

## *The Hebrew University of Jerusalem*

### *Syllabus*

## **READING COURSE SPINTRONICS - 83949**

*Last update 23-01-2019*

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Applied Physics

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dr. Amir Capua

Coordinator Email: [amir.capua@mail.huji.ac.il](mailto:amir.capua@mail.huji.ac.il)

Coordinator Office Hours: Thursdays, 16:00-17:00, Bergman 213

Teaching Staff:

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Dr. Capua Amir

Course/Module description:

*Introduction course to the field of Spintronics.*

Course/Module aims:

*To provide the background required for spin based electronics in solid state devices.*

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

*The participants will learn the basic concepts in magnetism, will understand spin dynamics, and will know how to analyze electrical phenomena that are based on spin polarized currents.*

Attendance requirements(%):

*Teaching arrangement and method of instruction: Weekly reading tasks and meetings*

Course/Module Content:

*Static magnetisation  
Spin dynamics  
relevant chapters in analytical mechanics  
Losses of spin angular momentum  
Spin transfer torques  
Spin Hall effect  
Connection between topological insulators and spintronics*

Required Reading:

*The course is based on books by  
Cullity, Vonsovski, Lax, Kittel, Gurevich, Goldstein*

Additional Reading Material:

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Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 75 %

Participation in Tutorials 0 %

Project work 25 %

Assignments 0 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information:

*The course takes place as weekly meetings and weekly reading assignments.*