



Course Outline

MA216 Calculus for Social Science 1

Semester 2/2024 (January 20 – May 14, 2025)

Lecture Time: Section 046401 Tuesday 09.00-12.00 hours

Section 046402 Thursday 09.00-12.00 hours

Lecture Venue: Room 203, Faculty of Economics

Teaching Materials Platform: MS Team, Team Code: TBA

Instructor: Section 046401 and Section 046402

Name: Assoc. Prof. Dr. Saifon Chaturantabut

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Phone: -

Number of Credit: 3 Credits (3-0-6)

Prerequisite: -

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.

Course Objectives:

- Introduce calculus and its applications
- Strengthen mathematical skills to prepare for higher-level mathematics
- Raise the appreciation for mathematics and its applications

Expected Learning Outcomes for MA216

1. Morality and Ethics

Applicability	Expected Learning Outcomes	Evaluation Method
●	1. Possess honesty, sacrifice, self-social, and environmental responsibility.	Assignments/Attendance/ Class Participation
○	2. Value “sufficiency” theory and adapt it in life path by adhering to adequacy, rationale, and immunity development.	Assignments/Attendance/ Class Participation
○	3. Value disciplines, respect, and comply with the rules and regulations of the institution and society at large.	Assignments/Attendance/ Class Participation
○	4. Acquire knowledge related to business morality and ethics, and be able to handle ethical dilemma with integrity.	Assignments/Attendance/ Class Participation

2. Knowledge

Applicability	Expected Learning Outcomes	Evaluation Method
○	1. Acquire knowledge on and understand the important concepts in business management.	Assignments/Exams/Quizzes Class Participation
○	2. Acquire knowledge on and understand the important social and science concepts related to business management.	Assignments/Exams/Quizzes Class Participation
●	3. Acquire knowledge on and understand the important concepts related to business processes, planning, corporate structures, operations, control, performance evaluation and contingency plan to suit the circumstances.	Assignments/Exams/Quizzes Class Participation

○	4. Acquire the knowledge on academic advancement and professional development in business management including the understanding of the situational adaptability and its impacts on business.	Assignments/Exams/Quizzes Class Participation
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3. Intellectual Development

Applicability	Expected Learning Outcomes	Evaluation Method
●	1. Be able to search and process information and utilize various concepts appropriately in a given circumstance in order to obtain relevant information to benefit in the rapidly changing business environment.	Assignments/Exams/Quizzes Class Participation
●	2. Be able to think systematically, rationally and creatively and to integrate knowledge from other disciplines to solve the problems in business and other settings.	Assignments/Exams/Quizzes Class Participation
○	3. Be able to collectively propose solutions to problems at hand and analyze the impacts of the proposed solutions and be able to choose the solution that is appropriate to a given situation to ensure business competitive advantages.	Assignments/Exams/Quizzes Class Participation

4. Interpersonal Skills and Responsibilities

Applicability	Expected Learning Outcomes	Evaluation Method
●	1. Be able to work in team, possess interpersonal skills and leadership skills, and be professionally adaptive to a given situation.	Class Discussion/ Class Participation
●	2. Be creative and constructively criticize to solve problem of the team.	Class Discussion/ Class Participation
○	3. Be responsible in lifelong learning to develop self and professional career.	Class Discussion/ Class Participation

5. Quantitative Analysis, Communication and Information Technology

Applicability	Expected Learning Outcomes	Evaluation Method
●	1. Be able to apply mathematics, statistics, quantitative analysis in analyzing and making decisions in business and daily life.	Assignments/Exams/Quizzes Class Participation
○	2. Be able to efficiently communicate in Thai and foreign languages that are relevant in doing business.	Assignments/Exams/Quizzes Class Participation
○	3. Be able to explain the issues and make the issues clear in verbal or writing, and be able to choose the appropriate pattern of communication for different groups of audience both in business context and in other contexts.	Assignments/Exams/Quizzes Class Participation
○	4. Be able to utilize the information technologies or others to support the business operations.	Assignments/Exams/Quizzes Class Participation

Remark: ● Primary expected outcome ○ Secondary expected

Main Text : Stewart, James, Calculus, 8th ed., Cengage Learning, 2016.

