CHEMISTRY 378 / BIOCHEM 770
PHYSICAL BIOCHEMISTRY
SPRING 2020 –SYLLABUS – Updated for Online Teaching

T and Th, 9:00 am - 10:50 am, Rem 017

INSTRUCTOR INFORMATION

Instructor: Dr. Uri Samuni
Office: Remsen 26A
Office Hours: Tuesday and Thursday 11:30-2:00 pm and by appointment
Telephone: 718-9974223
Email: uri.samuni@qc.cuny.edu

COURSE

Goals/ Objectives: Mastery of selected modern Physical Biochemistry concepts and methods with emphasis on the properties, function and characterization of biochemicals, proteins and macromolecules.

Text: There is no one text that covers this course. The course will consist of the lectures and specific reading assignments that will be posted on Blackboard.

Some recommended texts are:
2. Peter Atkins's Physical Chemistry

Blackboard Material, assignments and announcements will be posted to Blackboard. Announcements will also be sent via blackboard to your email address. Students must make sure to login to blackboard and check for announcements and check their Queens College e-mail. Online lessons conducted via blackboard collaborate. Link are emailed to students via blackboard.

Grading:
Chem378: Paper analysis (35%); Final Exam (cumulative) (60%); Class Attendance and participation and in class assignments (attendance is required, you may miss up to 4 lectures) (5%). Bonus points: Short Quizzes given during class.
Bioch770: Paper analysis (20%); Paper Analysis/ Additional topics (20%) Final Exam (cumulative) (55%); Class Attendance and participation and in class assignments (attendance is required, you may miss up to 4 lectures) (5%). Bonus points: Short Quizzes given during class.
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TENTATIVE COURSE SCHEDULE

Tue 1/28  Course overview and Introduction to Spectroscopy
Th 1/30   Absorption Spectroscopy
Tue 2/4   Absorption Spectroscopy Instrumentation and methods
Th 2/6    Absorption Spectroscopy applications
Tue 2/11  Fluorescence Spectroscopy applications
Th 2/13   Fluorescence Spectroscopy applications
Tue 2/18  FRET applications
Th 2/20   Infrared Spectroscopy, FTIR and applications
Tue 2/25  Infrared Spectroscopy, FTIR and applications
Th 2/27   Raman Spectroscopy and applications
Tue 3/3   Resonance Raman Spectroscopy, SERS and applications
Th 3/5    Raman Microscopy, Confocal microscopy, Lasers
Tue 3/10  Protein Structure and Conformation, Protein Folding
Th 3/12   Peptides; Buffers; Protein Structure and Conformation
Tue 3/17  Hemoglobin: Cooperativity, Allosteric model; Hill Plots, Spectroscopic applications
Th 3/19   Hemoglobin: Cooperativity, Allosteric model; Hill Plots, Spectroscopic applications
Tue 3/24  Hemoglobin: Cooperativity, Allosteric model; Hill Plots, Spectroscopic applications
Th 3/26   Discussion of papers (Protein folding/unfolding)
Tue 3/31  No Class
Th 4/2    Protein-Protein interactions, protein folding, aggregation and MD simulations
Tue 4/7  No Classes (Wednesday schedule)
Th 4/9   Spring recess
Tue 4/14 Protein-Protein interactions, protein folding, aggregation and MD simulations
Th 4/16  Electron Microscopy TEM SEM CryoTEM
Tue 4/21 Electron Microscopy TEM SEM CryoTEM
Th 4/23  EPR Spectroscopy applications
Tue 4/28 EPR Spectroscopy applications
Th 4/30  EPR Spectroscopy applications
Tue 5/5   Circular Dichroism and applications
Th 5/7    Circular Dichroism and applications
Tue 5/12 Online Quiz and Dynamic Light Scattering (DLS)
Th 5/14  Review for exam
Tu 5/19  Final exam

Schedule is tentative

* Class visit to CUNY ASRC labs / BNL (cancelled)