

Date		Syllabus "Introduction to Chemical and Physical Biology" (CPBP 8306)	Lecturer
(Version 1)		Lecture Classes held MWF 9:00-10:00 am Light Hall 412; Paper Discussions F 3:00-4:30 pm LH 412	
8/23/16	Wed	Goals and overview of course, Amino acids and polypeptides	Mchaourab
8/25/16	Fri	Amino Acid polymer secondary and tertiary structures	Mchaourab
8/28/16	Mon	Forces that determine protein stability	Mchaourab
8/30/16	Wed	Energetics of protein stability I	Mchaourab
9/1/16	Fri	Energetics of protein stability II	Mchaourab
SIMPLE BEGINNINGS CEREMONY and RECEPTION (3:00-6:00pm)			
9/4/16	Mon		
9/6/16	Wed	Membrane proteins: general principles of living in the lipid bilayer I	
9/8/16	Fri	Channels and Transporters	Claxton
	Fri	Baase WA, Liu L, Tronrud DE, Matthews BW. (2010) "Lessons from the lysozyme of phage T4" <i>Protein Sci.</i> 19:631-641. (PMID: 20095051).	Claxton
9/11/17	Mon	Receptors	Mchaourab
9/13/17	Wed	Protein folding and energy landscapes	Mchaourab
9/15/17	Fri	Protein folding in the cell: crowding and molecular chaperones	Mchaourab
	Fri	Ken Dill (1997). From Levinthal to pathways to funnels. <i>Nat Struct Biol.</i> 1997 Jan;4(1):10-9.	Mchaourab
9/18/17	Mon	Primer on enzyme Kinetics	Mchaourab
9/20/17	Wed	Overview of lipids and membranes	Kenworthy
9/22/17	Fri	Fundamental properties of cell membranes	Kenworthy
9/25/17	Mon	Cellular Organization	Kenworthy
9/27/17	Wed	Membrane trafficking	Kenworthy
9/29/17	Fri	Trafficking in and out of the nucleus	Kenworthy
	Fri	Collins et al (2012) <i>Dev Cell</i> 23:11-20. Structure-based reassessment of the caveolin signaling model: do caveolae regulate signaling through caveolin-protein interactions?	Kenworthy
10/2/17	Mon	Genes, gene structure, and genome organization	Venters
10/4/17	Wed	Genes Expression-Concepts and Measurement	Venters
10/6/17	Fri	Transcription	Venters
	Fri	"What is a gene, post-ENCODE? History and updated definition" <i>Genome Res.</i> 2007 Jun;17(6):669-81. PMID: 17567988	Venters
10/09/17	Mon	RNA-processing	Venters
10/11/17	Wed	Chromatin	Venters
10/13/17	Fri	Massively parallel high throughput sequencing-technology and analysis	Venters
	Fri	"Global view of enhancer-promoter interactome in human cells" <i>Proc Natl Acad Sci USA.</i> 2014 May 27;111(21):E2191-9. PMID: 24821768	Venters
10/16/17	Mon	Transcription	Venters
10/18/17	Wed	Post-translational control of gene expression	Venters
10/20/17	Fri	Fundamentals of cytoskeleton: Mechanics	Zanic
10/23/17	Mon	Fundamentals of cytoskeleton: Non-equilibrium polymers	Zanic
10/25/17	Wed	Molecular motor proteins: Fundamentals	Zanic
10/27/17	Fri	Molecular motor proteins: Case study - Mitosis	Zanic
	Fri	Lis1 acts as a "clutch" between the ATPase and microtubule-binding domains of the dynein motor. Huang J, Roberts AJ, Leschziner AE, Reck-Peterson SL. <i>Cell.</i> 2012 Aug 31;150(5):975-86. doi: 10.1016/j.cell.2012.07.022.	Zanic
10/30/17	Mon	Chemical modification of proteins and nucleic acids	Plate
11/1/17	Wed	Small molecule tools to manipulate biological processes	Plate
11/3/17	Fri	Small molecule screening and chemoproteomic approaches	Plate
	Fri	Parker, C. G., Galmozzi, A., Wang, Y., Correia, B. E., Sasaki, K., Joslyn, C. M., et al. (2017). Ligand and Target Discovery by Fragment-Based Screening in Human Cells. <i>Cell</i>, 168(3), 527-541	Plate
11/6/17	Mon	Signal Transduction: introduction	Neuert
11/8/17	Wed	Signal Transduction: Networks Principles	Neuert
11/10/17	Fri	Application of Network Principles in Signal Transduction	Neuert
	Fri	J. E. Ferrell Jr (1998) "The Biochemical Basis of an All-or-None Cell Fate Switch in <i>Xenopus Oocytes</i>" <i>Science</i> 280:895-898. PMID: 9572732).	Neuert
11/13/17	Mon	Overview of metabolism and Glycolysis	McGuinness
11/15/17	Wed	TCA cycle and the mitochondria	McGuinness
11/17/17	Fri	Gluconeogenesis and lipogenesis	McGuinness
	Fri	Cytosolic Phosphoenolpyruvate Carboxykinase Does Not Solely Control the Rate of Hepatic Gluconeogenesis in the Intact Mouse Liver. Burgess et al <i>Cell Metab.</i> 5:313,2007 PMC2680089	McGuinness
11/20/17	Mon	Gene editing by Crispr-Cas9 and the future of biology and medicine	Mishra
11/22/17	Wed	To Be Determined	
NO CLASS--THANKSGIVING HOLIDAYS (November 24 to November 27)			
11/27/17	Mon	Introduction to Biomedical Imaging	Peterson
11/29/17	Wed	Imaging with Ionizing Radiation	Peterson
12/1/17	Fri	MRI and Ultrasound	Peterson
12/1/17	Fri	To Be Determined	Peterson
12/4/17	Mon	Biomedical Imaging Applications	Peterson
12/8/17	Fri		Mchaourab
SECOND EXAM			