

SPRING 2019 COURSES

1. Functional Neuroanatomy PSB 4934 (3 credits; fully on-line) Neil Rowland, PhD.

SYLLABUS PSB4934 Functional Neuroanatomy Spring 2019

This 3-credit course is an examination of the structure and function of the **human nervous system**, with some discussion of the effects of damage (lesions) to these various structures. Normally, you should have taken the foundation level course in Physio psych/Behavioral neuroscience (PSB3002 or 3340): this course will cover neuroanatomical aspects in considerably more detail than those foundation courses. Students with other prior courses may be admitted by permission of the instructor. Required text is **Basic Clinical Neuroscience** (3rd ed) by Young, Young & Tolbert (Wolters; new book has free access code to e-book with enhanced features).

Instructor: Dr. Neil Rowland. You can reach me through the Canvas e-mail, or nrowland@ufl.edu. My office is 320 Psychology building.

Format: This is a fully on-line course, using the Canvas shell. The course is divided into 13 modules, which are programmed in a week-by-week sequence (2 week hiatus for Spring break!). Each course module lasts one week and will be available by 8 a.m. Mondays of each week, and covers 1 or more chapters of the book, clustered into functional groupings. Each module is divided into 3-4 Units. Each Unit has a (1) slide presentation of the main points, reinforcing book pages or chapters, (2) additional video material including postmortem brain, and (3) a multiple choice quiz of about 6 questions. Each module ends with a short writing assignment that challenges you to think about or solve a neuro-anatomical issue. Quizzes and papers each count about 50% of total grade. No final exam.

Schedule and summary topics:

<u>Module</u>	<u>Starts</u>	<u>Chapters</u>	<u>General topics</u>
1	Jan 7	1,23	General structure: cells and cerebrospinal fluid
2	Jan 14	24	Development of nervous system
3	Jan 21	2,3,4	Topography and levels: spinal cord thru forebrain
4	Jan 28	5,6,7	Spinal and brainstem motor systems
5	Feb 4	8,9	Higher integration of movement
6	Feb 11	11	Somatosensory systems; pain
7	Feb 18	10,14	Visual and oculomotor systems
8	Mar 11	12,13,15	Other sensory systems

9	Mar 18	16,17	Cerebral cortex and limbic system
10	Mar 25	18,19	Hypothalamus and autonomic nervous system
11	Apr 1	20,21	Reticular formation & cranial nerves
12	Apr 8	22	Blood supply of the brain; fMRI
13	Apr 15	25,26	Development and aging of the nervous system

2. SYLLABUS PSB4934 Functional Neuroanatomy Spring 2019

This 3-credit course is an examination of the structure and function of the **human nervous system**, with some discussion of the effects of damage (lesions) to these various structures. Normally, you should have taken the foundation level course in Physio psych/Behavioral neuroscience (PSB3002 or 3340): this course will cover neuroanatomical aspects in considerably more detail than those foundation courses. Students with other prior courses may be admitted by permission of the instructor. Required text is **Basic Clinical Neuroscience** (3rd ed) by Young, Young & Tolbert (Wolters; new book has free access code to e-book with enhanced features).

Instructor: Dr. Neil Rowland. You can reach me through the Canvas e-mail, or nrowland@ufl.edu. My office is 320 Psychology building.

Format: This is a fully on-line course, using the Canvas shell. The course is divided into 13 modules, which are programmed in a week-by-week sequence (2 week hiatus for Spring break!). Each course module lasts one week and will be available by 8 a.m. Mondays of each week, and covers 1 or more chapters of the book, clustered into functional groupings. Each module is divided into 3-4 Units. Each Unit has a (1) slide presentation of the main points, reinforcing book pages or chapters, (2) additional video material including postmortem brain, and (3) a multiple choice quiz of about 6 questions. Each module ends with a short writing assignment that challenges you to think about or solve a neuro-anatomical issue. Quizzes and papers each count about 50% of total grade. No final exam.

