## ****Med-Pathway.com Flipped Zoom MCAT Prep Workshop/Class Schedule (Tues April 6-Sunday May 30)****

## ****1. Thank you for your interest in the med-pathway.com Zoom Flipped MCAT Prep Workshop. All registered learners will have access to the med-pathway Q/Passage Bank for 6 months in addition to the 16 Zoom Workshops that begin April 6, 2021.****

## ****Your instructor will be Dr. Phillip Carpenter. He has taught hundreds of MCAT classes as an instructor and trainer and has extensive experience in medical school education and curriculum design.****

## ****2. Each class/workshop begins at 8:00 PM Eastern Time on the dates listed below and will last for approximately 1.25-1.50 hours followed by an optional discussion. Most sessions will take place on Sunday evening. Zoom passcodes will be sent via email.****

## ****3. All learners will have access to the med-pathway Q/Passage Bank for 6 months. All of the Content Review, Passage Slides, and Annotations are available on the med-pathway site. This is because the presentations are derived from passages and freely available resources that are on the site. Each passage performed in the workshop is part of the Q/Passage Bank and can be readily accessed.****

## ****4. Each session has an associated video available on our website that covers the Content Review for the session. This serves as the foundational basis for learners to engage in 2-3 application based-MCAT style passages from the med-pathway.com bank.****

## ****Learners will do two 2-3 timed passages per session. Afterwards, we will annotate the passages and go through passage mapping, data interpretation & analysis and answers. Suggested homework topics will be made.****

## ****Each session has Suggested Pre-work video and slides that directs your attention to topics that will be tested in the passages. Learners are encouraged to familiarize themselves with this material.****

## ****As MCAT passages are integrative, there will be some circumstances where passage material is not directly covered in the Content Review Video or Suggested Pre-Work. In most cases, the passage will provide the information (i.e. data) to arrive at the correct answers. We are going to teach you how to attack passages. All questions will be explained in the annotations section and can be sources of learning issues; learning is not a linear process!****

