

Date	Weeks	Topic	Faculty
Block I. RECEPTOR SIGNALING (Week 1-4, block leaders: Ruppert/Agazie)			
August 2018			
August 21 and 23	Week 1-2	Signaling by Receptor Tyrosine Kinase (RTK) - The objective of this section is to understand the structure, function, regulation, and signaling of receptor tyrosine kinases in normal cells, and mechanisms related to their dysregulation in cancer cells. There will be two lectures and two articles for discussion. These two weeks will focus on structure and activation of TRKs including EGFR, IR, PDGFR, MET, TrkA, Eph and Axl, formation of multiprotein signaling complex, downstream signal pathways, and regulation of RTK signaling.	Ruppert/Agazie
August 28 and 30	Week 1-2	Signaling by Receptor Tyrosine Kinase (RTK) - The objective of this section is to understand the structure, function, regulation, and signaling of receptor tyrosine kinases in normal cells, and mechanisms related to their dysregulation in cancer cells. There will be two lectures and two articles for discussion. These two weeks will focus on structure and activation of TRKs including EGFR, IR, PDGFR, MET, TrkA, Eph and Axl, formation of multiprotein signaling complex, downstream signal pathways, and regulation of RTK signaling.	Ruppert/Agazie
September 2018			
September 4 and 6	Week 3-4	Signaling by Cytokine Receptors (CRs) - The objective of this section is to understand the structure, function, regulation, and signaling of CRs in normal cells, and mechanisms related to their dysregulation in cancer cells. There will be two lectures and two articles for discussion. These two weeks will focus on structure of EpoR, IL-R, TGFb-R and GH-R.	Ruppert/Agazie
September 11 and 13	Week 3-4	Signaling by Cytokine Receptors (CRs) - The objective of this section is to understand the structure, function, regulation, and signaling of CRs in normal cells, and mechanisms related to their dysregulation in cancer cells. There will be two lectures and two articles for discussion. These two weeks will focus on structure of EpoR, IL-R, TGFb-R and GH-R.	Ruppert/Agazie
Block II. SIGNALING VIA OTHER CYTOPLASMIC AND NUCLEAR RECEPTORS (Week 5-7, block leaders: Vona-Davis/Leonardi)			
September 18 and 20	Week 5	Cellular Regulation via mTOR and AMPK Pathways - The objective of this topic is to introduce the concept of metabolites as signaling molecules, and the concept of nutrient-sensing with a focus on the mTOR and AMPK signaling pathways. Particular consideration will be given to the role of the mTOR and AMPK pathways in cell survival and metabolic regulation in health and disease.	Vona-Davis/Leonardi
September 25 and 27	Week 6	Cellular Regulation via mTOR and AMPK Pathways (continue from Week 5).	Vona-Davis/Leonardi
October 2018			
October 2 and 4	Week 7	Signaling via Nuclear Hormone Receptor Superfamily Members - The objective of this topic is to understand the commonalities and differences amongst the members of the steroid hormone superfamily of receptors. Actions of estrogens, androgens, vitamins and lipids as ligands for these receptors and their intracellular actions will be considered in detail.	Vona-Davis/Leonardi
October 8	-	Exam 1	-
Block III. RAS AND MAPK (Week 8-10, block leaders: Liu)			
Week 8-10 will illustrate how intracellular signaling molecules are organized in response to extracellular stimulation in normal cell and cancer cells. Specific topics in this block include Ras superfamily GTPases, MAP kinases, PI3 kinase and PTEN.			

October 9 and 11	Week 8	Ras Superfamily GTPases	Jun Liu
October 16 and 18	Week 9	MAP Kinases	Jun Liu
October 23 and 25	Week 10	PI3 Kinase and PTEN	Jun Liu
<i>Block IV. SIGNALING IN DEVELOPMENT (Week 11-13, block leaders: Mathers/Ivanov)</i>			
Week 11-13 will follow extracellular signaling factors from their activation of receptors to their transcriptional readouts in the nucleus, including their roles in normal development and cancer progression. The specific pathways to be discussed are- Wnt/beta-catenin, Hedgehog, and Notch signaling.			
October 30 and November 1	Week 11	Wnt	Mathers/Ivanov
November 2018			
November 6	-	Election Day (no class in this week)	-
November 13 and 15	Week 12	Hedgehog	Mathers/Ivanov
November 19-23	-	Thanksgiving recess	-
November 27 and 29	Week 13	Notch	Mathers/Ivanov
December 2018			
December 3	-	Exam 2	-