

NEUR30002 Neurophysiology: Neurons and Circuits

Credit Points:	12.5															
Level:	3 (Undergraduate)															
Dates & Locations:	2015, 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: 170 hours															
Prerequisites:	None															
Corequisites:	None															
Recommended Background Knowledge:	<p>This subject assumes a working understanding of the principles involved in the generation and conduction of action potentials in excitable cells.</p> <p>Students wishing to take this subject without this background knowledge are advised to consult with the subject convenor prior to the commencement of the semester.</p> <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 subjects:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BIOM20002 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> <tr> <td>PHYS20008 Human Physiology</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>PSYC20006 Biological Psychology</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	BIOM20002 Human Structure and Function	Semester 2	25	ZOOL20006 Comparative Animal Physiology	Semester 2	12.50	PHYS20008 Human Physiology	Semester 1, Semester 2	12.50	PSYC20006 Biological Psychology	Semester 1	12.50
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Non Allowed Subjects:	None															
Core Participation Requirements:	<p><p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.</p> <p>It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability</p></p>															
Coordinator:	Prof Andrew Allen															
Contact:	<p>Subject Coordinator Prof Andrew Allen a.allen@unimelb.edu.au (mailto:a.allen@unimelb.edu.au) Administrative Coordinator Ms Lesley Robinson BiomedSci-AcademicServices@unimelb.edu.au (mailto:BiomedSci-AcademicServices@unimelb.edu.au)</p>															

Subject Overview:	<p>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.</p> <p>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.</p>
Learning Outcomes:	<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:	2 x mid-semester assessments (25% each) 1 x two hour end of semester exam (50%)
Prescribed Texts:	Purves etc al., Neuroscience, 5 th edition, 2012: 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/2015/B-ARTS) # Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2015/B-COM) # Bachelor of Environments (https://handbook.unimelb.edu.au/view/2015/B-ENVS) # Bachelor of Music (https://handbook.unimelb.edu.au/view/2015/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. # Discipline specific communication.
Notes:	This subject is available to students enrolled in the New Generation BSc, BBioMed, pre-2008 BSc or BBiomedSc.
Related Majors/Minors/Specialisations:	<p>Human Structure and Function Neuroscience Physiology Science-credited subjects - new generation B-SCI and B-ENG. Selective subjects for B-BMED</p>