



## *Syllabus*

### *Mirror symmetry - 80893*

*Last update 12-09-2017*

*HU Credits:* 2

*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](mailto:jake@math.huji.ac.il)

*Coordinator Office Hours:* By appointment.

*Teaching Staff:*

Prof Jake Solomon

*Course/Module description:*

*Mirror Symmetry is a correspondence between complex geometry on one manifold*

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and symplectic geometry on another manifold. This correspondence provides a heuristic for formulating the solution of problems previously considered intractable. Mirror symmetry has been proved in many examples by calculating both sides independently. It remains to provide a mathematically rigorous explanation of why the phenomenon of mirror symmetry exists. This seminar will discuss recent work that sheds light on this question.

Course/Module aims:

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

Students should become acquainted with current work on mirror symmetry.

Attendance requirements(%):

100

Teaching arrangement and method of instruction: Lecture.b

Course/Module Content:

See course description and additional reading material.

Required Reading:

Not applicable.

Additional Reading Material:

Mohammed Abouzaid, "Homological mirror symmetry without corrections"

<http://lanl.arxiv.org/abs/1703.07898>

Andrei Caldararu, Junwu Tu, "Computing a categorical Gromov-Witten invariant"

<http://lanl.arxiv.org/abs/1706.09912>

Kevin Costello, "The Gromov-Witten potential associated to a TCFT"

<http://lanl.arxiv.org/abs/math/0509264>

Background on Mirror Symmetry:

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*Maxim Kontsevich, "Homological Algebra of Mirror Symmetry"*

*<http://lanl.arxiv.org/abs/alg-geom/9411018>*

*Andrew Strominger, Shing-Tung Yau, Eric Zaslow, "Mirror Symmetry is T-Duality"*

*<http://lanl.arxiv.org/abs/hep-th/9606040>*

*Background on the Fukaya Category:*

*Kenji Fukaya, Yong-Geun Oh, Hiroshi Ohta, Kaoru Ono, "Lagrangian Intersection Floer Theory: Anomaly and Obstruction"*

*Paul Seidel, "Fukaya Categories and Picard-Lefschetz Theory"*

*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:*