

Graduate Certificate in The Neuroscience of Leadership

Syllabus Summary

Course Mission Statement

The goal of this course is for the student to gain insight into the observable aspects of neuroscience (behavior, memory, emotions), thus enabling them to modulate their interventions in the workplace to improve leadership, learning and change initiatives, and be able to accurately teach people in organizations about the brain.

Module 1: DECISION MAKING & PROBLEM SOLVING

<p>Week 1 - Course Goals & Overview</p> <ol style="list-style-type: none"> 1. Introductions & background of the course 2. Course structure and goals 3. Expectations and requirements 4. Knowledge review of Neuroanatomy and Neurophysiology <ol style="list-style-type: none"> a. Cortical anatomy and function b. Autonomic nervous system c. Neurophysiology <ol style="list-style-type: none"> i. Action potentials ii. Neurotransmitters iii. Brain networks 	<p>Week 5 Linear decision making & problem solving</p> <ol style="list-style-type: none"> 1. Conscious thought <ol style="list-style-type: none"> a. Understanding b. Deciding c. Recalling d. Memorizing e. Inhibiting 2. Unconscious thought <ol style="list-style-type: none"> a. Basal ganglia b. Cortical areas 3. Strategies for multi-tasking
<p>Week 2 - Frontal Cortex</p> <ol style="list-style-type: none"> 1. Network formation <ol style="list-style-type: none"> a. Role of catecholamines b. Function of the PFC c. Medial PFC 2. OFC <ol style="list-style-type: none"> a. Function 3. Practical applications 	<p>Week 6 - Part I Cognitive complexities & cognitive biases</p> <ol style="list-style-type: none"> 1. Energy expenditure 2. Space limitations 3. Serial processing <p>Week 7 - Part II Cognitive complexities & cognitive biases</p> <ol style="list-style-type: none"> 1. Prioritization 2. Competitive resourcing Cognitive biases
<p>Week 3 - Memory</p> <ol style="list-style-type: none"> 1. Types of memory 2. Key structures for memory <ol style="list-style-type: none"> a. Limbic system introduction b. Transmission pathways 3. Cellular basis for memory 4. Limitations in memory capacity & decision making 	<p>Week 8 - Insight Part I</p> <ol style="list-style-type: none"> 1. Neural circuitry <ol style="list-style-type: none"> a. PFC b. RVL PFC 2. Priming 3. Hemispheric laterality 4. Brain imaging findings
<p>Week 4 - Attention</p> <ol style="list-style-type: none"> 1. Types of attention <ol style="list-style-type: none"> a. Arousing b. Alerting c. Orienting 2. Brain wave activity <ol style="list-style-type: none"> a. Gamma synchrony b. Integration 3. Optimal arousal 4. Applying the optimal arousal paradigm in the workplace 	<p>Week 9 - Predictive Nature of Insight Part II</p> <ol style="list-style-type: none"> 1. Inhibition 2. Cognitive control 3. Increasing insight 4. Applications for problem solving <p>Week 10 - Student Presentations</p> <p>Final presentations on practical application of Module One</p>

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Module 2: EMOTIONAL REGULATION

<p>Week 1 - Limbic System</p> <ol style="list-style-type: none"> 1. Key components <ol style="list-style-type: none"> a. Amygdala b. Hippocampus c. Orbital frontal cortex d. VLPFC:the brains' braking system 2. Function <ol style="list-style-type: none"> a. Emotional relationship b. Arousal 	<p>Week 6 - Expectations</p> <ol style="list-style-type: none"> 1. Emotional forecasting 2. Role in perception <ol style="list-style-type: none"> a. Placebo effect b. Brain imaging data 3. Neurochemistry of expectation 4. Upward/downward spirals 5. Learnings for workplace
<p>Week 2 - Minimize danger, maximize reward</p> <ol style="list-style-type: none"> 1. Evolution of threat and reward <ol style="list-style-type: none"> a. Certainty b. Autonomy 2. Bad is stronger than good 3. Hotspots 4. Limbic/PFC balance 5. Generalization 6. Applications in the workplace 	<p>Week 7 - Mindfulness Part I</p> <ol style="list-style-type: none"> 1. Introduction to mindfulness 2. Neurobiology of mindfulness <ol style="list-style-type: none"> a. Narrative circuitry b. Direct experience 3. Historical phenomenon
<p>Week 3 - Emotional theory</p> <ol style="list-style-type: none"> 1. Avoiding the emotional component <ol style="list-style-type: none"> a. Situation selection b. Situation modification c. Attention deployment 2. Expression vs. Suppression 3. Cognitive change 	<p>Week 8 - Mindfulness Part II</p> <ol style="list-style-type: none"> 1. Health outcomes 2. Integration in the brain 3. Practical applications 4. Mindful Awareness Attention Scale
<p>Week 4 - Labeling</p> <ol style="list-style-type: none"> 1. Labeling <ol style="list-style-type: none"> a. FMRI data b. Limbic/PFC balance c. Role of the RVPFC d. Symbolic labeling e. Practical applications 	<p>Week 9 - Students meet in pods to collaborate on assignments Final paper on practical applications of Module 2</p>
<p>Week 5 - Reappraisal</p> <ol style="list-style-type: none"> 1. Role in emotional regulation 2. Types of reappraisal <ol style="list-style-type: none"> a. Reinterpreting b. Normalizing c. Reordering d. Repositioning 3. Data on benefits of reappraisal 4. Role in leadership 	<p>Week 10 - Students presentations Final presentations on practical applications</p>

