



# *The Hebrew University of Jerusalem*

## *Syllabus*

### *Bayesian Machine Learning - 67564*

*Last update 29-07-2021*

*HU Credits:* 4

*Degree/Cycle:* 1st degree (Bachelor)

*Responsible Department:* Computer Sciences

*Academic year:* 0

*Semester:* 1st Semester

*Teaching Languages:* Hebrew

*Campus:* E. Safra

*Course/Module Coordinator:* yair weiss

*Coordinator Email:* [yweiss@cs.huji.ac.il](mailto:yweiss@cs.huji.ac.il)

*Coordinator Office Hours:* Mondays 12-1

*Teaching Staff:*

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Prof Yair Weiss,  
Mr. Roy Friedman

Course/Module description:

*This is an advanced course in Machine Learning which adopts the view that the best way to make machines that can learn from data is to use the tools of Bayesian inference, The methods will be illustrated with practical problems.*

Course/Module aims:

*Understand the methods of Bayesian Machine Learning and apply them to practical problems.*

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

*Understand the principles behind Bayesian Machine Learning.  
Apply methods such as Bayesian Model Selection, Gaussian Process Regression to real problems.*

Attendance requirements(%):

*Teaching arrangement and method of instruction: Frontal lecture and recitations*

Course/Module Content:

*Topics include The Bayesian Philosophy, Bayesian regression and classification, Gaussian Processes, Latent Variable Models, Mixture Models and sampling algorithms.*

Required Reading:

*none*

Additional Reading Material:

*K. Murphy "Machine Learning: A Probabilistic Perspective"  
C. Bishop "Pattern recognition and machine learning"*

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*Rasmussen and Williams "Gaussian Processes for Machine Learning".*

*Course/Module evaluation:*

*End of year written/oral examination 50 %*

*Presentation 0 %*

*Participation in Tutorials 0 %*

*Project work 0 %*

*Assignments 40 %*

*Reports 0 %*

*Research project 0 %*

*Quizzes 10 %*

*Other 0 %*

*Additional information:*