Biochemistry I (Chemistry 371/650) – Spring 2021
Virtual Learning via Zoom and Blackboard
(Pre-requisite: Grade of C or Higher in CHEM 252.4, 252.1 and BIOL 105)
Department of Chemistry & Biochemistry
Queens College – CUNY
65-30 Kissena Blvd.
Flushing, NY 11367

Lectures – Tue. & Thur. (12.10 – 2 PM via Zoom/Blackboard Collaborate Ultra); Professor Sanjai K. Pathak, Ph.D.

Email: Sanjai.Kumar@qc.cuny.edu

Office Hours: Tuesdays and Thursdays between 10 AM – 10.30 AM (Virtual via Zoom)

Course Structure:

(i) ALL lectures, office hours, quizzes and examinations will be held virtually via Zoom and Blackboard Collaborative Ultra. The classes will be held synchronously and a recording of the lectures will be made available.


(iii) Two Midterms (30% Each) & a Cumulative Final Examination (40%)

Learning Goals: Structure, properties, biosynthesis, and metabolism of major groups of compounds of biological importance: proteins, amino acids, carbohydrates, lipids, and coenzymes. The course emphasizes the relationship between the biochemical pathways and their location in the cell as well as metabolic regulation.

General Guidelines: You must appear in all three class examinations. Please note that there will be NO makeup examination in general. In case of an emergency that you are unable to attend an examination, a legal valid proof of absence must be presented. In the event that you are unable to furnish a valid proof of absence within a reasonable time period, a zero grade will be assigned for the examination. It is strongly recommended that you study the ‘Reading Assignments’ listed in this syllabus. It is anticipated that the reading assignments will help you understand the lecture material much more effectively. You must obtain a valid Queens College email id, so you can access the course materials online, posted periodically on the Blackboard Collaborate Ultra. The use of cell phones is NOT permitted during the class AND during the periods of examination. Use of a scientific calculator is permitted during the examination. If you need extra help with the course, please do not hesitate to ask Dr. Pathak.

**Only Applicable to Chem 650 Students: As part of this course, you are required to write a mini research review article (4-6 pages (excluding References), 1.5 spacing, font size 11), and submit it electronically (Email: Sanjai.Kumar@qc.cuny.edu) on or before May 16th, 2019 (NO late
The topic of your review is “Inhibitors of Peptidylarginine Deiminase (PAD) Enzymes”. You can research about this topic on Pubmed. Please contact me if you have any questions about this. This report will constitute 5% of your total overall grade. [Caution: Be very aware of plagiarism]. The link for the Pubmed is: https://www.ncbi.nlm.nih.gov/pubmed/

Available accommodation for students with learning disabilities: Students with disabilities needing academic accommodation should register with the Special Services Office by emailing QC.SPSV@qc.cuny.edu. For more information about services available to Queens College students, visit the Office of Special Services website: https://www.qc.cuny.edu/studentlife/services/specialserv/Pages/default.aspx

Counseling Services are also available to any Queens College student. This office assists students with personal concerns that can affect their enjoyment of and success in college. Services are free and confidential. All sessions take place on Zoom or by Telephone, depending on student preference. To make an appointment, students should call 718-997-5420 and leave a message with their phone number and CUNY ID. They may also e-mail counselingservices@qc.cuny.edu

CUNY Policy on Academic Integrity: Academic dishonesty is prohibited in The City University of New York and is punishable by penalties, including failing grades, suspension, and expulsion as provided at https://www.cuny.edu/about/administration/offices/legalaffairs/policies-procedures/academic-integrity-policy/

Tentative Schedule of Classes and Examinations (Subject to modifications, when required):

Feb. 2nd – Chapter 1 – Foundations of Biochemistry
Feb. 4th and Feb. 9th – Chapter 2 & 3 – Structure of Water; Amino Acids, Peptides and Proteins
Feb. 11th – Chapter 4 – The 3-D Structure of Proteins
Feb. 16th and Feb. 18th – Chapter 5 – Protein Function (Hemoglobin and Allosteric Regulation)
Feb. 23rd and Feb. 25th – Chapter 6 – Enzyme Catalysis and Enzyme Kinetics

First Midterm Examination – March 2nd (Tuesday), 2021

Mar. 4th – Chapter 7 – Carbohydrates and Glycobiology
Mar. 9th and Mar. 11th – Chapter 10 and 11 – Lipids; Biological Membrane and Transport
Mar. 16th – Chapter 12 – Signal Transduction
Mar. 18th – Chapter 13 – Bioenergetics and Introduction to Metabolism
Mar. 23rd, Mar. 25th, Apr. 6th, Apr. 8th – Chapter 14th and Chapter 15th – Glycolysis, Gluconeogenesis, and the Pentose Phosphate Pathways; Glycogen Metabolism

Spring Break – March 26 – April 3rd, 2021

Second Midterm Examination – April 13th (Tuesday), 2021

Apr. 15th and Apr. 20th – Chapter 16 – The Citric Acid Cycle
Apr. 22nd and Apr. 27th – Chapter 17 – Fatty Acid Catabolism
April 29th – Chapter 18 – Amino Acid Oxidation & The Production of Urea
May 4th and May 6th – Chapter 19 – Oxidative Phosphorylation
May 11th and May 13th – Chapter 23 - Integration of Metabolism; Final Thoughts and REVIEW

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<th>FINAL EXAMINATION – May 20th, 2021 (11 AM – 1 PM; Thursday)</th>
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**Reading Assignments:**

*(7th Edition)*: Chapter 1 (Page 2-35); Chapter 2 (47-69); Chapter 3 (75-104); Chapter 4 (115-149); Chapter 5; Chapter 6 (189-228); Chapter 7 (243-274); Chapter 10 (357-380); Chapter 11; Chapter 12 (433-438 and 484-488); Chapter 13; Chapter 14; Chapter 15 (612-626); Chapter 16; Chapter 17 (667-688); Chapter 18; Chapter 19 (731-762), Chapter 23 (929-961)

*(6th Edition)*: Chapter 1 (Page 2-35); Chapter 2 (47-69); Chapter 3 (75-104); Chapter 4 (115-149); Chapter 5; Chapter 6 (189-228); Chapter 7 (243-274); Chapter 10 (357-380); Chapter 11; Chapter 12 (433-438 and 484-488); Chapter 13; Chapter 14; Chapter 15 (612-626); Chapter 16; Chapter 17 (667-688); Chapter 18; Chapter 19 (731-762), Chapter 23 (929-961)

*(5th Edition)*: Chapter 1 (Page 2-33); Chapter 2 (43-68); Chapter 3 (71-102); Chapter 4 (113-148); Chapter 5; Chapter 6 (184-227); Chapter 7 (235-263); Chapter 10 (343-357); Chapter 11; Chapter 12 (419-455 and 469-478); Chapter 13; Chapter 14; Chapter 15 (595-608); Chapter 16; Chapter 17 (647-668); Chapter 18; Chapter 19 (707-742); Chapter 23 (901-935)