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Module 3: COLLABORATION

<p>Week 1 - Anatomy of a social brain</p> <ol style="list-style-type: none"> 1. The social neuro-network 2. Social/non-social memory 3. Mirror neurons 4. Neurochemistry 5. Health outcomes 	<p>Week 6 - Relatedness</p> <ol style="list-style-type: none"> 1. Friend vs foe 2. Impact of social isolation 3. Benefits of social networks 4. Emotional contagiousness/empathy 5. Social inference 6. Social support
<p>Week 2 - Philosophy of a social brain</p> <ol style="list-style-type: none"> 1. Learnings from other disciplines 2. Social cognitive neuroscience 3. Silo mentality 4. Theory of mind 5. Prejudice 6. Attitude change 7. Spreading activation 	<p>Week 7 - Fairness</p> <ol style="list-style-type: none"> 1. As a primary need 2. Reward circuitry 3. Neurochemistry 4. Role of expectations 5. Managing the fairness response
<p>Week 3 - Introduction to SCARF</p> <ol style="list-style-type: none"> 1. Definition 2. Biological underpinnings 3. Social pain/social pleasure networks 4. Using SCARF as a tool for improvement 	<p>Week 8 - Practical applications of SCARF</p> <p>Utilizing the SCARF model in everyday settings</p>
<p>Week 4 - Status</p> <ol style="list-style-type: none"> 1. Reward circuitry 2. Neurochemistry of status 3. Social vs physical pain <ol style="list-style-type: none"> a. Altruism b. Rejection sensitivity 4. Health outcomes 5. Maintaining self-perceived status 	<p>Week 9</p> <p>Students meet in pods to collaborate on assignments</p> <p>Final paper on practical applications of Module 3</p>
<p>Week 5 - Certainty/Autonomy</p> <ol style="list-style-type: none"> 1. Prediction as an overarching function of the cortex 2. Gestalt theory 3. Reward circuitry 4. Importance of perception of control 	<p>Week 10 - Students presentations</p> <p>Final presentations on practical applications of Module 3</p>

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Module 4: FACILITATING CHANGE

<p>Week 1 - Attention</p> <ol style="list-style-type: none"> 1. Neural synchrony 2. Threat state as default 3. Practical applications of the ARIA model 	<p>Week 6 - Attention density</p> <ol style="list-style-type: none"> 1. Memory 2. Behavioral change 3. Impartial spectator 4. Application in the workplace
<p>Week 2 - Plasticity</p> <ol style="list-style-type: none"> 1. As a neural principle 2. LTP 3. Habit formation and memories 4. The role of attention 	<p>Week 7 - Adaptive integrated brain</p> <ol style="list-style-type: none"> 1. Self-directed neuroplasticity 2. Self-knowledge 3. Leading change with the adaptive integrated brain
<p>Week 3 - Goals</p> <ol style="list-style-type: none"> 1. External vs internal goals 2. Assimilation 3. Goal setting 4. Practical applications 	<p>Week 8 Designing interventions for facilitating change Part I</p> <ol style="list-style-type: none"> 1. SCARF 2. ARIA 3. Attention density
<p>Week 4 - Feedback</p> <ol style="list-style-type: none"> 1. Threat response 2. Pitfalls of a problem-focused approach <ol style="list-style-type: none"> a. Limbic arousal b. Memory c. Uncertainty 3. Outcome-focused approach <ol style="list-style-type: none"> a. The seeking response b. Insight 	<p>Week 9 Designing interventions for facilitating change Part II</p> <ol style="list-style-type: none"> 1. Self-directed neuroplasticity 2. Expectations 3. Goals and strategies
<p>Week 5 - Cultural change</p> <ol style="list-style-type: none"> 1. Social science/organizational studies 2. Reducing threat 3. New connections 4. Practical applications for leading cultural change 	<p>Week 10 Final project completion/review of learning</p>