

Functional Human Neuroanatomy 2017

GMS 6705

Monday June 26 – Wednesday Aug 2

Course Syllabus/ Schedule

Course Description

Functional Human Neuroanatomy is a survey course in functional neuroscience, intended for a diverse group of graduate students. The course is designed to introduce students to broad concepts involving the principles of cellular neuroscience, the gross and microscopic organization of the central nervous system, functional systems, functional deficits following a CNS lesion, and higher cortical functions. The course integrates basic neuroanatomy with systems neuroscience and cognitive neuroscience through lectures, lab work, textbook and lab atlas, and websites.

Course Administration

Dr. Lou Ritz - Course Director; L1-116 McKnight Brain Institute; lritz@ufl.edu

Lab Teaching Assistants

Megan Hill, 3rd year Audiology student; megangeneva@gmail.com

Matt Diller, Graduate Student - Health Outcomes and Policy, diller17@ufl.edu

Sruti Rayaprolu, 4th year Neuroscience graduate student, sruti.rayaprolu@ufl.edu

Learning Objectives and Learning Activities (L=lecture/textbook; B=lab; N=name the lesion case presentations; W=websites)

- Learn the general histological features of glia and neurons – L, W
- Understand structural and functional issues of the blood-brain barrier – L, W
- Learn steps of chemical neurotransmission - L
- Learn actions and metabolic pathways for chemical neurotransmitters - L
- Understand the origins of transmembrane potential, subthreshold current flows, action potentials and synaptic potentials - L
- Describe the processes of neuronal degeneration and regeneration - L
- Understand the potential role of stem cells in the repair of the nervous system - L
- Learn gross anatomy of the brain, brainstem and spinal cord – L, B, W
- Relate developmental features to the adult CNS - B
- Learn the basics of vascular anatomy of the CNS – L, B
- Interpret basic brain images – L, B
- Understand the organization of functional systems – somatosensory, pain pathways, cranial nerve, motor, visual, auditory, vestibular, autonomic, and eye movement systems – L, B
- Understand higher cortical processes – language, memory, frontal lobe functions, sleep and arousal – L
- Understand clinical deficits following lesions within the CNS – N

Formative Feedback

- Interactive Lab Introductions
- Interactive Review Sessions
- Practice Practicals (Gross material)
- Practice Practicals on-line
- Informal quizzing by lab instructors
- Quizzes on textbook CD and on atlas CD
- Note: No Formal Formative Feedback

Summative Evaluations

- 1) Two lab structural exams, one with gross material and one computer-based;
- 2) Written lab final exam, with Name the Lesion-type questions;
- 3) Three lecture exams covering lecture/ textbook material;

- **Lab exam I – 20%; Lecture exam 1 – 15% (on 7/10)**
Lecture materials thru 7/7
- **Lab exam II– 20%; Lecture exam 2 – 15% (on 7/24)**
Lecture materials 7/11 thru 7/18
- **Lecture exam 3 — 15% (on 8/1)**
Lecture materials 7/19 thru 7/28
- **Written exam on Name the Lesions sessions – 15% (on 8/2)**

Grading Scale:	90-100	A-, A
	80-89.99	B-, B, B+
	70-79.99	C-, C, C+
	65-69.99	D-, D, D+
	Below 65	- F

Attendance – Strongly suggested for all lectures, name the lesion sessions, and the lab introductions. Optional for review sessions and evening/weekend labs.

University of Florida Honor Code

The University of Florida Honor Code was voted on and passed by the Student Body in the Fall 1995 semester. The Honor Code reads as follows:

Preamble: In adopting this Honor Code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the University community. Students who enroll at the University commit to holding themselves and their peers to the high standard of honor required by the Honor Code. Any individual who becomes aware of a violation of the Honor Code is bound by honor to take corrective action. A student-run Honor Court and faculty support are crucial to the success of the Honor Code. The quality of a University of Florida education is dependent upon the community acceptance and enforcement of the Honor Code.

The Honor Code:

"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."

On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

Students with Disabilities:

"Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation."

Functional Human Neuroanatomy 2017 Textbooks

Neuroscience (5th Edition; 2012) – Purves et al.

