

# Analysis on Manifolds

## Course description

In this course I will discuss several topics in local and global analysis on manifolds.

Usually local analysis on manifolds is referred to as Differential Geometry. Using globally defined objects of local nature one can establish strong global results about manifolds. This is usually referred to as Differential Topology.

An important prerequisite for this course is a good knowledge of the linear algebra.

I will also use some basic notions about metric and topological spaces and basic notions of differential calculus in several variables.

In first lectures I will shortly recall all the needed materials.

This course is a continuation of the course of Differential Geometry given in semester A. We will use some notions from this course. I will try to remind basic notions (and results) from this course when we need them.

## Books.

My exposition will mostly follow the following books:

Nomizu, Lie groups and differential geometry,

The Mathematical Society of Japan, 1956

Guillemin, Pollack, "Differential topology",

Prentice-Hall, Inc., Englewood Cliffs, N.J., 1974

## Homework.

I will give homework assignments weekly.

These assignments form an important part of the course. They contain many additional notions and results for which there is not enough time to discuss in regular lectures.

The grades for these assignments will be counted in the final grade (usually as a positive factor).

## Exams.

In this course there will be a midterm exam in class and the final exam.