Neurotransmitter Signaling & Neuropsychopharmacology
(NGG 510 / PHRM 510 / PSYCH 750)

TIME: **Tuesdays & Thursdays, 10:15 – 11:45 AM** Spring 2022

LOCATION: **John Morgan, Room 140 (Barchi Library) or TRL, Room 124**

TEXTS: **Basic Neurochemistry, 8th Edition, c. 2011**; Editor: Brady et al.; Academic Press/Elsevier
Molecular Neuropharmacology, 3rd Edition, c. 2015; Editor: Nestler et al.; McGraw-Hill

Both are excellent and either is highly recommended. We all have online access to **Basic Neurochem** via http://hdl.library.upenn.edu/1017.12/927914. The chapters listed below with each lecture refer to this text. These texts can also be found at the Biomed Library.

WEB: **Canvas** – for lecture files & recordings, non-text readings, and submitting paper comments
BlueJeans – for live remote lecture attendance: https://bluejeans.com/209038596/9791

COURSE DIRECTORS:

Steve Thomas	573-4950	sathomas@upenn.edu
Liz Heller	573-7038	eheller@upenn.edu
Wade Berrettini	898-0092	wadeb@upenn.edu

GOALS:

A) Provide an overview of major psychiatric disorders, and in-depth information on neurotransmitters, emphasizing the wealth of new molecular information on how neurons function and communicate, as well as the basis for neuropsychotherapeutics.
B) Develop skills to appreciate, present and critically evaluate original research literature in neurotransmitter signaling and neuropsychopharmacology.

REQUIREMENTS: 1-2 in-class presentations of original research articles; participation in discussions

Paper Presentations

For each class in which papers will be discussed (Tuesdays), there will be two 30-40 minute PowerPoint presentations (including discussion), with each one covering a relatively recent original research article selected by the lecturer. These papers will highlight an active area of research on the neurotransmitter system presented the previous week on Thursday. In preparation, students are encouraged to discuss the papers, as well as any issues related to their presentation, with the lecturer in advance. ~10 min should be devoted to introduction/background material and the scientific issues being addressed in the study (the big picture). This should be followed by a concise summary of the work that was done and presentation of key figures and methods (the latter are often worth discussing as well). The presenter should encourage discussion of the study during the presentation, as well as at the end by outlining some potential future directions, for example. Grading will be based on the quality of the presentations, as well as participation in the discussion of other presentations. Students are required to read the papers in advance, submit at least one detailed question or comment about each paper onto Canvas prior to class, and come to class with questions/thoughts for discussion.

SCHEDULE

Day	Date	Subject	Instructor
		A. Major Psychiatric Disorders	***Wade***
Thurs	1/13	Introduction to NT Signaling/NPP BlueJeans only	Steve Thomas
Tues	1/18	Schizophrenia & Bipolar BlueJeans only	Wade Berrettini
Thurs	1/20	Autism BlueJeans only	Ted Brodkin
Tues	1/25	Depression TRL Room 124	Wade Berrettini
Thurs	1/27	Anxiety TRL Room 124	Wade Berrettini
Tues	2/1	Addiction TRL Room 124	Wade Berrettini
		B. Fast (& Slower) Neurotransmission	***Liz / Steve***
Thurs	2/3	Excitatory Amino Acids (Ch 17)	Mike Robinson
Tues	2/8	Excitatory Amino Acids - *Paper presentations*	Mike Robinson
Thurs	2/10	Inhibitory Amino Acids (Ch 18)	Liz Heller
Tues	2/15	Inhibitory Amino Acids - *Paper presentations*	Liz Heller
Thurs	2/17	Purines (Ch 19)	Claire Mitchell
Tues	2/22	Purines - *Paper presentations*	Claire Mitchell
Thurs	2/24	Acetylcholine (Ch 13)	Theresa Patten
Tues	3/1	Acetylcholine - *Paper presentations*	Theresa Patten
		C. Monoamine Neurotransmitters	***Steve***
Thurs	3/3	Serotonin (Ch 15)	Shinjae Chung
Tues	3/8	*(Spring Break - no class)*	
Thurs	3/10	*(Spring Break - no class)*	
Tues	3/15	Serotonin - Paper presentations	Shinjae Chung
Thurs	3/17	Dopamine (Ch 14)	Julie Blendy
Tues	3/22	Dopamine - *Paper presentations*	Julie Blendy
Thurs	3/24	Norepinephrine (Ch 14)	Steve Thomas
Tues	3/29	Norepinephrine - *Paper presentations*	Steve Thomas
Thurs	3/31	Histamine (Ch 16)	Steve Thomas
Tues	4/5	Histamine - *Paper presentations*	Steve Thomas
		D. Neuropeptide & Neurolipid Signaling	***Liz***
Thurs	4/7	Opioids (Ch 20; Rev. by Al-Hasani) TRL Room 124	Wade Berrettini
Tues	4/12	Opioids - *Paper presentations* TRL Room 124	Wade Berrettini
Thurs	4/14	CRF (Ch 20; Revs. by Grammatopoulos; Bale)	Brian Corbett
Tues	4/19	Corticotropin Releasing Factor - *Paper presentations*	Brian Corbett
Thurs	4/21	Cannabinoids (Revs. by Haring; Solinas)	Liz Heller
Tues	4/26	Cannabinoids - *Paper presentations*	Liz Heller
Thurs	4/28	Orexins (Ch 20; Rev. by Sakurai)	Max Kelz
Tues	5/3	Orexins - *Paper presentations*	Max Kelz
		Happy Summer!	

Directory of Instructors

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