Course Director: Greg Van Duyne      vanduyne@pennmedicine.upenn.edu; 809 SCL
Classes: Tuesday and Thursday 2:30-4:00, 253 BRB II/III
Textbook: None
Prerequisites: BMB 508 and BIOM 600
Homework: Read 2-4 papers per week relating to lecture topics
Grading: 1/3 Exam, 1/3 student presentation, 1/3 student participation

Synopsis: This course builds on BMB 508 and includes three overlapping areas: I) experimental approaches used in mechanistic biochemistry and biophysics research, II) topics in modern biochemical research drawn from our faculty’s expertise, with an emphasis on molecular mechanism, and III) topics in metabolism and bioenergetics that provide a foundation for many of the research programs at Penn. Students give presentations in the last part of the course, where the topics are drawn from research articles associated with the course lectures.

Course Topics and Schedule:

1. Biochemical/biophysical methods I (Lecture)           Greg Van Duyne  1/11
2. Biochemical/biophysical methods II (Lecture)          Greg Van Duyne  1/16
3. Biochemical/biophysical methods III (Tour/Demo, 810 SCL) Kushol Gupta  1/18
4. MS methods in biochemical research                    Ben Garcia      1/23
5. Screening methodologies                               Sara Cherry/Dave Schultz 1/25
6. Chemical biology of DNA                               Rahul Kohli      1/30
7. DNA Packaging: nucleosomes and chromatin              Ben Black       2/1
8. RNA biochemistry                                       Kathy Liu       2/6
9. RNA editing                                            Jeremy Wilusz    2/8
10. Composition and properties of membranes              Paul Axelsen    2/13
11. Transcription mechanisms                             Kenji Murakami  2/15
12. Glycoproteins                                        Yair Argon      2/20
13. Metals in Biology                                     Donita Brady    2/22
14. AAA+ protein function and mechanism                   Jim Shorter     2/27
15. Protein acetylation and methylation                   Ronen Marmorstein 3/1
17. Metabolism and chromatin regulation                   Katy Wellen    3/15
18. IDH and the TCA cycle                                 Kim Sharp       3/20
19. Insulin signaling                                     Paul Titchenell 3/22
20. Myosin biochemistry and biophysics                    Mike Ostap     3/27
Exam (in class)                                          4/3
Student presentations                                    4/5
Student presentations                                    4/10
Student presentations                                    4/12
Student presentations                                    4/17
Student presentations                                    4/19
Student presentations                                    4/24
Student presentations                                    4/26
Student presentations                                    5/1