

BM530 Fundamentals of Neuroscience

2019– 2020 Spring Syllabus

Instructor : Prof. Işıl Aksan Kurnaz

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Catalog Description :

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Recommended Reading :

Principles of Neural Science; Kandel, Schwartz, Jessell, Siegelbaum, Hudspeth, 5th ed, 2013. ISBN 978-0-07-181001-2

Week 1	Introduction to the course Brain, Nerve cells, Neural circuitry, Genes & Behavior (ch1-2-3)
Week 2	Cell and Molecular Biology of the Neuron – Cells of the nervous system (ch4)
Week 3	Subcellular structures (ch4)
Week 4	Ion channels, Membrane potential and Action Potential (ch5-6-7)
Week 5	Synaptic transmission Signaling at the nerve-muscle synapse (ch8-9)
Week 6	Synaptic integration (ch10)
Week 7	MIDTERM
Week 8	Modulation of the synaptic transmission (ch11)
Week 9	Neurotransmitters and transmitter release (ch12,13)
Week 10	Motor unit and muscle action (ch34)
Week 11	Diseases of the nerve and motor unit (ch14)
Week 12	Developmental neurobiology: patterning of the nervous system (ch52)
Week 13	Differentiation and survival of nerve cells, axon growth and guidance (ch53,54)
Week 14	Formation and elimination of synapses; repairing the damaged brain (ch57)
FINAL EXAM	Genetic mechanisms of neurodegenerative diseases (ch44)

Grading:

Midterm	35 %
In-class discussions, assignments and attendance	15 %
FINAL exam	50 %