## ****5. Zoom Passcodes will be sent to registered email addresses prior to the sessions. Please email****

## pcarpenter@med-pathway.com or customerservice@med-pathway.com ****with any inquiries****

## ****6. Workshop Schedule****

**Workshop 1: (Tuesday April 6) Amino Acids & Proteins**

## ****Subjects:** Biology, Biochemistry (Biological/Physical), Organic Chemistry**

## ****Passages:** Hemoglobin, DNA Polymerase Structure/Function**

## ****Suggested Pre-Work Review:** Amino Acids and Protein Structure/Function including Hemoglobin and DNA polymerase**

## ****Workshop 2:** (**Sunday April 11**) Lab Techniques Including Protein Purification & Separation Techniques**

## ****Subjects:** Biology, Organic Chemistry, Biochemistry (Biological/Physical)**

## ****Passages:** Hypoxia & The Purification of Hypoxia Inducible Factor-1; Mitochondrial Permeability**

## ****Suggested Pre-Work Review:** Review Chromatography, Hydrophobic effect, Membrane Diffusion/Transport**

## ****Workshop 3** (**Tues April 13**) Enzyme Kinetics & Inhibitors**

## ****Subjects:** Biology, Biochemistry (Biological/Physical), Chemistry & Organic Chemistry**

## ****Passages:** Farnesylation of Proteins, Penicillinase**

## ****Suggested Pre-Work Review:** Amino Acid Structure/Function, Enzyme kinetics & Inhibition, SN1 & SN2 reactions**

## ****Workshop 4** (**Sunday April 18**) Principles of Gene Expression**

## ****Subjects:** Biology, Molecular Biology**

## ****Passages:** Androgen Receptor & Gene Expression, The Arabinose Operon**

## ****Suggested Pre-Work Review:** Prokaryotic Gene Expression, RT-PCR, Chromatin Structure**

## ****Workshop 5** (**Tues April 20**) Molecular Virology**

## ****Subjects:** Biology, Biochemistry (Biological/Physical)**

## ****Passages:** Structure & Function of Poliovirus, Coronavirus Spike Protein**

## ****Suggested Pre-Work Review:** Virus structure/function, RNA viruses**

## ****Workshop 6** (**Sunday April 25**) DNA Metabolism & Cancer Biology**

## ****Subjects:** Biology, Cell Biology, Genetics, Biochemistry (Biological)**

## ****Passages:** DNA Replication, BRCA Genes in Homologous Recombination & Cancer**

## ****Suggested Pre-Work Review:** Cell Cycle, Homologous Recombination, Flow Cytometry**

## ****Workshop 7** (**Tuesday April 27**) Genetic Analysis**

## ****Subjects:** Genetics, Cell Biology**

## ****Passages:** Yeast Secretion, Pedigree Analysis**

## ****Suggested Pre-Work Review:** Meiosis/Mitosis, Secretory Pathway, Mendelian Genetics.**

## ****Workshop 8** (**Sunday May 2**) The Fed State: Insulin & Fatty Acid Synthesis**

## ****Subjects:** Biology, Cell Biology, Biochemistry (Biological)**

## ****Passages:** Fructose & Fatty Acid Synthesis, Biosynthesis of Insulin**

## ****Suggested Pre-Work Review:** Hormonal Control & Metabolism of Fats, Cell Biology of Secretory Pathway**

## ****Workshop 9** (**Tuesday May 4**) The Fasted State: Hormonal Control of Gluconeogenesis & Fatty Acid Degradation**

## ****Subjects:** Biology, Cell Biology, Biochemistry (Biological)**

## ****Passages:** Hypoketotic Hypoglycemia, Diabetes, Fatty Acid Degradation**

## ****Suggested Pre-Work Review:** Metabolism in Fasted State, Insulin Control**

## ****Workshop 10**: (**Sunday May 9**) Glycogen Metabolism**

## ****Subjects:** Biology, Cell Biology, Biochemistry (Biological)**

## ****Passages:** Hormonal Control of Glycogenolysis, Glycogen Synthesis**

## ****Suggested Pre-Work Review:** Glycogen Metabolism**

## ****Workshop 11:** (**Tues May 11**) Bioenergetics of Metabolic Pathways**

## ****Subjects:** Biology, Biochemistry (Biological/Physical)**

## **Passages**: Pyruvate Kinase Isoforms, Fatty Acid degradation****

## ****Suggested Pre-Work Review:** Warburg effect, Glycolysis, Beta oxidation**

## ****Workshop 12:** (**Sunday May 16**) Spectroscopy & Radiochemistry**

## **Subject: Biology, Biochemistry (Biological/Physical), Physics**

## ****Passages:** Detecting Botulism, Grave’s Disease**

## ****Suggested Pre-Work Review:** Fluorescence, Thyroid hormones, Radiochemistry**

## ****Workshop 13:** (**Tuesday May 18**) Acid/Base Chemistry in Physiology & Disease**

## **Subjects: Biology, Chemistry, Biochemistry (Biological/Physical)**

## ****Passages:** Tumor Hypoxia, Altitude Sickness**

## ****Suggested Pre-Work Review:** Acid/Base chemistry, hypoxia**

## ****Workshop 14:** (**Sunday May 23**) Solubility in Biological Systems**

## ****Subjects:** Biology, Chemistry, Biochemistry (Biological/Physical) Organic Chemistry, Physics**

## ****Passages:** Medical Marijuana in Glaucoma, Bile Salts & Gallstones**

## ****Suggested Pre-Work Review:** Solubility, Bile salts**

## ****Workshop 15:** (**Tuesday May 25**) The Immune System Subjects: Biology, Molecular Biology, Biochemistry (Biological)**

## ****Passages:** Multiple Myeloma, Autoimmunity**

## ****Suggested Pre-Work Review:** Antibody structure, Western blotting**

## ****Workshop 16:** (**Sunday May 30**) Biochemistry of Vitamins**

## **Subject: Biology, Organic Chemistry, Biochemistry (Biological)**

## ****Suggested Pre-Work Review:** O Chem Reactions, Water and Fat Soluble vitamins**

## **Passages: Vitamin B12 and Folic Acid, Vitamin D and Bone Metabolism**