B.E. International Program

Faculty of Economics, Thammasat University

Course Outline

MA 216 Calculus for Social Science I

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

Number of credits:	3 credits
Lecture Time:	Tuesday and Thursday, 08.00AM – 09.30AM (Section 046401)
	Tuesday and Thursday, 11.00AM – 12.30PM (Section 046402)
Lecture Venue:	Room 304, 3rd floor, Faculty of Economics Thammasat University,Tha Prachan Campus
Instructor:	Assistant Professor Dr. Supranee Lisawadi
E-Mail:	supranee@mathstat.sci.tu.ac.th, supranee_tu@hotmail.com
Office Hours:	By appointment only

Course Description:

Limits and continuity of one variable functions, derivatives of algebraic functions and transcendental functions, implicit differentiation, higher order derivatives, Roll's theorem, the mean value theorem, applications of derivative for determining limits and maximum and minimum of functions, differentials and its applications, antiderivatives, indefinite integrals and integration, definite integrals and application of area solving, functions of several variables, limits and continuity of functions of several variables, partial derivatives, the chain rule, total differential and its applications.

Note : There is no credit for students who are currently taking or have earned credits of MA111 or MA211 or MA218

Prerequisites: -

Recommended Text and Materials:

1. Stewart, James, *Calculus***,** 7th ed., Cengage Learning, 2012.
2. Anton, H., Bivens, I., and Davis, S. *Calculus*, 9th ed., John Wiley & Sons, Inc., 2009.
3. L.J. Goldstein, D.C. Lay, and D.L. Schneider, *Calculus and its Applications*, 12th ed., Prentice Hall, 2010

Course Evaluation:

Midterm Examination	40%	**(March 3 – 9, 2014)**
Final Examination	50%	**(May 5 – 16, 2014)**
Assignments/Quizzes	10%	

Course Schedule:

Session/ Date	**Topic**	**Activities/Text & Materials/Media**
#1: 14-01-14 16-01-14	Course Overview Limits and Continuity - Limits (An Intuitive Approach) - Computing Limits	Lecture Discussion Practice
#2: 21-01-14 23-01-14	Limits and Continuity - Limits at Infinity - Limits of Trigonometric Functions - Continuity	Lecture Discussion Practice Quiz
#3: 28-01-14 30-01-14	Differentiation - The Derivative - Techniques of Differentiation - The Chain Rule	Lecture Discussion Practice Quiz
Session/ Date	**Topic**	**Activities/Text & Materials/Media**

#4: 04-02-14 06-02-14	Differentiation - The Chain Rule - Implicit Differentiation	Lecture Discussion Practice Quiz
#5: 11-02-14 13-02-14	Differentiation - Derivatives of Logarithmic and Exponential Functions - Higher Derivatives - Linear Approximations and Differentials	Lecture Discussion Practice Quiz
#6: 18-02-14 20-02-14	Applications of Differentiation - L'Hospital's Rule; Indeterminate Forms - Related Rates - Interval of Increase and Decrease; Concavity	Lecture Discussion Practice Quiz
#7: 25-02-14 27-02-14	Applications of Differentiation - Relative Extreme; First and Second Derivative Tests - Graphs of Polynomials and Rational Functions - Maximum and Minimum Values of a Function	Lecture Discussion Practice Quiz
	Midterm Exam (March 3 – 9, 2014)	
#8: 11-03-14 13-03-14	Applications of Differentiation - Applied Maximum and Minimum Problems - Rolle's Theorem; Mean Value Theorem	Lecture Discussion Practice Quiz
#9: 18-03-14 20-03-14	Integration - Antiderivatives; The Indefinite Integral - Integration by Substitution	Lecture Discussion Practice Quiz
#10: 25-03-14 27-03-14	Integration - The Definite Integral - The Fundamental Theorem of Calculus	Lecture Discussion Practice Quiz
Session/ Date	**Topic**	**Activities/Text & Materials/Media**

#11: 01-04-14 03-04-14	Integration - Evaluating Definite Integrals by Substitution Applications of Definite Integral - Area Between Two Curves	Lecture Discussion Practice Quiz
#12: 08-04-14 10-04-14	Techniques of Integration - Integration by Parts - Integrating Rational Functions by Partial Fraction	Lecture Discussion Practice Quiz
#13: 15-04-14 17-04-14	Techniques of Integration - Integrating Rational Functions by Partial Fraction - Improper Integrals	Lecture Discussion Practice Quiz
#14: 22-04-14 24-04-14	Functions of several Variables - Function of Two or More Variable - Partial Derivatives	Lecture Discussion Practice Quiz
#15: 29-04-14 01-05-14	Functions of Several Variables - The Chain Rule - Total Differential and Its Applications	Lecture Discussion Practice Quiz
	Final Exam (May 5 – 16, 2014)	

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 ; 11.00 AM – 12.30 PM**
Course Withdrawal with "W"	March 19-24, 2014
Class Ends	May 3, 2014
Final Exam	**May 6, 2014; 1.30 – 4.30 PM**