CLRS90026 Clinical Neuroscience Res. & Imaging

Credit Points:	25
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2013.
Time Commitment:	Contact Hours: 48 hours of lectures/seminars/workshops. Total Time Commitment: Estimated total time commitment of 240 hours.
Prerequisites:	nil
Corequisites:	nil
Recommended Background Knowledge:	nil
Non Allowed Subjects:	nil
Core Participation Requirements:	For the purposes of considering requests 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/
Contact:	School of Melbourne Custom Programs Level 3, 442 Auburn Rd Hawthorn VIC 3122 Phone: 9810 3245 Email: **clinicalresearch@commercial.unimelb.edu.au** **(mailto:clinicalresearch@commercial.unimelb.edu.au)**
Subject Overview:	Topics covered in this subject include: • Frontiers in clinical neuroscience research; • Expert briefings on the current research questions in epilepsy, intellectual disability and autism, stroke and multiple sclerosis; • Research methods in clinical neurological genetics; • How animal models can inform clinical neuroscience research; • Research methods in clinical neuropharmacology; • Brain development; • Neuroplasticity and neurotrophic factors research; • Research methods in neurodegenerative disorders; • Clinical trials methods; • How clinical research informs basic research and vice-versa; • Research methods in neurological epidemiology; • Research methods in neurological rehabilitation; • Translation of clinical research findings into practice. • Expert briefings on the current research questions in dementias, movement disorders, schizophrenia and bipolar disorders; • Major emphasis on cutting-edge human imaging techniques; • Cognitive functioning; • Research techniques in clinical neurophysiology; • Introduction to neuroimaging techniques; • Principles of magnetic resonance imaging (MRI); • Practical demonstration of language functional MRI; • Structural MR imaging and clinical research applications; • Functional MR imaging and clinical research applications; • Analysis of MR imaging; • Magnetic resonance spectroscopy and research applications; and

	• New frontiers in multi-disciplinary clinical neuroscience research.
Objectives:	Students who successfully complete this specialist subject will: • Demonstrate a high level of understanding of a wide variety of clinical research methodologies applicable to problems in neurological disease, • Have a sound knowledge of the overlap with basic science advances across the neuroscience field and a good understanding of clinical synergies, • Have gained insights into the broad "hot topics" in neuroscience research and be able to generate useful discussions and ideas, • Be able to analyse and critically appraise the clinical and basic neuroscience literature in a chosen topic of interest, • Be able to apply this knowledge through creating new ideas for clinical research projects, and • Be able to work in teams and effectively communicate clinical research findings. • Demonstrate a high level of understanding of various advanced clinical research techniques that have broad application to many areas of neuroscience; • Understand clinical research applications of brain imaging techniques; • Understand the need for multi-disciplinary integration in clinical research and be able to establish appropriate collaborations across disciplines; • Have gained insights into current research applications of these techniques across the various neuroscience disciplines; • Be able to develop innovative strategies to investigate clinical neuroscience research questions to pursue in response to particular neurological problems; and • Have achieved a level of competency enabling them to create and conduct high quality clinical neuroscience research projects from the original concept through to submission of competitive research proposals.
Assessment:	Neuroscience research skillsOral team presentation (total 20 mins + 10 mins discussion) based on published clinical neuroscience research topics discussed within multi-disciplinary teams (10 percent), a comprehensive literature review in a chosen clinical neuroscience research area leading to explicit conclusions and new research questions to pursue (max. 3500 words) (40 percent).This assessment will be undertaken at the end of the first week of the teaching period. Neuroimaging skillsA short oral presentation of a proposed research plan (15 percent), a comprehensive clinical neuroscience project proposal formatted as a grant submission, including potential multi-disciplinary collaborations and drawing on the course contents (and previous professional experience if relevant) (3000 words) (35 percent).This assessment will be undertaken at the end of the second week of the teaching period (the second week is taught three months after the first week).
Prescribed Texts:	nil
Recommended Texts:	As part of their course materials students will be provided with articles and references that support the teaching.
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:	Students will gain the following skills that can be used more broadly in their workplace: • Clinical research skills • Critical evaluation skills • Presentation skills • How to undertake a literature review • How to prepare a grant application • Greater understanding of translation of research findings into clinical outcomes
Links to further information:	http://www.mccp.unimelb.edu.au/courses/award-courses/specialist-certificate/neuroscience
Related Course(s):	Graduate Diploma in Clinical Research Master of Clinical Research Specialist Certificate in Clinical Research (Neuroscience)