

NEUR30002 Neurophysiology: Neurons and Circuits

Credit Points:	12.50																											
Level:	3 (Undergraduate)																											
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.																											
Time Commitment:	Contact Hours: 3 x one hour lectures per week (total contact hours: 36) Total Time Commitment: 120 hours																											
Prerequisites:	None																											
Corequisites:	None																											
Recommended Background Knowledge:	<p>Although there are no specific 200 level prerequisites for this subject it is recommended that students should have completed at least one of the following 200 level life science subjects: Fundamentals of Pharmacology; Integrated Human Physiology</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BCMB20002 Biochemistry and Molecular Biology</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>CEDB20003 Fundamentals of Cell Biology</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>GENE20001 Principles of Genetics</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>ANAT20006 Principles of Human Structure</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>MIIM20001 Principles of Microbiology & Immunology</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>ZOOL20005 Animal Structure and Function</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>BIOM20002 Integrated Human Structure and Function</td> <td>Semester 2</td> <td>25</td> </tr> <tr> <td>ZOOL20006 Comparative Animal Physiology</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	BCMB20002 Biochemistry and Molecular Biology	Semester 1	12.50	CEDB20003 Fundamentals of Cell Biology	Semester 1	12.50	GENE20001 Principles of Genetics	Semester 1	12.50	ANAT20006 Principles of Human Structure	Semester 1	12.50	MIIM20001 Principles of Microbiology & Immunology	Semester 1	12.50	ZOOL20005 Animal Structure and Function	Semester 1	12.50	BIOM20002 Integrated Human Structure and Function	Semester 2	25	ZOOL20006 Comparative Animal Physiology	Semester 2	12.50
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Non Allowed Subjects:	None																											
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/																											
Coordinator:	Assoc Prof Andrew Allen																											
Contact:	Assoc Prof Andrew Allen: a.allen@unimelb.edu.au (mailto:a.allen@unimelb.edu.au) Administrative Coordinator: lesleyr@unimelb.edu.au (mailto:lesleyr@unimelb.edu.au)																											
Subject Overview:	The subject aims to provide students with an overview of how neurons function, individually and in ensembles, to produce complex behaviours. We consider how the special properties of nerve cells enable information to be encoded and transmitted.																											

	We will explore how nerve cells communicate with other nerves and cells. Finally we will explore how these properties lead to activity patterns that change the function of other tissues in response to physiological challenges, thus contributing to homeostasis.
Objectives:	<ul style="list-style-type: none"> # To appreciate how protein-mediated passage of ions across the nerve cell membrane generates electrical activity. # To develop an understanding of how these electrical impulses are generated and integrated by the neuron to encode information. # To understand how nerve cells use different chemicals to communicate with neurons and other cells (e.g. muscles). # To examine how the connections between nerve cells leads to simple circuits that mediate reflexes and homeostatic control.
Assessment:	A computer-aided learning assignment (10%) A 50 minute mid-semester exam (30%) A two hour end of semester exam (60%)
Prescribed Texts:	Purves et al., Neuroscience, 4th edition, 2008; Sinauer Associates.
Breadth Options:	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> # Bachelor of Arts (https://handbook.unimelb.edu.au/view/2010/B-ARTS) # Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2010/B-COM) # Bachelor of Environments (https://handbook.unimelb.edu.au/view/2010/B-ENVS) # Bachelor of Music (https://handbook.unimelb.edu.au/view/2010/B-MUS) <p>You should visit learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.</p>
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>On completion the students should have developed their skills in:</p> <ul style="list-style-type: none"> # Independent and critical thought. # Approaches to understanding complex scientific problems. # Critical analysis and interpretation of data. # The extraction of principles from experimental evidence.
Notes:	This subject is available to students enrolled in the New Generation BSc, BBioMed, pre-2008 BSc or BBioMedSc.
Related Course(s):	Bachelor of Science
Related Majors/Minors/Specialisations:	<p>Human Structure and Function Human Structure and Function Neuroscience Neuroscience Neuroscience Neuroscience (Behavioural Neuroscience specialisation) Physiology Physiology Physiology</p>