Dental Biochemistry 2015 (Winter-Spring)

Lecture assignments will be from Biochemistry by Champs and Harvey, 6th Edition, Lippincott Williams and Watkins. The PBL Instructors are: Drs. Kaushik-Basu, Howells, Kotenko, Kumar, Lea, Lutz, Modak, O’Connor, Pandey, and Suzuki

All classes will be in Room B-961 except where noted

Winter trimester classes:

Mondays 10-11:50 AM

Wednesdays 11-11:50 AM.

Spring Semester classes:

Wednesdays10-11:50 AM

Fridays 11-12:50 PM

Winter Trimester: 1/5-3/20/2105

Winter Trimester Biochemistry classes are: Mon. 10-12 noon and Wed. 11-12 noon

Part I: Principles of Molecular Structure and function

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| --- | --- | --- | --- | --- | --- | --- |
| Wk. | Date | Day | Time | L# | Topic | Instructor |
| 1 | 1/5/15 | Mon | 10-10:50 | 1 | Introduction to biomolecules | Kumar |
|  | 1/5/15 | Mon | 11-11:50 | 2 | Salivary buffering | Kumar |
|  | 1/7/15 | Wed | 11-11:50 | 3 | Amino acids and transport | Kumar |
| 2 | 1/12/15 | Mon | 10-10:50 | 4 | Protein structure abnormalities | Kumar |
|  | 1/12/15 | Mon | 11-11:50 | 5 | Basics of Enzyme catalysis | Kumar |
|  | 1/14/15 | Wed | 11-11:50 | 6 | Enzyme kinetics-MM Equation | Kumar |
| 3 | 1/19/15 | Mon | No Classes |  | MLK Birthday |  |
|  | 1/21/15 | Wed | 11-11:50 | 7 | Enzyme inhibition-Drug discovery | Kumar |
| 4 | 1/26/15 | Mon | 10-10:50 | 8 | Allosterism and regulation of enzyme activity | Kumar |

Part II: Metabolism of carbohydrates, amino acids and lipids

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|  | 1/26/15 | Mon | 11-11:50 | 9 | Glycolysis | Lea |
|  | 1/28/15 | Wed | 11-11:50 | 10 | Gluconeogenesis | Lea |
| 5 | 2/2/15 | Mon | 10-10:50 | 11 | Pentose pathway-glycogen | Lea |
|  | 2/2/15 | Mon | 11-11:50 | 12 | TCA cycle | Lea |
|  | 2/4/15 | Wed | 11-11:50 | 13 | Metabolic compartmentation | Lea |
| 6 | 2/9/15 | Mon | 10-10:50 | 14 | Oxidative phosphorylation | Lea |
|  | 2/9/15 | Mon | 11-11:50 | 15 | Fatty acid oxidation and metabolic abnormalities | Kumar |
|  | 2/11/15 | Wed | 11-11:50 | 16 | Fatty acid synthesis, obesity and cancer | Kumar |
| 7 | 2/16/15 | Mon | 10-10:50 | 17 | Diabetes | Kumar |
|  | 2/16/15 | Mon | 11-11:50 | 18 | Complex lipids | Lea |
|  | 2/18/15 | Wed | 11-11: 50 AM | 1-18 | Pre-Exam Review | Lea and Kumar |
| 8 | 2/23/15 | Mon | 10-11:50 | 1-18 | Exam I | Kumar/Howells |
|  | 2/25/15 | Wed | 11-11:50 |  | Post Exam I review | Kumar |
| 9 | 3/2/15 | Mon | 10-10:50 | 19 | Cholesterol biosynthesis | Suzuki |
|  | 3/2/15 | Mon | 11-11:50 | 20 | Plasma lipoproteins | Suzuki |
|  | 3/4/15 | Wed | 11-11:50 | 21 | Membrane structure and function | Kumar |
| 10 | 3/16/15 | Mon | 10 -10;50 | 22 | Prostaglandins | Lutz |
|  | 3/16/15 | Mon | 11-11:50 | 23 | Amino acid metabolism I | Howells |
|  | 3/18/15 | Wed | 11-11:50 | 24 | Amino acid Metabolism-II | Howells |

Spring Trimester 3/23-6/12/15

Spring Semester Biochemistry classes are: Wednesdays 10 AM-12 Noon and Fridays 11-12:50 PM