Schedule and summary topics:

Module	Starts	Chapters	General topics
1	Jan 7	1,2,3	General structure: cells and cerebrospinal fluid
2	Jan 14	24	Development of nervous system
3	Jan 21	2,3,4	Topography and levels: spinal cord thru forebrain
4	Jan 28	5,6,7	Spinal and brainstem motor systems
5	Feb 4	8,9	Higher integration of movement

6	Feb 11	11	Somatosensory systems; pain
7	Feb 18	10,14	Visual and oculomotor systems
8	Mar 11	12,13,15	Other sensory systems
9	Mar 18	16,17	Cerebral cortex and limbic system
10	Mar 25	18,19	Hypothalamus and autonomic nervous system
11	Apr 1	20,21	Reticular formation & cranial nerves
12	Apr 8	22	Blood supply of the brain; fMRI
13	Apr 15	25,26	Development and aging of the nervous system

2. PSYCH OF LEARNING & MEMORY PSY4930 x14406; SPR 2019. Fully online

INSTRUCTOR: NEIL ROWLAND. TEXT: LEARNING & MEMORY 3e; Gluck, Mercado, Myers (McMillan)

The course is organized into 12 modules that are one week long except for the first (2 weeks) and a 2 week Spring Break (!) Each module is organized into 3 or 4 units, and each unit ends with a multiple choice quiz averaging about 5 questions. The quizzes account for ~65% of the grade. You also have to read and summarize a scholarly paper (there is a choice) for each module: these account for ~35% of the grade. Quizzes are due each week by Saturday and the papers by Sunday. There is no final exam: the last assignment is due April 21st.

Module 1: Psychology of Learning and Memory (7-20 Jan)

Unit 1: Roots in Philosophy and Natural history

Learning objectives:

- Describe Aristotle's view of associationism and his three principles
- Compare and contrast empiricist and nativist schools of thought
- Explain James' concept of associationism
- Explain Darwin's theory of natural selection, and how he arrived at it
- Describe how learning and evolution interact

Unit 2: Birth of Experimental psychology

Learning objectives:

- Describe Ebbinghaus' early experiments on forgetting
- Describe the discovery and features of Pavlovian conditioning
- Describe Thorndike's Law of Effect
- Describe the process of operant conditioning

Unit 3: Behaviorism

- Describe the concept of behaviorism
- Identify Skinner's approach to radical behaviorism

- Describe how Tolman's concepts differed from that of traditional behaviorists

Unit 4: Cognitive Approach

- Define cognitive psychology
- Describe how this approach differs from Freudian and behaviorist concepts
- Describe the novel approach of Miller to understanding learning and memory

Module 2: Neuroscience of Learning and Memory (21-27 Jan)

Unit 1: Structural properties of the nervous system

Learning objectives:

- Describe the basic structure of brain and regions prominent for learning & memory
- Describe operation and information processing aspects of single neurons
- Describe principles of non-invasive brain imaging methods including MRI and DTI
- Understand, in general, how brain structure is influenced by experience/enrichment

Unit 2: Functional properties of systems underlying learning and memory

Learning objectives:

- Understand the general function of synapses
- Describe functional significance of connectivity of different cortical areas
- Contrast the type of information from neuroimaging, EEG, and single cell recordings

Unit 3: Manipulating nervous system activity

Learning objectives:

- Describe types of knowledge gained from lesion studies (accidental or intentional)
- Describe how synapses change with usage; describe LTP and LTD
- Describe general ways in which drugs can affect synaptic transmission
- Describe effects of brain stimulation (electrical and via TMS) on behavior

Module 3: Habituation, sensitization, and familiarization (28 Jan-3 Feb)

Unit 1: Behavioral processes

Learning objectives:

- Compare and contrast habituation and sensitization, and define dual process theory
- Compare and contrast familiarity and priming
- Compare and contrast perceptual learning and spatial learning

Unit 2: Brain substrates

Learning objectives:

