

Degree Level Expectations, Learning Outcomes, Indicators of Achievement and the Program Requirements that Support the Learning Outcomes

Expectations	Learning Outcomes	Indicators of Achievement	Relevant Courses and academic requirements
<p><b>Depth and breadth of knowledge</b></p>	<p>A comprehensive knowledge of the nervous system, which can be inclusive of cellular, molecular, psychological, systems, and clinical neurobiology. This scientific foundation will support the students' future academic activities or professional practice.</p> <p>A disciplinary and/or interdisciplinary focus in the neurosciences.</p>	<p>Successful completion of course requirements.</p> <p>Positive feedback from supervisor and Advisory Committee on progress.</p> <p>Demonstrated depth of knowledge in the neurosciences.</p> <p>Successful defense of written thesis.</p>	<p>NSCI 800*: Current Concepts in Neuroscience - An advanced course that will focus on current research topics in selected areas of Neuroscience. Topics will include research in all fields of specialization within the Neuroscience graduate program (Cellular/Molecular Neuroscience, Systems Neuroscience, Cognitive/Behavioural Neuroscience, Neurological &amp; Psychiatric Disorders) to introduce students to the breadth of research in Neuroscience. This course is not mandatory for PhD students though students who have not done their Masters thesis in the CNS are encouraged to enroll.</p> <p>NSCI 803*: Magnetic Resonance Imaging - This course is designed for graduate students who want to learn the theory and practice of magnetic resonance imaging (MRI) for anatomical imaging, imaging of dynamic physiological processes, and MRI to detect neuronal function (functional MRI, fMRI). The course will allow the student to gain an understanding of the principles that underlie the applications of MRI and fMRI as a research tool.</p> <p>NSCI 815*: Special Directed Topics - Designed for students with special interests that are not covered by existing</p>

			<p>courses offered in the Centre for Neuroscience Studies. Normally, this will take the form of a closely supervised reading course in the area of a graduate instructor's expertise but may also include supervised laboratory work and/or specialized clinical experience.</p> <p>NSCI 825: Medical Neuroscience - A multidisciplinary graduate level course exposing students to the clinical aspects of neuroscience (same as ANAT-825, PHAR-825 and PHGY-825). Didactic lectures cover detailed organization of the nervous system with clinical implications. Laboratories review basic neuroanatomy and pathology. Clinical demonstrations expose students to several neurological disorders. Lectures, laboratories, and clinical cases.</p> <p>NSCI 829*: Disorders of the Nervous System - A multi-disciplinary course exploring advanced concepts of clinical neuroscience . Topics can include stroke, traumatic brain and cord injuries, neurodegenerative disorders, epilepsy, schizophrenia, depression, deep brain stimulation, pain and placebo effects, normal and abnormal aging, stem cells. Students will learn to critically evaluate scientific literature and present these concepts to classmates during student-led seminars.</p> <p>NSCI 850*: Computational Approaches to Neuroscience - This course will provide an overview and hands on experience of the most important computational</p>
--	--	--	---

			<p>approaches in Neuroscience. The main topics covered include single cell and neural network modelling, Bayesian approaches, State Space modelling and Optimal Control Theory. More specific modelling approaches will also be discussed as well as some widely used computational data analysis methods.</p> <p>Depending on the individual student's academic background and/or research interests, graduate courses offered by cognate programs may be taken to satisfy the degree requirements.</p> <p>Comprehensive examination in the CNS – completion of four essay questions that cover a range of neuroscience topics followed by oral examination.</p> <p>A defendable well written PhD thesis.</p>
<b>Research and scholarship</b>	<p>An understanding of current concepts in the neurosciences.</p> <p>An understanding of the current literature in the neurosciences.</p> <p>Formulation of thesis project.</p>	<p>Positive feedback from supervisor and student advisory committee on progress following required annual committee meetings.</p> <p>Demonstrated ability to field questions related to their research methods, rationale and conclusions at PhD thesis defense.</p>	<p>Mandatory Advisory Committee meetings.</p> <p>Comprehensive examination in the CNS – completion of four essay questions that cover a range of neuroscience topics followed by oral examination.</p> <p>PhD thesis research and defense</p>
<b>Application of Knowledge</b>	<p>The ability to discuss and defend thesis proposal and completed thesis at Advisory Committees and thesis defense examination. This will include discussion and defense of experimental plan, methods, hypothesis, and data/findings.</p>	<p>Successful performance in courses.</p> <p>Appropriately designed experiments resulting in presentation/publication of their research results.</p> <p>Successful performance during PhD thesis defense.</p>	<p>Mandatory Advisory Committee meetings.</p> <p>Comprehensive examination in the CNS – completion of four essay questions that cover a range of neuroscience topics followed by oral examination.</p> <p>PhD thesis research and defense.</p>

<p><b>Professional capacity/autonomy</b></p>	<p>The intellectual independence required for continuing professional development.</p> <p>The development of personal academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research.</p>	<p>Successful research project.</p> <p>Successful presentation of research results and interpretation at national and/or international scientific conferences.</p>	<p>Mentoring by supervisor, colleagues and other faculty members.</p> <p>Although not required students are encouraged to serve as student representatives on various committees and to participate in the student organized Neuroscience Outreach Program and in graduate journal clubs in various topics in neuroscience.</p>
<p><b>Communication Skills</b></p>	<p>The ability to communicate neuroscience concepts to undergraduates, colleagues and supervisors.</p> <p>The ability to communicate the importance of their PhD research findings.</p>	<p>Positive feedback from supervisor and Advisory Committee on quality of required presentations.</p> <p>Successful presentation of research progress in seminars and potentially publications.</p> <p>Demonstrated ability to communicate appropriately in their capacity as a teaching assistant to undergraduate students.</p> <p>Successful performance during oral PhD defense.</p>	<p>PhD thesis research and defense.</p>
<p><b>Awareness of limits of knowledge</b></p>	<p>An understanding of the limitations of their research methods, current literature and interpretation of results. This will occur through the student's understanding of the assumptions upon which their research is based and the acceptance that there are always different ways of understanding based on different perspectives.</p>	<p>Reasoned response to questioning during presentations that demonstrate a knowledge and understanding of research limitations and of the potential contributions of other interpretations, methods, and disciplines.</p>	<p>Mentoring by thesis supervisor, colleagues and other faculty members.</p>