



Chemistry 7770, section 001 Fall 2016
Special Topics: Graphical Representation
of Biomolecular Structures

Professor Sean J. Johnson

Time: Monday 8:30-9:45 am, Widt 333

Office Hours: By appointment (W237)

Text: No text is required for this course. All reading materials will be made available on the Canvas site.

Canvas: Course materials, including assignments and lecture notes will be available through the course Canvas page. This site is found at canvas.usu.edu. Username = banner ID; Password = banner pin. Only students who are registered for the class will have access to the course Canvas pages.

Computer Resources: Web-based and freely downloadable software (mac and PC compatible) will be required to complete course assignments and to prepare final presentations. PyMOL is available for use in the course through a departmental license. All required software will be available on designated departmental computers.

Prerequisites: Chem 5700, or equivalent, or instructor permission.

Provisions: The administration of Chem 7770 will adhere strictly to the regulations outlined in the Fall Semester Schedule of Classes. Students not enrolled in the course may sit in only with instructor approval.

Course content: Chemistry 7770 is a special topics course in biochemistry. The course is designed to introduce students to current approaches in visualizing and communicating structural data on biomolecules.

The objective of this course is to learn how to effectively communicate structural information in multiple scientific formats. A major emphasis will be placed on utilization of the PyMOL software program for developing graphical images. You are encouraged to bring a laptop to class if you have one. A tentative outline of the topics to be covered in the class meetings is included on the last page of the syllabus.

Grading:

Assignments.....	95 points
2-D structural presentation.....	100 points
Movie presentation.....	100 points
Total	295 points

Description of Graded Assignments/Presentations:

Assignments –

In addition to the projects and presentations described below, additional assignments will be given throughout the semester to reinforce topics discussed in class. There will be no final exam.

2-D structural presentation –

Develop a publication-quality figure or series of figures to describe a protein or nucleic-acid structure. The figure must be appropriately labeled and include a figure legend. Grading will be based on image quality and effectiveness of the figure in making the desired point.

Movie presentation –

Develop a movie/animation that could be used in a powerpoint presentation. The movie must include multiple camera views, molecular representations, and object motions. You must submit both the pymol session file and the rendered movie embedded in a powerpoint file. Grading will be based on image quality and storytelling.

Tentative Course outline:

#	week	topic	Class activity	Reading assignment due before lecture	Project
1	Aug 29	Structural data			
1b		Favorite published figure presentations			
2	Sept 12	PyMOL Scenes		PyMOL – introductory tutorial	Project approval due
3	Sept 19	Selections & Scripting	Script presentation	PyMOL – intermediate tutorial	Draft figure due
4	Sept 26	Alignments	Script presentation Figure feedback		
5	Oct 3	Movies	Plugin presentation Figure feedback	PyMOL – moviemaking tutorial	Storyboard movie
6	Oct 10	Adapting to different formats	Plugin presentation Movie feedback		
7	Oct 17		Movie feedback		
8	Oct 24				
9	Oct 31	Powerpoint presentations			Final figure due Final movie due

In accordance with the Americans with Disabilities Act, reasonable accommodations will be provided for all persons with disabilities in order to ensure equal participation in Chem 7770. In cooperation with the Disability Resource Center, reasonable accommodation will be provided for students with disabilities. Please meet with the instructor during the first week of class to make arrangements. Alternative format print materials, large print, audio, diskette or Braille, will be available through the Disability Resource Center.