



ΔΙΔΡΥΜΑΤΙΚΟ ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ
ΕΓΚΕΦΑΛΟΣ και ΝΟΥΣ
που οδηγεί σε Μεταπτυχιακό Δίπλωμα Ειδικότητας
INTERDISCIPLINARY GRADUATE PROGRAMME in the
BRAIN and MIND sciences
leading to Master's degree



ΠΡΟΓΡΑΜΜΑ ΜΑΘΗΜΑΤΩΝ ΚΟΡΜΟΥ ΤΟΥ ΠΜΣ «ΕΓΚΕΦΑΛΟΣ ΚΑΙ ΝΟΥΣ»

ΣΤ ΕΝΟΤΗΤΑ. ΕΙΣΑΓΩΓΗ ΣΤΙΣ ΥΠΟΛΟΓΙΣΤΙΚΕΣ ΝΕΥΡΟΕΠΙΣΤΗΜΕΣ				
ΗΜ/ΝΙΑ	ΩΡΑ	ΑΙΘΟΥΣΑ	ΤΙΤΛΟΣ ΔΙΑΛΕΞΗΣ	ΔΙΔΑΣΚΩΝ
ΤΕΤ 03/05/2023	12:00-15:00	7 ^A -04	Introduction to Computational neuroscience and Matlab Primer 1: Vectors and Matrices, Variance and Covariance, Plotting, Randomness, M-files and functions	ROUSSOS
ΠΑΡ 05/05/2023	12:00-15:00	7 ^A -04	Matlab primer 2: Basic Mathematical Methods Ordinary Differential Equations, Convolution, Correlation, built-in libraries and toolboxes	ROUSSOS
ΔΕΥ 08/05/2023	12:00-15:00	7 ^A -04	Principal Component Analysis (PCA)	ROUSSOS
ΤΕΤ 10/05/2023	17:00-20:00	7 ^A -02	The single neuron model - computational capacity and relative problems, transfer function	HOURLAKIS
ΠΑΡ 12/05/2023	17:00-20:00	7 ^A -04	Supervised learning, gradient descent, local extrema	HOURLAKIS
ΔΕΥ 15/05/2023	17:00-20:00	7 ^A -04	Problem formulation, data collection and analysis. Practical examples of learning with Neural Networks	HOURLAKIS
ΠΕΜ 18/05/2023	16:00-19:00	7 ^A -04	Abstract neuron models FitzHugh–Nagumo model, IF, Izhikevich	CHITZANIDI
ΤΡΙ 23/05/2023	12:00-15:00	7 ^A -04	Introduction to reinforcement learning I	PAPOUTSI
ΠΑΡ 26/05/2023	12:00-15:00	7 ^A -04	Introduction to reinforcement learning II	PAPOUTSI
ΔΕΥ 29/05/2023	16:00-19:00	Αμφιθ.1	Biophysical neuron models Cable theory, HH equations, compartmental models	CHAVLIS
ΤΕΤ 31/05/2023	16:00-19:00	ΑΙΘ. 7 ^A 1.2	Synaptic plasticity, adaptation and learning	CHAVLIS
ΠΑΡ 09/06/2023	10:00-13:00	7 ^A -01	EXAMS	

Βιβλιογραφία:

1. Principles of Computational Modelling in Neuroscience, David Sterratt, Bruce Graham, Andrew Gillies, Bruce Graham, 2011
2. MATLAB for Neuroscientists - An Introduction to Scientific Computing in MATLAB, Wallisch et al, Elsevier, 2014
3. The Handbook of Brain Theory and Neural Networks, Second Edition, Arbib, MIT Press, 2002
4. Dynamical Systems in Neuroscience. Eugene M. Izhikevich MIT Press, 2007
5. Mathematical Foundations of Neuroscience, G. Bard Ermentrout, David H. Terman, Springer Science & Business Media, 2010