrity. As the faculty that helps create business and government leaders, we have a special obligation to ensure that our ethical standards are beyond reproach. Any dishonesty in our academic transactions violates this trust. The University of Manitoba Graduate Calendar addresses the issue of academic dishonesty under the heading "Plagiarism and Cheating." Specifically, acts of academic dishonesty include, but are not limited to:

- using the exact words of a published or unpublished author without quotation marks and without referencing the source of these words
- duplicating a table, graph or diagram, in whole or in part, without referencing the source
- paraphrasing the conceptual framework, research design, interpretation, or any other ideas of another person, whether written or verbal (e.g., personal communications, ideas from a verbal presentation) without referencing the source
- copying the answers of another student in any test, examination, or take-home assignment
- providing answers to another student in any test, examination, or take-home assignment
- taking any unauthorized materials into an examination or term test (crib notes)
- impersonating another student or allowing another person to impersonate oneself for the purpose of submitting academic work or writing any test or examination
- stealing or mutilating library materials
- accessing tests prior to the time and date of the sitting
- changing name or answer(s) on a test after that test has been graded and returned
- submitting the same paper or portions thereof for more than one assignment, without discussions with the instructors involved.

Many courses in the I. H. Asper School of Business require group projects. Students should be aware that group projects are subject to the same rules regarding academic dishonesty. Because of the unique nature of group projects, all group members should exercise special care to insure that the group project does not violate the policy on Academic Integrity. Should a violation occur, group members are jointly accountable unless the violation can be attributed to a specific individual(s).

Some courses, while not requiring group projects, encourage students to work together in groups (or at least do not prohibit it) before submitting individual assignments. Students are encouraged to discuss this issue as it related to academic integrity with their instructor to avoid violating this policy.

In the I. H. Asper School of Business, all suspected cases of academic dishonesty are passed to the Dean's office in order to ensure consistency of treatment.



## MEDICAL ABSENTEEISM FORM

I.H. Asper School of Business, The University of Manitoba

### STUDENT IDENTIFICATION: (PLEASE PRINT CLEARLY)

_____	_____	_____	_____
Last Name	First Name	Middle Initial	U of M Student Identification Number
_____	_____		
Course #	Instructor Name		
_____	_____		
Student's Signature	Date		

### TO BE COMPLETED BY THE ATTENDING PHYSICIAN: (after the above section is completed) (PLEASE PRINT CLEARLY)

_____	_____	_____
Physician's Last Name	Physician's First Name	Middle Initial
_____	_____	_____
Street Address	City, Province	Postal Code
_____	_____	_____
Telephone Number	Fax Number	
_____	_____	
<p><b>To the attention of the physician:</b> Your evaluation of the student's condition is being used for the purpose of determining whether or not the student has a <u>valid reason</u> to miss an important <u>exam</u> or <u>assignment</u>. Your professional evaluation is necessary to ensure that only valid cases are excused.</p>		
<p><b>I certify that the nature of the student's condition is severe enough to prevent the student from taking an exam or completing an assignment. If requested, my associates or I will verify for the above named instructor/administrator that this information is accurate.</b></p>		
<p>The student's condition will likely span the following dates:</p>		
_____	until	_____
(Indicate start date)		(Indicate end date)
_____		_____
Physician's Signature	Date	

### NOTES TO PHYSICIAN:

- Please make a note in the student/patient's file indicating that the student has given the above named instructor/administrator permission to verify with you, your staff, or your colleagues, that the information contained on this form is correct. Thank you for your professional evaluation of this student's condition.
- **PLEASE ATTACH THIS FORM TO YOUR REGULAR OFFICE STATIONERY THAT INDICATES THE STUDENT VISITED YOUR OFFICE.**

### NOTES TO STUDENT:

- The use of this form is at the option of the student. However, in order to obtain an excused absence for an assignment or exam the student must obtain a doctor's certification that the student's condition is severe enough to prevent the student from taking the exam or completing the assignment.
- It is NOT SUFFICIENT to provide a note that only indicates the student visited the doctor's office.



## FACULTY BIOGRAPHY

I.H. Asper School of Business, The University of Manitoba

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### **Dr. Suresh Kumar Bhatt**

Department of Supply Chain Management

**Areas of Research Interest:** Theory and application of Management Science / Operations Research. The area of interest covers mathematical programming, inventory management, multi-objective optimization, scoring models and productivity analysis and their application to Agriculture Economics, Water Resource management, Engineering Optimization, Production and Supply Chain Management.

**Areas of Teaching:** Management Science, Production and Inventory Systems, Mathematical Optimization Models (project course), Mathematical Control Models (project course), Mathematics of Management, Business Statistics, Mathematics of Finance, and Doctoral Seminar in Management Science.

Dr. Bhatt is full professor of management science in the Faculty of Management at the University of Manitoba since 1984. Prior to joining University of Manitoba as a visiting professor in 1975, Dr. Bhatt taught at the Indian Statistical Institute, Calcutta. Dr. Bhatt obtained his Ph.D. from the Indian Institute of Technology, Kanpur, India. Before that, he was involved in research and development projects for R & D organization of national defense.

Dr. Bhatt has more than fifty articles published in international journals and proceedings. Professor Bhatt received the "best paper" award at the Administrative Sciences Association of Canada conference held in Montreal in 1996. He also received the "honorable mention award" for his paper at the ASAC conference in Ottawa in 2007. He has guided many Master's theses and has served on several Ph.D. committees.

Professor Bhatt emphasizes relating the quantitative models to the real world situations. Some of the work in the project courses he has taught was done for the local business and other organizations.

Dr. Bhatt served as an Associate Program Chairman of the Canadian Operations Research Society silver jubilee conference at Winnipeg in 1983, Program Chairman, management science division, Administrative Sciences Association of Canada conference in Vancouver, 1986; Acting Head, Dept. of Actuarial and Management Sciences for a term; Chairman of MBA program committee and Chairman, Faculty of Management Ph.D. committee for a year.

Professor Bhatt played soccer and table tennis for his university teams. He is also interested in theatre and a drama directed by him won a special award in the Manitoba theatre competition in 1986.