COURSE SYLLABUS - Spring 2020

BIOL483/ BIOL583/ CHEM 463- General Biochemistry

Monday/Wednesday 4:30-6:20

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Lecture Topic** | **Chapter (pg)** | **Problems** |
| W, 1/22 | Intro to BiochemistryWater, pH and Buffers | 1 (1-20) (Pg 501-506)2 (47-68) | 1: 6, 7, 122: 2, 4, 5, 8, 10, 11, 13, 14, 15, 16 |
| M, 1/27 | Amino Acids, peptides, and proteins | 3 (75-97)  | 3: 2, 5, 11, 13, 14, 17 |
| W, 1/29 | Protein structure  | 4 (115-151) | 4: 7, 11, 13 |
| M, 2/3 | Protein function  | 5 (157-174) | 5: 1, 3, 5, 7, 8, 9 |
| W, 2/5 | Kinetics  | 6 (187-212) | 6: 4, 7, 9, 11, 13 |
| M, 2/10 | Kinetics  | 6 (213-225) | 6: 23, 24 a and b |
| W, 2/12 | **EXAM 1** |  |  |
| M, 2/17 | Mechanism/Bioenergetics | 13 (495-526) | 13: 2, 3, 4, 6, 9, 12, 13, 19, 26 |
| W, 2/19 | Carbohydrates  | 7 (241-267) | 7: 2, 6, 7, 14, 16, 23 |
| M, 2/24 | Glycolysis | 14 (533-558) | 14: 8, 10, 11, 14 |
| W, 2/26 | Glycolysis /Gluconeo | 14 (558-570) | 14: 21, 22, 23, 30 |
| M, 3/2 | regulation | 6 (225-236), 15 (575-600) | 15: 4, 5, 6 |
| W, 3/4 | **EXAM 2** |  |  |
| M, 3/9 | **NO CLASS** |  |  |
| W, 3/11 | **NO CLASS** |  |  |
| M, 3/16 | Carbohydrate synthesis | 20 (780-798) | 20: 20,21 |
| W, 3/18 | Regulation | 15 (601-614) | 15: 8, 9, 11, 14 |
| M, 3/23 | Lipids | 10 (361-381) | 10: 2, 4, 5, 16 |
| W, 3/25 | Membranes  | 11(387-405)) | 11: 4, 6, 7, 11, 12,13 |
| M, 3/30 | Transport | 11 (405-431) | 11: 15, 19, 21 |
| W, 4/1 | Lipid Biosynthesis | 21 (811-854) | 21:3, 6, 8, 15, 16, 17 |
| M, 4/6 | **EXAM 3** |  |  |
| W, 4/8 | Fatty Acid Oxidation | 17 (649-670) | 17: 4, 6, 7, 11, 12, 17 |
| M, 4/13 | Fatty Acid Ox-cont |  |  |
| W, 4/15 | Citric Acid Cycle | 16(619-642) | 16: 1, 2, 6, 7, 11, 21, 34 |
| M, 4/20 | Oxidative phosphorylation | 19 (711-750) | 19: 1, 4, 6, 17, 19 |
| W, 4/22 | Ox-Phosph cont/Biosignal | 12 (437-487) | 12: 6, 10 |
| M, 4/27 | Biosignaling continued |  | 12: 3, 11, 13, 16 |
| W, 4/29 | Hormonal Regulation | 23 (918-948) | 23: 11, 16, 20 |
| M, 5/4 | REVIEW |  |  |
| **Wednesday** **May 6th**  | **FINAL EXAM****4:30 pm -7:15 pm** | NOT SET YET. NEED TO ASK THE SECOND WEEK OF SCHOOL |  |

Instructor: Dr. Deborah Polayes Office: Exploratory Hall Room 1206

Office hours: Monday 3-4 pm and Tuesday 9-11 am or by appointment.

Office Phone: 703-993-4543

Email: dpolayes@gmu.edu

**Required text:** Nelson & Cox, 2017 **Lehninger Principles of Biochemistry**,

7th edition, W.H. Freeman and company

Optional Course Material: Osgood & Ocorr, 2017, The Absolute, Ultimate Guide to Lehninger Principles of Biochemistry, 7th edition, W.H. Freeman and company

**Overview:** My goal in teaching General Biochemistry is to impart the knowledge necessary to appreciate the complexity of the cell through its biochemical reactions. The content of the course is described in the list of weekly lectures. Students are expected to attend lectures and to read the chapters listed below. The problems listed are recommended to help in your understanding of the material.

Lecture material will be presented by PowerPoint slides, and will contain material not found in the textbook. Questions and/or comments to the instructor during class are encouraged

**POLICIES:** To enroll in BIOL 483 you must have completed BIOL 213, Chem. 313 **OR** you must have transferred equivalent courses, OR you must have permission of the instructor.

**Late work is not accepted** in this course.

Make-up examinations are **not** given in this course. If a student misses a scheduled examination without prior permission, s/he will receive a grade of zero. If, for any reason, the class does not meet on a scheduled exam day, the test will be given the next time the class does meet.

If you require any accommodations due to a learning disability, you must provide information from the GMU Office of Disability Services before accommodations can be provided.

The honor code protects the honest student, the reputation of George Mason University, and the value of the degree earned here. We should all support it both by personal honesty and by refusing to tolerate dishonesty in others. Students should report suspected cheating to the Honor Committee.

**GRADING:** The grading for this course will be based upon three in-class exams, and one final exam. These exams will cover the material discussed in lecture as well as assigned reading. The exams will consist of matching, multiple choice, True/False, definition and short answer questions. In addition, you will have 12 unannounced quizzes/ group work in class worth a total of 12% of your grade. We will also play Bingo as a review for the exams. The exams total 88% of your grade. The highest graded exam is worth 28% while the other three will each be worth 20% a piece.

Exam 1 + 2 + 3 + final 88%

In class questions 12%

**Final Grade %** = 100%

If enrolled as **BIOL583** there is an additional requirement of reading primary articles which will be assigned and answering questions about the papers on the regularly scheduled exams. Assigned paper references will be posted on BlackBoard.

FINAL GRADES: 93-100 =A, 90-92 = A-, 85-89 = B+, 80-84 = B, 75-79 = C+, 70-74 = C, 60-69 = D, <60 = F