

# BIMS 6000: Core Course in Integrative Biosciences

## Fall 2021

### CCIB Block 7: Electrical and Chemical Signals in Cellular Physiology

**Monday, November 8**

**(Day 1 of Block 7) GPCRs, Action potential and synaptic transmission**

<b>Lecture 1</b> B7v_D1_Desai-1	Introduction to cell signaling – GPCRs (Desai)
<b>Lecture 2</b> B7v_D1_Been-1	Recap of membrane potential and Introduction to action potential (Beenhakker). Dr Beenhakker will also demonstrate a dance interpretation of action potential if students request it by email (mpb5y).
<b>1:15-3:45</b>	Small group activity: Thalamocortical cell/network simulations (Beenhakker) <b>B7_Day1_In class assessment_50 pts</b>

**Tuesday, November 9**

**(Day 2 of Block 7) Neuronal Ion channels and physiology**

<b>Lecture 3</b> B7v_D2_Been-2	Presentation 8-7: Molecular biology and cell physiology of ligand-gated ion channels (Beenhakker)
<b>Lecture 4</b> B7v_D2_Been-3	Presentation 8-8: Neuronal cell physiology (Beenhakker)
<b>1:15-3:30</b>	Small group activity: Thalamocortical cell/network simulations (Beenhakker) <b>B7_Day1_In class assessment_50 pts</b>

## Wednesday, November 10

### (Day 3 of Block 7) Fundamentals of Phosphoregulation

<b>Lecture 5</b> <a href="#">B7v_D3_Desai-2</a>		Biochemistry of Kinases and Phosphatases (Desai)
<b>Lecture 6</b> <a href="#">B7v_D3_Desai-3</a>		Kinases and Phosphatases – a cell biological perspective (Desai)
<b>1.00 – 2.30</b>		Signaling by TGF-beta (Wotton) – live

## Thursday, November 11

### (Day 4 of Block 7) Electrical and Ca<sup>2+</sup>-signaling in non-excitabile cells

<b>Lecture 7</b> <a href="#">B7v_D4_Desai-4</a>		Electrical signaling in non-excitabile cells (Desai)
<b>Lecture 8</b> <a href="#">B7v_D4_Desai-5</a>		Fundamentals of Ca <sup>2+</sup> -signaling (Desai)
<b>1:15-3:00</b>		How to read and evaluate a paper - advanced (Desai live) <i>(aka: how to prepare for your final oral exam)</i>

## Friday, November 12

### (Day 5 of Block 7) An Integrated View of Cell Signaling – bringing it all together

<b>Lecture 9</b> <a href="#">B7v_D5_Desai-6</a>		Orchestrating cell-intrinsic defense mechanisms - 1 (Desai)
<b>Lecture 10</b> <a href="#">B7v_D5_Desai-7</a>		Orchestrating cell-intrinsic defense mechanisms – 2 (Desai)
<b>1:15 – 3.00</b>		Quick tips on how to survey literature (Desai live) <i>(aka: how to impress your advisor and peers in your new lab)</i> <i>(aka: how to stop worrying and become a certified nerd)</i> <i>(aka: how to drastically cutdown your dating prospects)</i>

		<b>Complete evaluation of Block 7</b>
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