BEHV 7021 NEUROSCIENCE METHODS

Credit Points 10

Legacy Code 800192

Coordinator Yossi Buskila (https://directory.westernsydney.edu.au/search/name/Yossi Buskila/)

Description A multidisciplinary team will provide an introduction to several aspects of neuroscience including cellular, computational, behavioural and biomedical neuroscience. The program will provide a strong foundation in modern neuroscience for those wishing to pursue further independent research in the field. With a focus on real-world neuroscience research, topics include introductory biology, computational modelling, biosignal acquisition, signal processing and data mining. The subject will include lecture and laboratory work.

School Graduate Research School

Discipline Psychology

Student Contribution Band HECS Band 1 10cp

Level Postgraduate Coursework Level 7 subject

Equivalent Subjects BEHV 7030 - Quantiative Methods in Neuroscience

Assumed Knowledge

Students should have at least background/undergraduate knowledge in one or more of the following: mathematics, biology, chemistry, physics, physiology, electronics or similar.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Demonstrate understanding of the nervous system, its basic functions.
2. Describe the basic structure of neurons.
3. Understand the basis of the resting membrane potential, Nerst and Goldman equations.
4. Describe the dynamics of the action potential, neural excitability, synapses, plasticity, integration and facilitation.
5. Describe the methodology of various neuroscience methods incl. patch clamp and microneurography.
6. Develop basic computational neural models.
7. Understand the utility and pitfalls of various biomedical devices for neural integration.

Subject Content

1. Introduction to the nervous system, basic functions and structure of neurons.
2. Cellular neuroscience
3. Computational neuroscience
4. Behavioural neuroscience
5. Biomedical neuroscience

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Quiz	1 hour each	40	N	Individual
Report	1000 words	30	N	Individual
Report	1500 words	30	N	Individual

Teaching Periods