- Describe the synaptic basis of long term habituation
- Describe the synaptic basis sensitization via heterosynaptic facilitation
- Describe changes in response properties of cortical neurons in perceptual learning
- Describe properties and significance of hippocampal place neurons

Unit 3: Clinical perspectives

Learning objectives:

- Describe forced limb use as a neurorehabilitation strategy
- Understand how stressful life events may increase incidence of mood disorders
- Describe the use and effectiveness of technology to restore a lost sensory modality

Module 4: Classical conditioning (4-10 Feb)

Unit 1: Behavioral processes

Learning objectives:

- Define the basic terminology of classical conditioning
- Compare and contrast appetitive and aversive conditioning
- Compare and contrast acquisition and extinction
- Describe application to category learning and cause-effect judgments
- Explain how ecological factors pose constraints on conditioning

Unit 2: Brain substrates

Learning objectives:

- Describe the role of the cerebellum in conditioned responding
- Describe the contribution of the hippocampus to conditioning

Unit 3: Clinical perspectives

Learning objectives:

- Explain how conditioning applies to addiction, drug tolerance, and overdose

Module 5: Operant conditioning (11-17 Feb)

Unit 1: Behavioral processes

Learning objectives:

- Contrast the essential components of operant and classical conditioning
- Compare and contrast reinforcers, punishers, and roles in effecting behavior change
- Compare and contrast fixed and variable, number and time schedules
- Define behavioral economics and implication for allocation of personal resources
- Define the Premack principle, and strategies of reinforcer substitution

Unit 2: Brain substrates

Learning objectives:

- Describe the role of the dorsal striatum in storing stimulus-response relationships
- Describe the role of the orbitofrontal cortex in response-outcome relationships
- Describe the role of dopamine in reinforcement and incentive salience hypothesis
- Describe the role of endogenous opioids in reinforcement

Unit 3: Clinical perspectives

Learning objectives:

- Describe how specific drugs may hijack the brain's reinforcement system
- Describe the role of avoiding aversive events in addiction
- Describe treatments available for people with substance abuse disorders

Module 6: Generalization, discrimination, and concept formation (18-24 Feb)

Unit 1: Behavioral processes

Learning objectives:

- Describe generalization, and its four principal categories
- Describe discrimination training as a change in generalization gradient
- Distinguish between stimulus feature and network node concepts of generalization
- Explain how generalization enables use (and misuse) of categories

Unit 2: Brain substrates

Learning objectives:

- Describe how cortical plasticity relates to stimuli and salient events
- Describe the role of the hippocampus in generalization and related processes

Unit 3: Clinical perspectives

Learning objectives:

- Describe consequences of medial temporal lobe dysfunction in schizophrenia
- Describe the basis of stereotyping

Module 7: Episodic and semantic memory (11-17 Mar)

Unit 1: Behavioral processes

Learning objectives:

- Compare and contrast episodic and semantic memory
- Describe the three principles governing the encoding of new memories
- Describe features that improve recall of memories
- Compare and contrast memory failure, false memory, and metamemory

Unit 2: Brain substrates

Learning objectives:

- Describe the role of the hippocampus in memory formation
- Distinguish between short and long term memories, and brain substrates
- Describe role(s) of the frontal cortex in learning

Unit 3: Clinical perspectives

Learning objectives:

- Distinguish transient global and functional amnesias

Module 8: Skill memory (18-24 Mar)

Unit 1: Behavioral processes

Learning objectives:

- Compare and contrast memories for perceptual-motor and cognitive skills
- Describe the role of practice in acquisition and improvement of skills
- Describe three principal factors that enhance skill memory
- Describe what is meant by the term learning set and the utility of having it(them)

Unit 2: Brain substrates

Learning objectives:

- Describe the three brain regions thought to underlie skill learning
- Describe neural response patterns in basal ganglia during perceptual-motor learning
- Describe the types of cortical neuroplasticity observed in skill learning
- Compare and contrast roles of cerebellum and basal ganglia in sequence learning

Unit 3: Clinical perspectives

Learning objectives:

