BCMB30004 Cell Signalling and Neurochemistry

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	This subject is not offered in 2014.
Time Commitment:	Contact Hours: three x 1 hour lecture, and one x 1 hour tutorial per week. Total Time Commitment: 48 contact hours with an estimated total time commitment of 120 hours.
Prerequisites:	BSc students Before 2009: **Biochemistry & Molecular Biology Part A (521-211)** **Biochemistry & Molecular Biology Part B (521-212)** 2009 and subsequently: **Subject** / **Study Period Commencement:** / **Credit Points:** BCMB20002 Biochemistry and Molecular Biology — Semester 1, Semester 2 — 12.50 Note that the pre-2009 subject "**Biochemistry & Molecular Biology Part A**" and the 2009 subject "**Biochemistry & Molecular Biology**" are not identical despite having the same subject code. Only the subject "**Biochemistry & Molecular Biology**" offered in 2009 and subsequently acts as a stand-alone prerequisite. BBiomedicine students **Subject** / **Study Period Commencement:** / **Credit Points:** BIOM20001 Molecular and Cellular Biomedicine — Semester 1 — 25 Other combinations that provide similar background will be considered by the coordinator.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students cannot enrol in and gain credit for this subject if previously obtained credit for pre-2009 subject **(521-304) Hormone and Neurotransmitter Biochemistry**.
Core Participation Requirements:	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. 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
Contact:	Subject Coordinator Assoc Prof Heung-Chin Cheng **heung@unimelb.edu.au (mailto:heung@unimelb.edu.au)** Adminstrative Coordinator Ms Irene Koumanelis

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Subject Overview:	Aberrations in the structure and expression of hormones, growth factors, neurotransmitters and their receptors can give rise to diseases such as cancer and neurodegenerative diseases. To understand the molecular basis of these diseases, it is essential to know how hormones, growth factors and neurotransmitters are synthesised, and how their signals are recognised, amplified and transmitted by intracellular signalling pathways in the target cells. Topics covered include structures of hormone and neurotransmitter receptors, mechanisms of intracellular signal transduction, second messengers and protein phosphorylation-dephosphorylation; regulation of gene expression; molecular basis of drug addiction; different roles of individual neurotransmitters; neurochemistry of sensory transduction, mechanism of neuronal apoptosis and necrosis, molecular basis of neurodegenerative disease, molecular basis of cancer formation and progression and the use and design of protein kinase inhibitors as therapeutics for treatment of cancer and neurodegenerative diseases.
Learning Outcomes:	On completion of the subject: # students should understand the molecular basis of hormone and neurotransmitter actions. # the techniques used to investigate the mechanism of hormone action and neurotransmitter functions. # how abnormalities in synthesis and intracellular signalling pathways contribute to disease such as cancer and Parkinson's disease.
Assessment:	3 hour written exam held in examination period (70%); two 1 hour written examinations held during semester (7.5% x 2 = 15%); An essay assessment due mid-semester (15%).
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject, students should have developed the following generic skills: # the ability to interpret scientific literature and interpret data from electronic databases. # the capacity to integrate knowledge across disciplines. # the ability to comprehend a question, evaluate the relevant information and communicate an answer.
Notes:	Students enrolled in the BSc (pre-2008 BSc), BASc or a combined BSc course will receive science credit for the completion of this subject. Students undertaking this subject will be expected to regularly access an Internet-enabled computer.
Related Majors/Minors/ Specialisations:	Animal Cell Biology (specialisation of Cell and Developmental Biology major) Biochemistry and Molecular Biology Cell Biology (pre-2008 Bachelor of Science) Microbiology Neuroscience Reproduction and Development (pre-2008 Bachelor of Science) Reproduction and Development (specialisation of Cell and Developmental Biology major) Science credit subjects* for pre-2008 BSc, BASc and combined degree science courses Science-credited subjects - new generation B-SCI and B-ENG. Selective subjects for B-BMED