微積分(II)
Calculus (II)
資訊工程系四日一B
課號 2343

Instructor：洪士程

E-Mail: schong@cyut.edu.tw

Room:理工大樓E317.4

Tel: 7801

Course Time & Office Hours

- Course Time
- Thursday 2 (9:10 - 10:00)
- Classroom: T1-506
- Friday 7,8 (15:30 - 17:20)
- Classroom: T1-505
- Office Hours
- Wednesday 9:00-12:00

Credits

- Required or Elective
  - Required (必修)
- Credits
  - 3 Credits (三學分)

Goal

- An extention of caculus (I).
- Give an introduction to:
  - Infinite series
  - Vectors
  - Partial derivatives
  - Multiple integrals

Text Book

- Calculus: Early Transcendental Functions, 3rd edition, 2006.
  - R. T. Smith
  - R. B. Minton

Reference Books

- Reference:
  - M. D. Weir, J. Hass and F. R. Giordano, “Thomas’ Calculus,” 11th Edition, Greg Tobin, 2005.
  - J. Stewart, ”Early Transcendentals Calculus,” 5th Edition, Thomson, Learning Inc., 2003.
  - R. Larson, R. Hostetler and B. H. Edwards ”Essential Calculus: Early Transcendental Functions,” 2006.

Schedule of Progress (1/5)

- Introduction to course (week 1)
- Chap 8 INFINITE SERIES
- Sequences of Real Numbers Infinite Series
- The Integral Test, Comparison Tests (week 2)
- Alternating Series and Absolute Convergence (week 3)
- The Ratio Test and The Root Test
- Power Series, Taylor Series (week 4)

Schedule of Progress (2/5)

- Chap 9 PARAMETRIC EQUATIONS AND POLAR COORDINATES (week 5)
- Plane Curves and Parametric Equations
- Calculus and Parametric Equations
- Polar Coordinates (week 6)
- Calculus and Polar Coordinates
- Chap 10 VECTORS (week 7)
- Vectors, The Dot Product
- The Cross Product
- Vector-Valued Functions (week 8)

Schedule of Progress (3/5)

- The Calculus of Vector-Valued Functions (week 8)
- Arc Length and Curvature
- Midterm exam (week 9)
- Chap 11 PARTIAL DIFFERENTIATION (week 10)
- Functions of Several Variables, Limits and Continuity
- Partial Derivatives (week 11)
- The Chain Rule
- The Gradient and Directional Derivatives (week 12)
- Extrema of Functions of Several Variables

Schedule of Progress (4/5)

- Chap 12 MULTIPLE INTEGRALS (week 13)
- Double Integrals
- Double Integrals in Polar Coordinates
- Surface Area (week 14)
- Triple Integrals
- Triple Integrals in Cylindrical and Spherical Coordinates
- (week 15)
- Change of Variables: Jacobians

Schedule of Progress (5/5)

- Chap 13 VECTOR CALCULUS (week 16)
- Vector Field
- Line Integrals
- Independence of Path and Conservative Vector Fields (week 17)
- Greens Theorem
- Final exam (week 18)

Resources

- Text Book
- Handout

http://admin.cyut.edu.tw/crsinfo/

Evaluation

- Homework & Quiz (30%)
- Participation (10%)
- Mid exam (30%)
- Final exam (30%)

學習方式要有技巧

- 學著去適應英文課本、英文教學、投影片教學．
- 投影片只是重點提示，課本一定要精讀．
  - 來不及抄筆記就請先預習．
  - 找別人共同討論．
- 課程內容很多，課本一定上不完．
  - 不可能慢慢教或補課
  - 自己回家唸書是在建立將來自我學習能力

態度決定一切

- 上課遲到、睡覺、看別科的書、跟不上進度發呆？
  - 跟不上進度就不要怪別人了！
- 是否有心學習
  - 預習、複習、作業自己寫
  - 每一科、每星期至少花4小時以上唸書
  - 有問題上課發問、下課找老師詢問或反應