- Describe the loss of skill learning capacity in Parkinson's disease
- Describe the use of motor prostheses in people with movement disabilities

Module 9: Working memory and cognitive control (25 -31 Mar)

Unit 1: Behavioral processes

Learning objectives:

- Compare and contrast the concepts visuospatial sketchpad and phonological loop
- Compare and contrast the working memory models of Atkinson and Baddeley
- Compare and contrast single unitary storage model of memory with older models

Unit 2: Brain substrates

Learning objectives:

- Describe respective roles of dorsal and ventral lateral prefrontal cortex in memory
- Understand the significance of anterior-to-posterior gradient of cortical activation

Unit 3: Clinical perspectives

Learning objectives:

- Describe the neural basis of working memory impairment in schizophrenia
- Describe the brain changes and behavioral consequences associated with ADHD

Module 10: Emotional influences on learning and memory (1-7 Apr)

Unit 1: Behavioral processes

Learning objectives:

- Describe the three principal components of emotion
- Compare and contrast conditioned emotional and escape learning
- Describe learned helplessness
- Understand how emotions affect strength and accuracy of memory storage

Unit 2: Brain substrates

Learning objectives:

- Describe the role of the amygdala in emotional influence on memory
- Describe the effect of stress hormones on basic memory processes
- Describe the role of frontal cortex in interpretation of others' emotional state

Unit 3: Clinical perspectives

Learning objectives:

- Describe the main classes of phobia and possible treatment
- Describe features of PTSD and possible neurobiological correlates or treatment

Module 11: Social learning and memory (8-14 Apr)

Unit 1: Behavioral processes

Learning objectives:

- Describe the principal theoretical interpretations of social learning
- Distinguish imitation from social contagion
- Describe advantages of social transmission of learning

Unit 2: Brain substrates

Learning objectives:

- Describe the evidence for mirror neurons, and their role in social learning
- Describe brain substrates of social learning from (a) avian and (b) rodent studies

Unit 3: Clinical perspectives

Learning objectives:

- Explain the deficits associated with autism spectrum disorders
- Describe roles of the frontal lobe in social learning and memory

Module 12: Development and aging (15-21 Apr)

Unit 1: Behavioral processes

Learning objectives:

- Describe basic processes of learning available to infants
- Discuss the significance of sensitive periods in brain development
- Discuss post-pubertal learning differences between males and females
- Describe the normal trajectory of memory decline with aging

Unit 2: Brain substrates

Learning objectives:

- Describe the contribution of genetic and epigenetic factors to learning and memory
- Describe brain differences due to sex-related hormones, and implications
- Describe changes in basic neural processes in aging
- Explain the concept of neurogenesis and why neural decline still occurs

Unit 3: Clinical perspectives

Learning objectives:

- Describe the structural and functional impairments in Down syndrome
- Describe the structural and functional impairments in Alzheimer disease

3. DEP4930 Social Cognitive Development : Children, Chimps & Crows

Jeffrey Farrar, PhD

Humans live not only in a physical world but in a mental one as well. That is, we interpret the behaviors of others in terms of their mental states. In this class we will explore the formation of theory of mind in humans, including typical developing children, atypical children. Further, we will examine whether nonhuman primates and other species have a theory of mind. The class will be a mixture of discussion, lecture, and article reading.

4. Gerontology GEY4001 (course counts as psych credit) Susan Bluck, PhD

Previous syllabus <https://psych.ufl.edu/files/GEY4001-2G10.pdf>

5. PCO 4930 Black Psychology Victoria McNeil



Attention UF Students!
New Spring 2019 Course

BLACK PSYCHOLOGY

PCO 4930 / AFA 4931

TUESDAYS

4:05PM-7:05PM

3 CREDITS

In this Course We Will Examine:

- Major Figures in the Development of Black Psychology
- The Psychological Experiences of Black Americans
- Current Theory and Research Relevant to the Lives of Black Americans

Course Instructor: Victoria A McNeil M.S. / vmcneil@ufl.edu