Course Description

Department of Mathematics

Nature of the course ■ required ☐ elective		Area 麻煩老師勾選類別，或直接填寫_____。 ☐ Algebra ■Analysis ☐ Geometry ☐ Statistics ☐ Applied Mathematics ☐ Discrete Mathematics ☐ Others			
Calculus ☐ Calculus A ■ Calculus B					
Course number	201 101B1	Section number	12	Number of credits	3
Course title	Calculus				
Instructor	Jin-Jee Dzan [詹進吉]				

I. Contents：

(1) Sequences and limits, functions and limits, continuity of functions in one variable. Some properties about continuous functions.

(2) Derivatives and differentials, mean valued theorem, applications of derivatives (extremities, convexity, L'Hospital rule).

(3) Formal integral, definite Integral and its applications.

(4) Differential calculus of multi-variables and its applications.

II. Course prerequisite：

Mathematics in senior high school, e.g. algebra, trigonometry, analytical geometry.

III. Reference material (textbook(s))：

Textbooks are as follows:
Yen S.Q.：Calculus (in Chinese), China Renmin University Press, Peking, 2007.
Guide to Calculus, ibidem.
References are given and cited in lectures. For example, *Mathematical Analysis (I)* (in Chinese) by Ou-yang Kwang Zhong et al. (2004). Fudan University Press, Shanghai., China.

IV. Grading scheme：

Mid-term examination and final examination are essential in grading scheme, each gets 50% weight. The diligent students shall be given bonus in grading.

V. Others：The students who are ambitious in their own future are welcomed.

VI. Course Goal：

The course aims to prepare a solid foundation for those students who shall use calculus techniques in their own successive courses, for example, statistics, economic analysis, operation research, financial derivatives, and actuarial mathematics.