

清華大學數學系
高等微積分二 **Advanced Calculus (II)**

Math 2040-00 Spring 2006

Chapter 6. Differentiation on R^n

- 6.1. Partial and total derivatives (2/21, 2/24)
- 6.2. Product rule and chain rule (3/3)
- 6.3. Gradients and tangent planes (3/7)
- 6.4. Mean value theorem (3/10)
- 6.5. Taylor's theorem (3/14, 3/17)

Chapter 7. Inverse Function Theorem and Applications

- 7.1. Inverse function theorem (3/21, 3/24)
- 7.2. Implicit function theorem (3/28, 3/31)
- 7.3. Optimization (3/31, 4/11)
- 7.4. Lagrange multiplier theorem (4/14, 4/18)

Chapter 8. Integration on R^n

- 8.1. Measurable sets (4/18, 4/21)
- 8.2. Riemann integrable functions (4/25)
- 8.3. Properties of Riemann integrals (4/28, 5/2)
- 8.4. Iterated integrals and Fubini's theorem (5/5, 5/9)
- 8.5. Change of variables (5/9, 5/12)

Chapter 9. Fundamental Theorems of Vector Calculus

- 9.1. Line integrals (5/16)
- 9.2. Surfaces integrals (5/23)
- 9.3. Green's theorem (5/26, 5/30)
- 9.4. Gauss' theorem (5/30, 6/2)
- 9.5. Stokes' theorem on surfaces (6/6, 6/9)

Midterm Exam 1 (Friday, April 7): Chapter 6, Sections 7.1 ~ 7.2

Midterm Exam 2 (Friday, May 19): Sections 7.3 ~ 7.4 and Chapter 8

Final Exam (Friday, June 16): Chapter 6 ~ Chapter 9