



## Syllabus

# DATA ANALYSIS FOR NEUROSCIENCE - 76984

*Last update 05-08-2019*

HU Credits: 2

Responsible Department: Brain Science: Computation & Information Proc.

Academic year: 0

Semester: 2nd Semester

Teaching Languages: English

Campus: E. Safra

Course/Module Coordinator: Israel Nelken

Coordinator Email: [israel@cc.huji.ac.il](mailto:israel@cc.huji.ac.il)

Coordinator Office Hours: Appointments by email

Teaching Staff:

Prof Israel Nelken  
Mr. Nizar Abed  
Mr. David Beniaguev

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Course/Module description:

*The course will provide knowledge and expertise in data analysis for neuroscience. It will include lectures and practical work in class.*

Course/Module aims:

*The course will provide basic expertise in understanding the structure of data, time and frequency representations, filtering, parameter estimations and basics of statistical evaluation approaches.*

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

*Describe random time series by their correlation structure and frequency content  
Design and apply filters in the time and frequency domains  
characterize repeated shapes using orthogonal decompositions  
Identify parametric models and evaluate the significance of the estimated parameters*

Attendance requirements(%):

100

*Teaching arrangement and method of instruction: Lectures and practical class sessions*

Course/Module Content:

*Representation of time sequences in the time and frequency domains  
Filtering in the time and frequency domains  
Design of filters  
Characterization of shapes by orthogonal decompositions (principal components and similar)  
Formulation and identification of parametric models*

Required Reading:

No

Additional Reading Material:

No

*Course/Module evaluation:*

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*End of year written/oral examination 0 %*  
*Presentation 0 %*  
*Participation in Tutorials 0 %*  
*Project work 70 %*  
*Assignments 30 %*  
*Reports 0 %*  
*Research project 0 %*  
*Quizzes 0 %*  
*Other 0 %*

*Additional information:*