



B.E. International Program

Faculty of Economics, Thammasat University



Course Outline

TU152 Fundamental Mathematics

Semester 2/2013 (January 13 – May 3, 2014)

Instructor: Dr. Saifon Chaturantabut

Class Time and Venue:

Date: Tuesday and Thursdays

Time: 8.00 AM – 9.30 AM (Section 046401)

11.00 AM – 12.30 PM (Section 046402)

Venue: 201, 2nd floor, Faculty of Economics, Thammasat University, Tha Prachan

E-mail: saifon@mathstat.sci.tu.ac.th

Office: Room LC3-217/11, Department of Mathematics and Statistics
Faculty of Science and Technology Thammasat University, Rangsit

Course Objective:

The goal of this course is to lay the mathematical foundation for the students in various important topics consisting of : *rules of reasoning, methods of proof, mathematical induction, proofs of theorems for inequalities and absolute values, functions, types and applications of functions, curve sketching, partial fractions, and system of linear equations*. This course is intended to train the students to understand and appreciate both theory and calculation of these topics. The students will not only learn how to solve the problem, but also learn the concepts, the hypotheses behind, and how to apply them correctly.

Prerequisite: -

Texts and references:

1. Susanna S. Epp, **Discrete Mathematics with Applications**, 4th Edition, Brooks/Cole Cengage Learning, 2011
2. Kenneth Rosen, **Discrete Mathematics and Its Applications**, 7th Edition, McGraw-Hill, 2011
3. Wolfgang Rautenberg, **A Concise Introduction to Mathematical Logic**, 3th Edition, Springer, 2010
4. Raymond A. Barnett, Michel R. Ziegler, Karl E. Byelen, **College Mathematics for business, economics, life sciences, and social sciences**, New Jersey: Prentice-Hall, 1999

Grading:	Midterm exam	35%
	Final exam	40%
	Homework	10%
	Quiz	15%

Assessment: Both by curving and scaling

Remarks:

1. The instructor's lecture notes will also be used as the main course materials and should be considered an integral part of the course.
2. In-class quizzes may or may not be announced in advance.
3. Make-up exams or quizzes will not be given. Late work will not be accepted. Exceptions may be made for individuals in the event of serious illness or personal emergency at the instructor's discretion; contact the instructor immediately if such a situation arises.

Course Schedule

Lecture	Date	Topics
1-7	Jan 14, Jan 16 Jan 21, Jan 23 Jan 28, Jan 30 Feb 4	Logic: - Logical form and logical equivalence - Truth table for compound statements - Tautologies and contradictions - Rules of inference - Conditional statements - Predicates and quantified statements - Nested quantifiers
8-11	Feb6 Feb 11, Feb 13 Feb 18	Method of proof : - Direct proof - Disproof by counterexample - Indirect Argument: Contradiction, Contrapositive
12-14	Feb20 Feb 25, Feb 28	Mathematical Induction
	March 4, 2014: 8.00 – 9.30 AM.	Midterm exam
15-18	March 11, March 13 March 18, March 20	Solving inequalities and problems with absolute value: theories, proofs & applications

19-25	March 25, March 27 April 1, April 3, April 8, April 10 April 15	Functions: - Relations & functions - Domains and ranges of functions, - Types and applications of functions - Inverse functions - Composition of functions Partial fractions decomposition
26-27	April 17 April 22	Curve sketching
28-30	April 24 April 29, May 1	Solving systems of linear equations
	May 16, 2014: 09.00 – noon.	Final exam

Important Dates

Class Begins	January 13, 2014
Adding and Dropping Course	January 13-27, 2014
Midterm Exam Period	March 3-8, 2014 (No Lectures)
Midterm Exam	March 4, 2014 ; 08.00 - 09.30 AM
Course Withdrawal with “W”	March 19-24, 2014
Class Ends	May 3, 2014
Final Exam	May 16, 2014; 09.00 AM - noon