Neuroanatomy: An Atlas of Structures, Sections, and Systems, (8th Edition, 2012) – Haines
(or, 9th edition if you can find it used)

Functional Human Neuroanatomy 2017 Lecture Faculty

Lou Ritz, PhD; Course Director; Neuroscience – lritz@ufl.edu

Jennifer Bizon, PhD – Neuroscience – bizonj@ufl.edu

Sara Burke, PhD – Neuroscience – burkes@ufl.edu

Rob Caudle, PhD – Dental Neuroscience – rcaudle@dental.ufl.edu

Ron Mandel, PhD – Neuroscience – rmandel@ufl.edu

Jeremy McIntyre, PhD – Neuroscience – jmcin@ufl.edu

Cate Price, PhD – Clinical and Health Psychology – cep23@php.ufl.edu

Paul Reier, PhD – Neuroscience – reier@ufl.edu

Matt Sarkisian, PhD – Neuroscience – msarkisian@ufl.edu

Sue Semple-Rowland, PhD – Neuroscience – rowland@ufl.edu

Barry Setlow, PhD – Psychiatry – setlow@ufl.edu

Graduate Student Lecturers

Samuel Crowley – Neuropsychology – samcrowley@php.ufl.edu

Molly Sullan – Neuropsychology – msullan@php.ufl.edu

Erin Trifilio – Neuropsychology – etrif07@php.ufl.edu

Time	Monday June 26	Tuesday June 27	Wednesday June 28	Thursday June 29	Friday June 30
9:00AM	Course and Lab Logistics and Overview <i>Ritz</i> C1-7	Lab Intro 1 Gross Anatomy Brain overview, Exterior features, ventricular system <i>Diller</i> C1-7	Lab Intro 2 Cortex Subcortical Gray <i>Hill</i> C1-7	Lab Intro 3 Diencephalon Brainstem Cerebellum <i>Rayaprolu</i> C1-7	Lab Intro 4 Spinal Cord; Review <i>Ritz</i> C1-7
10:00AM	Lab Tour; Small Group Intro CG-67	Lab CG-67	Lab CG-67	Lab CG-67	Lab CG-67
12:00PM					
1:00PM	Neurohistology <i>Reier</i> C1-7	BBB/CSF <i>Reier</i> C1-7	CNS Trauma I <i>Reier</i> C1-7	Neuro Noons HPNP	Electrophysiology <i>Ritz</i> C1-7
1:30PM				Neurotransmitter Systems I and II <i>Bizon</i> (video)	
2:00PM	PNS Degen Regen <i>Reier</i> C1-7	Chemical Neurotransmission <i>Reier</i> C1-7	CNS Trauma II <i>Reier</i> C1-7		
2:30pm					
3:00PM					

Suggested Reading Assignment	Chapter 1	Chapters 5,6; Med Neuro Ch 1 (lab)	Chapters 25; Med Neuro Ch 1 (lab)	Chapter 5,6; Med Neuro Ch 1 (lab);	Chapters 2,3; Med Neuro Ch 1 (lab)
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Time	Monday July 3	Tuesday July 4	Wednesday July 5	Thursday July 6	Friday July 7
9:00AM	Cerebrovasculature <i>Ritz</i> C1-7	<i>Holiday</i>	<i>Anatomy Review In Lab</i> CG-67	MRI Review <i>TBA</i> C1-7	Orange and Blue Review <i>Ritz</i> C1-7
10:00AM	Lab CG-67		Lab CG-67	Lab CG-67	Lab CG-67
12:00PM				Neuro Noons HPNP	
1:00PM	Neural Development I <i>Sarkisian</i>		Spinal Cord <i>Ritz</i> C1-7	Synaptic Plasticity <i>Burke</i> C1-7	
1:30PM	C1-7				
2:00PM	Neural Development II <i>Sarkisian</i>				
2:30PM	C1-7				
3:00PM	Optional Lab 3-5PM		Optional Lab 2-4PM	Optional Lab 230-4:30PM	Optional Lab Sat, Sun 1-4PM

