

Math 868 — Topics for Midterm

The Midterm exam will be a 1-hour exam in class on Friday Oct. 26.

To review, you should look over your notes and your completed homework. Be sure that you know definitions and the statements of the major theorems.

It will also help to look through the textbook. Use this as a way of finding topics that you need to review. We have covered the following sections of Lee's book:

Pages	Chapter	Topic
1-56	1-2	Manifolds, maps, partitions of unity.
61-77	3	Tangent vectors, pushforwards, computations in coordinates.
81-99	4	Tangent spaces, vector fields, brackets.
103-07, 109, 115	5	Definitions of vector bundle, section, vector bundle map.
125-150	6	Dual of vector space, cotangent bundle, 1-forms, pullbacks, Line integrals, exact and closed.
156-63, 166-69	7	Inverse Function Theorem, immersion and submersion theorems.
174-197	8	Submanifolds, embeddings, level sets (to prove spaces are manifolds), Lie groups.
435-445	17	Flows of vector fields.
465-73	18	Lie Derivatives.
494-505	19	Distributions, Integral manifolds, Frobenius Theorem.
519-32	20	Lie Groups, subgroups, exponential map.