Recommended Texts & Materials :

- Anton, H., Bivens, I., and Davis, S. Calculus, 9th ed., John Wiley & Sons, Inc., 2009.
- L.J. Goldstein, D.C. Lay, and D.L. Schneider, Calculus and its Applications, 12th ed., Prentice Hall, 2010

Suggested Readings: Any calculus textbook

Grading Criteria:

Midterm Examination	40% (Thursday, March 13, 2025 12.00-14.00 hrs.)
Final Examination	50% (Tuesday, May 27, 2025 09.00-12.00 hrs.)
Quizzes/Assignments/Attendance/Participation	10%

***Note: Any change will be announced during the class.**

Tentative Class Schedule:

WEEK	Topic	Activities/Text & Materials/Media
1	Course Overview Limits and Continuity - Limits (An Intuitive Approach) - Computing Limits	Lecture Discussion Practice
2	Limits and Continuity - Techniques for computing limits - Limits at Infinity	Lecture Discussion Practice
3	Limits and Continuity - Limits of Trigonometric Functions - Continuity	Lecture Discussion Practice Quiz
4	Differentiation - The Derivative - Techniques of Differentiation	Lecture Discussion Practice Quiz
5	Differentiation - The Chain Rule - Implicit Differentiation	Lecture Discussion Practice Quiz
6	Differentiation - Derivatives of Logarithmic and Exponential Functions - Higher Derivatives	Lecture Discussion Practice Quiz
7	Applications of Differentiation - Linear Approximations and Differentials - L'Hospital's Rule; Indeterminate Forms	Lecture Discussion Practice Quiz
Midterm Exam		
8	Applications of Differentiation - Related Rates - Rolle's Theorem; Mean Value Theorem	Lecture Discussion Practice Quiz
9	Applications of Differentiation - Interval of Increase and Decrease; Concavity - Relative Extreme; First and Second Derivative Tests - Curve Sketching	Lecture Discussion Practice Quiz

WEEK	Topic	Activities/Text & Materials/Media
10	Integration - Maximum and Minimum Values of a Function and applications - Antiderivatives; The Indefinite Integral - Integration by Substitution	Lecture Discussion Practice Quiz
11	Integration - The Definite Integral - The Fundamental Theorem of Calculus - Evaluating Definite Integrals by Substitution	Lecture Discussion Practice Quiz
12	Techniques of Integration - Integration by Parts - Improper Integrals	Lecture Discussion Practice Quiz
13	Applications of Definite Integral - Area Between Curves - Lecture	Lecture Discussion Practice Quiz
14	Functions of several Variables - Function of Two or More Variable - Partial Derivatives	Lecture Discussion Practice Quiz
15	Functions of Several Variables - The Chain Rule - Total Differential and Its Applications	Lecture Discussion Practice Quiz
Final Exam		

Academic Calendar (Semester 2/2024):

Semester 2/2024 (January 20 – May 14, 2025)	
Create Plan from Quota via TU Greats App (*ID.64 – 67)	December 13 – 20, 2024
Registration via TU Greats App (*ID.64 – 67)	December 16 – 20, 2024
Tuition Fee Payment Period (Via TU Greats App) (*ID.64 – 67)	December 16, 2024 – January 17, 2025
Classes Begin	January 20, 2025
Add-drop period	January 20 – February 2, 2025 <i>(from 9.00 AM of January 20 to 10.30 PM of February 2).</i>
Tuition Fee Payment Period (Via TU Greats App)	January 20 – February 3, 2025 <i>(9 AM - 10.30 PM)</i>
<i>Makha Bucha Day *</i>	<i>February 12, 2025</i>
Mid-term Examination Period	March 9 – 16, 2025
Withdrawal period with “W” on record	February 3 – March 30, 2025 <i>(from 9.00 AM of February 3 to 10.30 PM of March 30).</i>
Special Withdrawal with “w” on record	March 31 – 2 May, 2025
<i>Substitution for Chakri Memorial Day*</i>	<i>April 7, 2025</i>
<i>Songkran Festival Day*</i>	<i>April 13 – 16, 2025</i>
Last day of class for Semester 2/2024	May 14, 2025
<i>Substitution for Visakha Bucha Day*</i>	<i>May 12, 2025</i>
Final exam period	May 16 - 30, 2025
Submitting Forms for Degree Conferral	January 20 – February 2, 2025

Remark * Holiday, No classes during this period

Updated: October 17, 2024