000

Logistics and prerequisites

Spring 2023

Optimization on manifolds, MATH 512 @ EPFL

Instructor: Nicolas Boumal

Logistics

Moodle for announcements, resources, assignments, discussions
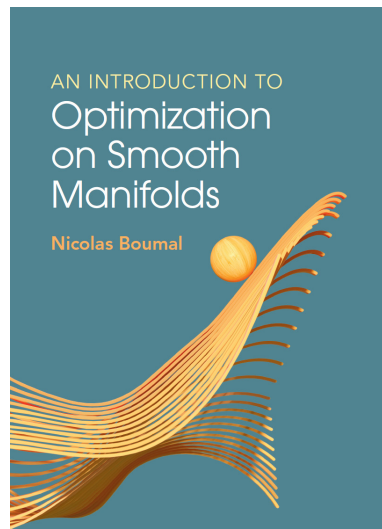
Book available from https://www.nicolasboumal.net/book

Lectures on Thursdays, 10:15-12:00, BC 01

> Questions welcome: let's keep it lively.
>
> Recorded; online with a delay (post-prod).
>
> Be on time; we may end early / late (for video).

Exercises on Thursdays, 13:15-15:00, INR 219

AN INTRODUCTION TO
Optimization
on Smooth
Manifolds

Nicolas Boumal

Assignments and exercises

Two projects (100% of your grade; no exam; heavy math+code)

First one starts in two or three weeks.

You get about four weeks for each.

Form groups of two.

Exercise sessions will help you *a lot* to learn and complete projects

TA: Christopher Criscitiello

Matlab is the official programming language; flexible

Prerequisites

The course is heavy on both proofs and code.

I expect you to be fully comfortable in linear algebra and multivariate calculus (analysis). Quick reminders in §3.1.

You should have some notions of numerical methods and continuous optimization (intro course level).

You should be comfortable with Matlab; if not, then Python, Julia…

There are no prerequisites in differential or Riemannian geometry.