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| --- | --- | --- | --- | --- | --- | --- |
| 1 | 3/27/15 | Fri | 11-11:50 | 25 | Urea cycle | Howells |
|  | 3/27/15 | Fri | 12-12:50 | 26 | Mechanism of action of steroid hormones | Christakos |
| 2 | 4/1/15 | Wed | 10-11:50 | PBL I |  | Faculty |
|  | 4/3/15 | Fri | No Class |  | Good Friday |  |
| 3 | 4/8/15 | Wed | 10-10:50 | 27 | Mechanism of action of peptide hormones (insulin/glucagon) and steroid hormones | Birge |
|  | 4/8/15 | Wed | 11-11:50 | 28 | Integration of Metabolism | Kumar |

Part III: Genetic Information

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 4/10/15 | | Fri | 11-11:50 | 29 | Purine biosynthesis and abnormalities | Birge |
|  | | 4/10/15 | Fri | 12-12:50 | 30 | Pyrimidine Biosynthesis and abnormalities | Birge |
| 4 | | 4/15/15 | Wed | 10-10:50 | 31 | DNA synthesis | Modak |
|  | | 4/15/15 | Wed | 11 -11:50 | 32 | RNA synthesis | Modak |
|  | | 4/17/15 | Fri | 11-11:50 | 33 | Genetic code | Modak |
|  | | 4/17/15 | Fri | 12-12:50 | 34 | Protein Synthesis. | Modak |
| 5 | | 4/22/15 | Wed | 10-10:50 | 35 | Mitochondrial DNA and Extranuclear Inheritance | Suzuki |
|  | | 4/22/15 | Wed | 11-11:50 | 36 | Prokaryotic gene regulation | Howells |
|  | | 4/24/15 | Fri | 11-11:50 | 37 | Eukaryotic Gene Regulation | Howells |
|  | | 4/24/15 | Fri | 12-12:50 | Review | Lectures 19-36 | Birge, Howells, Lutz, Modak, Suzuki |
| 6 | | 4/29/15 | Wed | 10 -11:50 | Exam II | Lectures 19-36 | Kumar/Howells |
|  | | 5/1/15 | Fri | 11-11:50 | 38 | Recombinant DNA | Howells |
|  | | 5/1/15 | Fri | 12-12:50 | Review | Post Exam II Review | Kumar |

Part IV: Special Topics

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| 7 | 5/6/15 | Wed | 10-11:50 | PBL II |  | Faculty |
|  | 5/8/15 | Fri | 11-11:50 | 39 | Heme synthesis | Lea |
|  | 5/8/15 | Fri | 12-12:50 | 40 | Hemoglobin | Lea |
| 8 | 5/13/15 | Wed | 10-10:50 | 41 | Blood Clotting | Christakos |
|  | 5/13/15 | Wed | 11-11:50 | 42 | Neurobiochemistry | Howells |
|  | 5/15/15 | Fri | 11-11:50 | 43 | Oncogenes | Howells |
|  | 5/15/15 | Fri | 12-12:50 | 44 | AIDS | Modak |
| 9 | 5/20/15 | Wed | 10-10:50 | 45 | Complex carbohydrates | Lutz |
|  | 5/20/15 | Wed | 11-11:50 | 46 | Connective tissue | Lutz |
|  | 5/22/15 | Fri | 11-11:50 | 47 | Biochemistry of bisphosphonates | Kumar |
|  | 5/22/15 | Fri | 12-12:50 | 48 | Bisphosphonates and BRONJ disease | Najjar |
| 10 | 5/27/15 | Wed | 10-11:50 | PBL III |  | Faculty |
|  | 5/29/15 | Fri | 11-11:50 AM | 49 | Bone formation and bone resorption | O’Connor |
|  | 5/29/15 | Fri | 12-12:50 PM | 50 | Saliva and Caries | Markowitz |
|  |  |  |  |  |  |  |
| 11 | 6/3/15 | Wed | 10-10:50 | 51 | Oral complications of HIV | Cohen |
|  | 6/3/15 | Wed | 11-11:50 | 52 | Mineral Metabolism | Christakos |
|  | 6/5/15 | Fri | 11-11:50 | 53 | Vitamins | Lea |
|  | 6/5/15 | Fri | 12-12:50 | Pre-Review | Exam III Lectures 37-53 | O’Connor, Lea, Howells, Kumar |
| 12 | 6/12/15 | Fri | 11-12:50 | Exam III | Lectures 37-53 | Kumar/Howells |
|  | 6/12/15 | Fri | 11-11:50 |  | Post exam review | Kumar |
|  | 6/15/15 | Mon | 9 -11:50 | Final | Lectures 1-53 | Kumar |