

Molecular Physiology of Cell Communication - CBNP 5036Q

Spring 2024

Course website: <https://njms.rutgers.edu/sgs/olc/mpcc/index.php>

Course description: This 4-credit course is required for PhD students in the Cell Biology, Neuroscience and Physiology (CNP) track and is open to interested students in other tracks and to MD/PhD students. The course focuses on inter- and intra-cellular communication in physiology. The course covers fundamental mechanisms underlying intercellular signaling and intracellular signal transduction pathways, with emphasis on the roles of these processes in nerve and muscle. At the end of the course, it is expected that students will have a broad understanding of the proteins and molecular mechanisms involved in cell communication. Classes will be led by faculty with extensive expertise in the subject matter, so students are encouraged to contact individual faculty to discuss subject material in greater depth or for help in understanding the material covered in class. Students are expected to actively participate in class discussions. Classes will be given in person and attendance is required.

Required of all CBNP 1st year students.

Course dates: 1/8/24 to 4/20/24

Monday & Wednesday, 2:00 PM - 3:50 PM

The course will use CANVAS course and emails

COURSE DIRECTOR

Ioana Carcea

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973-972-7798

2024 MPCC Course Schedule

Class	Date	Topic	Instructor
1	1/8/2024 (M)	Overview of Cell Communication in Physiology	Ioana Carcea
2	1/10/2024 (W)	Membrane Permeability and Ions	Andrew Harris
	1/15/2024 (M)	NO CLASS: MLK Holiday	
3	1/17/2024 (W)	Action Potentials	Andrew Harris
4	1/22/2024 (M)	Ion Channels, Transporters and Pumps	Roman Shirokov
5	1/24/2024 (W)	Axonal Transport and Cytoskeleton	Virgil Muresan
6	1/29/2024 (M)	Neurotransmitters and Neuromodulators – Synthesis, Packaging, Release	Ioana Carcea
7	2/31/2024 (W)	Ligand Gated Ion Channels & Metabotropic Signaling	Ioana Carcea
8	2/5/2024 (M)	Post-synaptic Potentials and Electrical Summation	Vanessa Routh
9	2/7/2024 (W)	Synaptic Plasticity	Vanessa Routh
10	2/12/2024 (M)	Review I	Harris, Shirokov, Muresan
11	2/14/2024 (W)	Review II	Carcea, Routh
12	2/19/2024 (M)	Oral test (pass/fail)	Carcea (and other faculty)
13	2/21/2024 (W)	EXAM 1	
14	2/26/2024 (M)	Mitochondrial Structure and Function	Debkumar Pain
15	2/28/2024 (W)	Calcium Signaling Mechanisms	Tibor Rohacs
16	3/4/2024 (M)	TRP, Mechanosensitive and Thermosensitive Channels	Tibor Rohacs
17	3/6/2024 (W)	Skeletal, Cardiac and Smooth Muscle; Excitation-Contraction	Lai-Hua Xie
18	3/11/2024 (M)	Pharmacology Fundamentals & G Protein-Coupled Receptors	Paula Bartlett
19	3/13/2024 (W)	Receptor Tyrosine Kinases and Nuclear Receptors	Paula Bartlett
20	3/18/2024 (M)	Intra- and Inter-cellular Signaling Mechanisms	Annie Beuve
21	3/20/2024 (W)	Intercellular Signaling in Neuroinflammation	Stella Elkabes
22	3/25/2024 (M)	Review III	Pain, Rohacs, Xie
23	3/27/2024 (W)	Review IV	Bartlett, Beuve, Elkabes
24	4/1/2024 (M)	Oral test (pass/fail)	Carcea (and other faculty)
25	4/3/2024 (W)	EXAM 2	
26	4/8/2024 (M)	NO CLASS (reading and review)	
27	4/10/2024 (W)	NO CLASS (reading and review)	
28	4/15/2024 (M)	NO CLASS (reading and review)	
29	4/17/2024 (W)	COURSE EXAM	