

## The Hebrew University of Jerusalem

Syllabus

### Mean Curvature flow - 80603

Last update 25-10-2015

<u>HU Credits:</u> 3

Degree/Cycle: 2nd degree (Master)

Responsible Department: mathematics

<u>Academic year:</u> 0

Semester: 2nd Semester

<u>Teaching Languages:</u> Hebrew

<u>Campus:</u> E. Safra

Course/Module Coordinator: Jake Solomon

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

Coordinator Office Hours:

Teaching Staff:

### Prof Jake Solomon

### Course/Module description:

Mean curvature flow appears naturally in physical models describing bubbles in soap and other materials. It plays an important role in image processing. And it has important applications in the study of special Lagrangian submanifolds, which are to first approximation the stable objects of the Fukaya category. This course provides an introduction to the subject.

#### Course/Module aims:

To learn the basic techniques of mean curvature flow.

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

Students will become familiar with the basic tools for analyzing non-linear parabolic partial differential equations, and their application in the geometric context of mean curvature flow.

### Attendance requirements(%):

0%

Teaching arrangement and method of instruction: Lecture and exercises.

### Course/Module Content:

Short-term existence of the flow, singularities of type 1 and 2 and their classification, long term existence in dimension 2.

### <u>Required Reading:</u>

Mategazza, Carlo, "Lecture Notes on Mean Curvature flow"

### Additional Reading Material:

*Ecker, Klaus, "Regularity Theory for Mean Curvature Flow" Zhu, Xi-Ping, "Lectures on Mean Curvature Flows"* 

<u>Course/Module evaluation:</u> 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: