האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

Syllabus

Riemannian geometry of diffeomorphism groups - 80833

Last update 14-09-2020

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Mathematics

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dr. Cy Maor

Coordinator Email: cy.maor@mail.huji.ac.il

Coordinator Office Hours: By Appointment

Teaching Staff:
Dr. Cy Maor

Course/Module description:

Riemannian geometry of diffeomorphism groups (and related spaces) arises naturally in a variety of different contexts from completely pure to applied and even computational mathematics. I will give an introduction to the topic, with a tentative outline as follows:

1. Introduction to infinite dimensional Riemannian geometry

2. Spaces of interest and metrics of interest (mainly in shape analysis and mathematical hydrodynamics)

3. Metric properties of diffeomorphism groups: vanishing distance phenomenon, diameter, metric completeness

4. Geodesic equations: short time existence, regularity of geodesics (following Ebin Marsden), geodesic completeness

Course/Module aims:

Same as in learning outcomes.

Learning outcomes - On successful completion of this module, students should be able to:

Familiarity with the subject and open questions in it.

Attendance requirements(%):

100

Teaching arrangement and method of instruction: Irrelevant - determined between the teacher and the student.

Course/Module Content:

See course description

Required Reading:

Course notes

Additional Reading Material:

Irrelevant

Course/Module evaluation:

End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 100 %
100

Additional information: