



UNIT OUTLINE

Unit Code: NP544

Unit Title: Introductory Neuroscience

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CRICOS Provider Name: Christian Heritage College
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Unit code	NP544																
Unit name	Introductory Neuroscience																
Associated higher education awards	Graduate Certificate in Applied Neuroscience																
Duration	One semester																
Level	Postgraduate																
Unit coordinator	Dr Stephen Beaumont																
Teaching staff	Peter Janetzki																
Core/elective	Core																
Weighting	Unit credit points: 10 Course credit points: 40																
Delivery mode	Face to face																
Student workload	<table> <tr> <td>Contact hours</td> <td>14 hours</td> </tr> <tr> <td>Reading, study, and preparation</td> <td>76 hours</td> </tr> <tr> <td>Assignment preparation</td> <td>60 hours</td> </tr> <tr> <td>TOTAL</td> <td>150 hours</td> </tr> <tr> <td colspan="2"><i>External</i></td> </tr> <tr> <td>Engagement with study materials</td> <td>90 hours</td> </tr> <tr> <td>Assignment preparation</td> <td>60 hours</td> </tr> <tr> <td>TOTAL</td> <td>150 hours</td> </tr> </table> <p>Students requiring additional English language support are expected to undertake an additional one hour per week.</p>	Contact hours	14 hours	Reading, study, and preparation	76 hours	Assignment preparation	60 hours	TOTAL	150 hours	<i>External</i>		Engagement with study materials	90 hours	Assignment preparation	60 hours	TOTAL	150 hours
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Prerequisites/ co-requisites/ restrictions	Nil																
Rationale	<p>Recent discoveries in neuroscience have shifted the paradigm of understanding the human brain. This shift points toward a new understanding of mental health and has opened new perspectives in both understanding the causes of mental health disorders and facilitating mental health. The interplay between genetic functioning and the environment (epigenetics) opens exciting new options towards understanding the biological mechanisms that lead to mental health disorders and strategies to manage/treat these conditions. This is further enhanced by recent discoveries in regards to the biology of neural plasticity.</p> <p>This unit provides foundational scientific underpinnings for the theory of neuropsychotherapy. It focuses on the key principles of neuroscience, understanding the paradigm shift in neural development and the implications for mental health practice. It further brings to bear a</p>																

	Christian worldview lens on understandings of the human brain, its functioning and the implications for therapeutic engagement.
Prescribed text(s)	Dingman. M. (2019). <i>Your brain explained</i> . London: Nicholas Brealey Publishing.
Recommended readings	<p>Books</p> <p>Barker, R., & Cicchetti, F. (2012). <i>Neuroanatomy and neuroscience at a glance</i>. Hoboken, NJ: Wiley.</p> <p>Jeeves, M. (2013). <i>Minds, brains, souls and gods: A conversation on faith, psychology and neuroscience</i>. Downers Grove, IL: IVP Academic.</p> <p>Kandel, E., Schwartz, J., Jessell, T., Siegelbaum, S., & Hudspeth, A. (Eds.). (2013). <i>Principles of neural science</i> (5th ed.). New York, NY: McGraw-Hill Medical.</p> <p>McHenry, B., Sikorski, A. M., & McHenry, J. (2014). <i>A counsellor's introduction to neuroscience</i>. New York, NY: Routledge.</p> <p>Montgomery, A. (2013). <i>Neurobiology essentials for clinicians: What every therapist needs to know</i>. New York, NY: Norton.</p> <p>Sporns, O. (2011). <i>Networks of the brain</i>. Cambridge, MA: MIT Press.</p> <p>Journal Articles</p> <p>Rossouw, P. J. (2013). The neuroscience of talking therapies: Implications for therapeutic practice. <i>The Australian Journal of Counselling Psychology</i>, 13 (1), 40-50.</p> <p>Journals</p> <p><i>International Journal of Neuropsychotherapy</i></p> <p><i>Journal of Psychology and Theology</i></p> <p><i>Neuropsychotherapy</i></p> <p><i>Neuropsychotherapy in Australia</i></p> <p><i>The Journal of Neuroscience</i></p> <p><i>The Neuropsychotherapist</i></p> <p>In addition to the resources above, students should have access to a Bible, preferably a modern translation such as The Holy Bible: The New International Version 2011 (NIV 2011) or The Holy Bible: New King James Version (NKJV).</p> <p>These and other translations may be accessed free on-line at http://www.biblegateway.com. The Bible app from LifeChurch.tv is also available free for smart phones and tablet devices.</p>
Specialist resource requirements	Nil
Content	<ol style="list-style-type: none"> 1. Neuroscience: Past and present 2. Internal Inter-connectivity and two hemispheres 3. The triune brain 4. The brain as a working system

	<ol style="list-style-type: none"> 5. The central nervous system 6. Understanding the working of the autonomic nervous system 7. Neurochemicals, neural networks, and neuralplasticity 8. The stress response system 9. Genetics and epigenetics 10. The neuroscience of memory and learning; memory, learning & spirituality 11. Right brain to right brain interaction 12. Lifestyle factors and neurological health
<p>Learning outcomes</p>	<p>On completion of this unit, students will have demonstrated that they have:</p> <ol style="list-style-type: none"> 1. investigated the development of the brain, the concept of “bottom-up” development and the implications of this for practice. 2. examined the interplay between the genetic makeup and environment for shaping neural activation and the implications in terms of working in the people-helping domain. 3. developed a core understanding of the neural systems, structures, stress response and neurochemicals, and how they facilitate patterns of emotions and behaviours and provide the guidelines to facilitate change. 4. examined the research evidence regarding the neuroscience of memory and ways to facilitate changes in memory systems. 5. critically reflected on the role of the environment, including that engendered by a Christian worldview, to facilitate neural change. 6. critically reflected on the impact and significance of neuroscientific advances on our understandings of the human condition and the journey to wholeness, including Christian worldview perspectives. 7. communicated at an appropriate tertiary standard with special attention to correct grammars, punctuation, spelling, vocabulary, usage, sentence structure, logical relations, style, referencing, and presentation.
<p>Assessment tasks</p>	<p>Task 1: Meta-Reflection</p> <p>Students are to write a meta-reflection that synthesises their significant learnings regarding neurobiology. The final essay is to be based on their contribution to at least six (6) weekly forum activities (which are to be included as an appendix). These reflections should include Christian worldview perspectives and considerations.</p> <p>Word Length/Duration: 2, 500 words</p> <p>Weighting: 50%</p> <p>Learning Outcomes: 1-7</p> <p>Assessed: Week 9</p> <p>Task 2: Case Study Analysis</p> <p>Students are to analyse a case study with regard to aspects of neurobiology and their implications for neuropsychotherapy practice, with reference to research evidence.</p> <p>Word Length/Duration: 3,000 words</p> <p>Weighting: 50%</p> <p>Learning Outcomes: 1-5, 7</p> <p>Assessed: Week 15</p>

Unit summary

This unit focuses on providing a baseline of knowledge to master the current discourse in clinical neurobiology as well as developing competency to apply these principles in neuropsychotherapy practice.

SAMPLE