

BIOCHEMISTRY WITH A MEDICAL PERSPECTIVE

Online Biochemistry Course, Faculty of Medicine, University of Toronto, Canada

Course Schedule

Summer Semester 13 April to 25 July 2020

Week	Section / Online Quiz	Dates (Week Start)	Lectures	Lecturer	Medical Vignettes By Dr. Murray	Text Chapter
			Course Introductory Lecture (Mandatory), E - presence Controls Video	Dr. Reithmeier	*One medical vignette will be selected per weekly lecture series*	
1	Proteins and Enzymes	13 Apr 2020	Lecture 1 - Biochemistry and the Unity of Life Lecture 2 - Water, Weak bonds, pH Lecture 3 - Amino Acids Lecture 4 - Protein 3D Structure: Part 1	Dr. Reithmeier Dr. Reithmeier Dr. Reithmeier Dr. Reithmeier	Pathological Conditions Result if Protein Intake Is Inadequate	1 2 3 4,5
2		20 Apr 2020	Lecture 5 - Protein 3D Structure: Part 2 Lecture 6 - Enzymes: Basic Concepts Lecture 7 - Enzyme Kinetics Lecture 8 - Enzyme Regulation, Allostery	Dr. Reithmeier Dr. Baker Dr. Baker Dr. Baker	Medical Uses of Enzymes: Diagnostic Enzymology	4, 5 6 7 7
Quiz 1		27 Apr 2020				
3		27 Apr 2020	Lecture 9 - Enzyme Inhibition Lecture 10 - Enzyme Mechanisms Lecture 11 - Hemoglobin Lecture 12 - Carbohydrates One	Dr. Baker Dr. Baker Dr. Baker Dr. Baker	CO- The Silent Killer	8 8 9 10
4		04 May 2020	Lecture 13 - Carbohydrates Two Lecture 14 - Lipids: Fatty Acids, Membrane Lipids Lecture 15 - Membrane Structure and Membrane Proteins Lecture 16 - Membrane Transport Proteins	Dr. Baker Dr. Reithmeier Dr. Reithmeier Dr. Reithmeier	Liposomes	10 11 12 12
Quiz 2		11 May 2020				
5	Metabolism	11 May 2020	Lecture 17 - Membrane Signaling Proteins Lecture 18 - Metabolism : Basic Concepts Lecture 19 - Glycolysis Lecture 20 - Accessing Glycogen Stores	Dr. Reithmeier Dr. Baker Dr. Baker Dr. Baker	Cholera and Whooping Cough Are Due to Altered G-protein Activity	13 15 16 24

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6		18 May 2020	Lecture 21 – Pyruvate Dehydrogenase Complex and the Citric Acid Cycle Lecture 22 - Oxidative Phosphorylation/The Electron Transport Chain Lecture 23 - Oxidative Phosphorylation/Proton Motive Force Lecture 24 – Rebuilding Glycogen	Dr. Baker Dr. Baker Dr. Baker Dr. Baker	Beriberi-A Disease Due to Deficiency Of Thiamine (Vitamin B-1)	18,19 20 21 25
Quiz 3 25 May 2020						
7		25 May 2020	Lecture 25 - Fat Mobilization Lecture 26 - Fatty Acid Degradation, ATP Production and Gluconeogenesis Lecture 27 - Diabetes and Ketone Bodies Lecture 28 - Discovery of Insulin	Dr. Baker Dr. Baker Dr. Baker Dr. Baker	A Biochemical Understanding Of Glycogen Storage Diseases (GSDs) Is Possible	27 17,27 27 13,27
8		01 Jun 2020	Lecture 29 - Fatty Acid and Triacylglycerol Synthesis Lecture 30 - Cholesterol Synthesis Lecture 31 - Lipoproteins Lecture 32 - Biochemistry of Platelets and Eicosanoids	Dr. Baker Dr. Baker Dr. Baker Dr. Baker	Familial Hypercholesterolemia (FH)	28,29 29 29 28
Quiz 4 08 Jun 2020						
9		08 Jun 2020	Lecture 33 - Phospholipid Synthesis Lecture 34 - Phosphoinositides and Signaling Lecture 35 - Amino Acid Synthesis Lecture 36 - Nucleotide Metabolism	Dr. Baker Dr. Baker Dr. Reithmeier Dr. Reithmeier	Inherited Defects Of The Urea Cycle Cause Hyperammonemia	29 13 31 32
10	Nucleic Acids	15 Jun 2020	Lecture 37 - Amino Acid Degradation and The Urea Cycle Lecture 38 - Nucleic Acid Structure One Lecture 39 - Nucleic Acid Structure Two Lecture 40 - DNA Replication	Dr. Reithmeier Dr. Kelley Dr. Kelley Dr. Kelley	Loss of Allosteric Control Can Result in Pathological Conditions	30 33 33 34

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Quiz 5		22 Jun 2020				
11		22 Jun 2020	Lecture 41 - DNA Repair Lecture 42 - Transcription I Lecture 43 - Transcription II Lecture 44 - Prokaryotic Regulation	Dr. Kelley Dr. Kelley Dr. Kelley Dr. Kelley	Some Genetic Diseases Are Caused by The Expansion of Repeats of Three Nucleotides	35 36 36 37
12		29 Jun 2020	Lecture 45 - Eukaryotic Regulation Lecture 46 - RNA Processing Lecture 47 - Genetic Code Lecture 48 - tRNAs and Amino Acids	Dr. Kelley Dr. Kelley Dr. Kelley Dr. Kelley	Genetic Defects Causing Cystic Fibrosis	37 38 39 39
Quiz 6		06 Jul 2020				
13		06 Jul 2020	Lecture 49 - Translation I Lecture 50 - Translation II Lecture 51 - Protein Secretion Lecture 52 - Translation Regulation	Dr. Kelley Dr. Kelley Dr. Kelley Dr. Kelley	Some Antibiotics and Some Toxins Act by Inhibiting Protein Synthesis	40 40 40 40
14		13 Jul 2020	Lecture 53 - Recombinant Technology I Lecture 54 - Recombinant Technology II	Dr. Kelley Dr. Kelley	Gene Therapy, Transgenic Animals	5, 41 5, 41
MOCK QUIZ		Available 13 Jul 2020				

Final Examination 2020

Date

25 July 2020

Duration of Exam

3 hours

Material Tested

Final exam includes all topics covered throughout the course