

MB214: NEURONAL PHYSIOLOGY AND PLASTICITY

<http://mbu.iisc.ac.in/~mb214/>

Rishikesh Narayanan

Overall Schedule of the Course

Foundations: Exquisite insights from simple systems			
1	2-Aug-2023	W	Organizational meeting and introductory lecture
2	4-Aug-2023	F	Neurophysiology: A Nobel journey
3	7-Aug-2023	M	Electrophysiology: A historical perspective
4	9-Aug-2023	W	Electrophysiology: Conventions and concepts
5	11-Aug-2023	F	Electrophysiology: Configurations
6	14-Aug-2023	M	Passive structures: Spheres and cylinders
7	16-Aug-2023	W	Passive structures: Measuring passive properties
8	18-Aug-2023	F	Hodgkin and Huxley experiments
9	21-Aug-2023	M	Action potential generation and propagation
10	23-Aug-2023	W	Functional diversity of ion channels – I
11	25-Aug-2023	F	Functional diversity of ion channels – II
12	28-Aug-2023	M	Structural characteristics of potassium channels
13	30-Aug-2023	W	Structural characteristics of other ion channels and pumps
14	1-Sep-2023	F	Gap junctions and chemical synaptic release machinery
SP	4-Sep-2023	M	<u>SHORT PAPER SUBMISSION DEADLINE</u>
15	4-Sep-2023	M	Synaptic receptors and their potentials
16	6-Sep-2023	W	Quantal analysis
17	8-Sep-2023	F	Oscillations in simple systems 1: Intrinsic oscillators
C1	11-Sep-2023	M	<u>SHORT PAPER CLASS PRESENTATION</u>
	13-Sep-2023	W	<u>SHORT PAPER CLASS PRESENTATION (CONTD)</u>
18	15-Sep-2023	F	Oscillations in simple systems 2: Network oscillators

Mammalian neurons: Physiology and plasticity			
19	18-Sep-2023	M	Basic dendritic physiology: Discussion class
20	20-Sep-2023	W	Basic dendritic physiology
21	22-Sep-2023	F	Active dendritic properties
22	25-Sep-2023	M	Dendritic ion channels and their distributions
MT	25-Sep-2023	M	<u>MID-TERM PAPER SUBMISSION DEADLINE</u>
23	27-Sep-2023	W	Neuronal plasticity: Discussion class
24	29-Sep-2023	F	Synaptic plasticity: Historical perspective
C2	2-Oct-2023	M	<u>MID-TERM PAPER CLASS PRESENTATION</u>
	4-Oct-2023	W	<u>MID-TERM PAPER CLASS PRESENTATION (CONTD)</u>
25	6-Oct-2023	F	Short-term synaptic plasticity
26	9-Oct-2023	M	Long-term potentiation: Basic properties
27	11-Oct-2023	W	Long-term potentiation: Induction
CS	11-Oct-2023	W	<u>CRITICAL SUMMARY SUBMISSION DEADLINE</u>
28	13-Oct-2023	F	Long-term synaptic plasticity: Bidirectionality
29	16-Oct-2023	M	Expression of long-term potentiation and depression
C3	18-Oct-2023	W	<u>CRITICAL SUMMARY CLASS PRESENTATION</u>
	20-Oct-2023	F	<u>CRITICAL SUMMARY CLASS PRESENTATION (CONTD)</u>
30	23-Oct-2023	M	Molecular mechanisms behind postsynaptic expression of synaptic plasticity
31	25-Oct-2023	W	Molecular mechanisms behind presynaptic expression of synaptic plasticity
32	27-Oct-2023	F	Intrinsic plasticity: Basics
33	30-Oct-2023	M	Intrinsic plasticity: Mechanisms
34	1-Nov-2023	W	Structural plasticity
35	3-Nov-2023	F	Plasticity and neurological disorders
36	5-Nov-2023	M	Studying plasticity in awake behaving animals
CA	8-Nov-2023	W	<u>COMPARATIVE ANALYSIS SUBMISSION DEADLINE</u>
37	8-Nov-2023	W	Degeneracy in neuronal physiology and plasticity
38	10-Nov-2023	F	Neural circuit analysis: Techniques and challenges
C4	13-Nov-2023	M	<u>COMPARATIVE ANALYSIS CLASS PRESENTATION</u>
	15-Nov-2023	W	<u>COMPARATIVE ANALYSIS CLASS PRESENTATION (CONTD)</u>
39	17-Nov-2023	F	Glial Cells: Structure, Function and Plasticity
40	20-Nov-2023	M	Recent literature and open questions
GP	1-Dec-2023	F	<u>GRANT PROPOSAL SUBMISSION DEADLINE</u>
C5	4-Dec-2023	M	<u>CLASS PRESENTATION: GRANT PROPOSAL DEFENSE (Will have one more day if need be)</u>