Analysis on Manifolds

MA420 **Spring 2001**

Instructor: Gyo Taek Jin
Office: 4404 Natural Science Bldg.
Office hours: 10:30-11:30 am every Tuesday and Thursday
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Textbook: *Differential Forms and Applications*, Manfredo P. do Carmo, Springer-Verlag, 1994.

Lectures: 9:00–10:15 am every Tuesday and Thursday
Room 3431 Natural Science Bldg.

Contents:

Chapter 1. Differential Forms in $\mathbb{R}^n$ (*2 weeks*)

Chapter 2. Line Integrals (*2 weeks*)

Chapter 3. Differentiable Manifolds (*2 weeks*)

Chapter 4. Integration on Manifolds (*3 weeks*)
§4.1. Integration of Differential Forms
§4.2. Stokes Theorem
§4.3. Poincaré's Theorem

Chapter 5. Differential geometry of surfaces (*3 weeks*)
§5.1. The Structure Equations of $\mathbb{R}^n$
§5.2. Surfaces in $\mathbb{R}^3$
§5.3. Intrinsic Geometry of Surfaces

Chapter 6. Gauss-Bonnet Theorem and Morse Theorem (*2 weeks*)
§6.1. The Theorem of Gauss-Bonnet
§6.2. The Theorem of Morse

Exams:

Midterm Exam (Chapters 1–3) Tuesday April 24, 9-11 am

Final Exam (Chapters 4–6) Tuesday June 19, 9-11 am

Grading: Homeworks 30%, Midterm exam 35%, Final exam 35%

Course URL: `http://knot.kaist.ac.kr/~trefoil/courses/ma420/`

(gtj2001/03/02)