Suggested Reading Assignment	Chapters 22, 23; Med Neuro Ch 2 (lab)		Med Neuro Ch 2 (lab);	Chapter 8; Med Neuro Ch 2 (lab);	
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Time	Monday July 10	Tuesday July 11	Wednesday July 12	Thursday July 13	Friday July 14
9:00AM	Exam I Gross Lecture Exam CG-28 9-10:30 Neuroanatomy CG-67 10:45-12:15	Lab Intro 5 Somatosensory Pathways <i>Ritz</i> C1-7	Lab Intro 6 Motor Tracts <i>Rayaprolu</i> C1-3**	Lab Intro 7 Cranial Nerves <i>Hill</i> C1-7	Lab Intro 8 Cerebellum Basal Ganglia <i>Diller</i> C1-7
10:00AM		Lab CG-67	Lab CG-67	Lab CG-67	Lab CG-67
12:00PM				Neuro Noons HPNP	
1:00PM		Somatosensory Systems <i>Ritz</i> C1-7	Motor Systems I <i>Ritz</i> C1-7	Cranial Nerves <i>Ritz</i> C1-7	Eye Movements <i>Ritz</i> C1-3**
1:30PM					
2:00PM		Pain <i>Yezierski</i> C1-7	Motor Systems II <i>Ritz</i> C1-7		
2:30PM					
3:00PM		Exam Review CG-28 3-4			

Suggested Reading Assignment		Chapters 9,10	Chapters 16,17	Appendix, Chapter 20	
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Time	Monday July 17	Tuesday July 18	Wednesday July 19	Thursday July 20	Friday July 21
9:00AM	Lab Intro 9 Auditory Vestibular Visual <i>Hill</i> C1-7	Tracts Review Somatosensory <i>Diller</i> C1-7	Tracts Review Motor <i>Hill</i> C1-7	Tracts Review CB/BG <i>Rayaprolu</i> C1-7	Tracts Review Cranial Nerves <i>Ritz</i> C1-7
10:00AM	Lab CG-67	Open Question Session with TAs 10-12 p.m. CG-67	Open Question Session with TAs 10-12 a.m. CG-67	Open Question Session with TAs 10-12 a.m. CG-67	Open Question Session with TAs 10-12 p.m. CG-67
12:00PM				Neuro Noons HPNP	
1:00PM	Basal Ganglia <i>Mandel</i> C1-7	Auditory System <i>Ritz</i> C1-7	Retina <i>Semple-Rowland</i> C1-7		ANS <i>Ritz</i> C1-7
1:30PM				Memory Systems <i>Burke</i> C1-7	
2:00PM	Cerebellum <i>Ritz</i> C1-7	Vestibular System <i>Ritz</i> C1-7	Visual Pathways <i>Semple-Rowland</i> C1-7		
2:30PM					
3:00PM				Optional Lab 2:30-4:30PM	
					Optional Lab Sat 1-4PM

Suggested Reading Assignment	Chapters 18,19	Chapters 13,14	Chapters 11,12	Chapter 31	Chapter 21
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Time	Monday July 24	Tuesday July 25	Wednesday July 26	Thursday July 27	Friday July 28
8:00AM	Exam II Tracts Lectures CG-28 8:30AM – 1PM				
9:00AM		NTL Introduction <i>Ritz</i> C1-7			
10:00AM		NTL 1 CG-67	NTL 2 CG-67	NTL 3 CG-67	NTL 4 CG-67
11:00AM					
12:00PM				Neuro Noons HPNP	
1:00PM		Higher Cortical Function <i>Sullan</i> C1-7	Language <i>Crowley</i> C1-7		The Neurobiology of Addiction <i>Setlow</i> C1-7
1:30PM				Emotions <i>Trifilio</i> C1-7	
2:00PM		Frontal Lobes, Executive Function <i>Price</i> C1-7	Taste and Smell <i>McIntyre</i> C1-7		
2:30PM					
3:00PM		Exam Review CG-28 3-4			

Suggested Reading Assignment		Chapters 26, 27	Chapter 15	Chapter 29	Review
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Time	Monday July 31	Tuesday August 1	Wednesday August 2	Thursday August 3	Friday August 4
8:00AM					
9:00AM		Lecture Final CG-28 8:30-10	Lab Final Exam C1-4 9-11:30	School's Out!!!	School's Out!!!
10:00AM	NTL 5				
11:00AM	CG-67	CG-67			
12:00PM					
1:00PM					
2:00PM					
3:00PM					
4:00PM					

Suggested Reading Assignment	Review	Review			
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