

<b>Course title</b>	<b>The Neuroscience of Learning</b>				
<b>Course code</b>	<b>PSY4804</b>				
<b>Course type</b>	Elective				
<b>Level</b>	Bachelors				
<b>Year / Semester</b>	Year 4 / 8 <sup>th</sup> Semester				
<b>Teacher's name</b>	Dr Andri Vrioni				
<b>ECTS</b>	6	<b>Lectures / week</b>	3	<b>Laboratories / week</b>	
<b>Course purpose and objectives</b>	<p>The aim of this course is to provide students with a deep understanding of the brain mechanisms that underpin learning, memory, and cognition, while exploring how neuroscience can be applied to enhance education. Students will examine the roles of key brain systems such as the hippocampus and prefrontal cortex in memory, executive function, and learning strategies; analyse how neurodevelopment, stress, emotion, and motivation influence learning across the lifespan; and investigate the neural bases of language, skill acquisition, and social learning.</p>				
<b>Learning outcomes</b>	<p>On successful completion of the course and with further independent study, students will be able to:</p> <p><b>Knowledge</b></p> <ol style="list-style-type: none"> <li>1. Demonstrate advanced understanding of the neural structures and systems underpinning learning</li> <li>2. Appraise neuroscientific evidence related to language, skill acquisition, and social learning.</li> </ol> <p><b>Competencies</b></p> <ol style="list-style-type: none"> <li>3. Apply neuroscience theories and empirical evidence to analyse and evaluate educational practices and learning strategies.</li> </ol> <p><b>Transferable Skills</b></p> <ol style="list-style-type: none"> <li>4. Communicate complex neuroscientific concepts clearly and persuasively through advanced academic writing.</li> <li>5. Demonstrate high-level critical thinking and research literacy when evaluating and synthesising scientific literature.</li> </ol>				

<p><b>Prerequisites</b></p>	<p>PSY1101 foundations of brain, social psychology and individual differences; PSY1205 foundations of cognitive and developmental psychology; PSY2301 Biological basis of behaviour; PSY2405 advanced cognitive psychology; 2303 development across the lifespan</p>	<p><b>Required</b></p>	<p>none</p>
<p><b>Course content</b></p>	<p><b>Indicative Content</b></p> <ul style="list-style-type: none"> <li>• Overview of brain structure and function relevant to learning <ul style="list-style-type: none"> <li>◦ Specialisation of brain regions (frontal, parietal, occipital, temporal lobes) in core learning processes: perception, attention, memory, and problem-solving.</li> </ul> </li> <li>• The hippocampus and memory systems in Learning</li> <li>• The role of the prefrontal cortex in cognitive control and learning strategies <ul style="list-style-type: none"> <li>◦ Neurodevelopment and learning across the lifespan (Adolescent brain development; Adult learning ; Ageing and learning)</li> </ul> </li> <li>• Neural bases of language, skill acquisition, and social learning</li> <li>• The effects of stress, emotion, and reward on learning</li> <li>• Neuroplasticity and brain adaptation as the biological basis of learning and memory.</li> <li>• Educational Applications of Neuroscience: Applying neuroscience to pedagogy; Supporting diverse learners</li> </ul>		
<p><b>Teaching methodology</b></p>	<p>Teaching will consist of lectures, in-class discussions, case studies and quizzes designed to assess understanding and provide opportunities for formative feedback. Teaching will be supported by online materials and additional readings</p>		
<p><b>Bibliography</b></p>	<p><b>Core Text:</b></p> <p>Thomas, M. S. C., Mareschal, D., &amp; Dumontheil, I. (Eds.). (2020). <i>Educational neuroscience: Development across the life span</i>. Routledge/Taylor &amp; Francis Group</p> <p>Carlson, N. R., &amp; Birkett, M. A. (2020). <i>Foundations of behavioral neuroscience</i> (10th ed., Global ed.). Pearson.</p> <p>Woolfolk, A. (2025). <i>Educational psychology: Active learning edition</i> (15th ed., Global ed.).</p> <p><b>Recommended:</b></p>		

	Ormrod, J. E., Anderman, E. M., & Anderman, L. H. (2017). <i>Educational psychology: Developing learners</i> (9th ed., Global ed.). Pearson. <b>Further reading:</b> A reading list will accompany each lecture, highlighting relevant articles accessible through the library, as well as open-access and e-learning resources.
<b>Assessment</b>	Attendance and participation 10%
	Written assignment 45%
	Final Exam 45%
<b>Language</b>	English