

The Hebrew University of Jerusalem

Syllabus

Special Lagrangian submanifolds - 80720

Last update 01-09-2021

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: Jake Solomon

Coordinator Email: jake@math.huji.ac.il

Coordinator Office Hours: By appointment.

Teaching Staff:

Prof Jake Solomon

Course/Module description:

Lagrangian submanifolds are among the most important structures in symplectic geometry. A basic question is whether there is a canonical representative of an isomorphism class of Lagrangian submanifolds. Special Lagrangian are the natural candidates for this role. In this course, we will learn some basic and some deeper properties of these submanifolds.

Course/Module aims:

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

Ability to use tools of symplectic geometry and the analysis of partial differential equations to study special Lagrangian submanifolds.

Attendance requirements(%):

None. However, the lectures will not necessarily be based on any written source. The students are required to know the material of the lectures thoroughly and to be able to use it to solve problems.

Teaching arrangement and method of instruction: Lecture and exercises.

Course/Module Content:

Background on calibrated submanifolds with an emphasis on special Lagrangians.

Background on Floer cohomology and the Fukaya category.

Applications of Floer theory to the classification of special solutions to Lagrangian mean curvature flow.

Proof of uniqueness of a special Lagrangian in an isomorphism class of the Fukaya category.

Topics in the analysis of the special Lagrangian equation.

Required Reading:

N/A.

Additional Reading Material:

Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 100 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information: