Course Syllabus
Chemistry 654
Protein Structure and Function
Spring 2010

Course Name: Chem 654; Protein Structures and Function. (3 credits)
Prerequisites: Chem 451 or permission. (If you have no organic chemistry background please contact instructor.)
Location: Reichardt Building Room 165.
Meeting Time: 11:30 PM – 1:00 PM
Instructor: Dr. Marvin Schulte
Office Hours: 2:00 – 3:00 PM MW (other times by appointment).
Office: AHRB Rm 228.
Phone: 907 474-5237, Lab: 907 474-5748
E-mail: mkschulte@alaska.edu

Text and Reference Materials:
Reference text: (text not required)
Proteins; Structures and Molecular Properties. 2nd Edition
Author: Thomas E. Creighton
W.H. Freeman and Company
Publication Date: 1996

Primary Literature, review articles and tutorials will be assigned as appropriate.

Course Description:
Contemporary topics in peptide and protein biochemistry. Topics include peptide synthesis, protein modification, comparative aspects of structure, protein engineering, enzyme and receptor function as well as molecular modeling.

Course Goals:
1. Develop an understanding of the basic chemistry of proteins underlying their folding pathways, stability and function.
2. Become familiar with standard methodologies and procedures for analyzing, sequencing and synthesizing peptides and proteins.
3. Perform basic modeling studies of proteins including secondary structure prediction, Ligand interaction and homology modeling using popular computer software.
4. Develop competence in locating protein structure information using online databases.
Learning Outcomes

1. Utilize the knowledge of proteins physical properties to develop strategies for purification and/or analysis.
2. Identify key components of protein structure that contribute to stability and function of the protein and apply these to structural predictions.
4. Suggest strategies for analyzing a mixture of proteins using modern protein analytical instruments.
5. Design proteomic approaches to the study of proteins.
6. Design experimental approaches to protein engineering and expression.

Instructional Methods:
The course will be taught using multiple instructional methods. These methods will include lecture, group discussion and oral presentations with an associated critical discussion. Practical projects in protein modeling, protein separation and/or analysis may also be utilized.

Typically, a course topic will begin with an introductory presentation by the Instructor followed by a guided discussion in which students will be asked questions designed to probe the topic more deeply. The basis for each topic discussion will be drawn from the primary text or assigned literature references.

Course Policies:

Attendance:
Due to the dependence on group activities and discussions, students are expected to attend class regularly. Students are expected to participate actively and will receive a participation score as described under evaluation.

Exams:
Two exams will be given and will constitute 50% of the course grade. Makeup exams will be allowed only with pre-approval of the instructor or with an acceptable, documented reason. Acceptable reasons for makeup exams include severe illness, family emergencies or other unavoidable events including dangerous weather conditions and car accidents. The format of makeup exams will be at the discretion of the instructor.

Plagiarism Policy:
Plagiarism is defined as the use of another’s intellectual property without correct citation of the author. Intellectual property includes all electronic, spoken or print media. Students are expected to cite all sources used in oral and written presentations. Cases of plagiarism will be dealt with severely with the minimum penalty being a grade of 0 for the assignment in question. Severe cases may be referred to the Department Chair or Dean.

Late Work:
All assignments are due when indicated in the class schedule. No late work will be accepted except in the case of illness or emergency.
Evaluation:
Students will be evaluated in four key areas:
Knowledge (exam grades), Written and Oral Presentation and Class Participation.

Final grades will be calculated as follows:
Exams: 50% (Midterm exam: 25%, Final Exam: 25%)
Literature Review / Proposal: 20%
Literature Presentation: 20%
Class Participation: 10%

Participation will be calculated based on an average daily score assigned to each student.

Written and Oral presentations will be scored as follows:
Content: 20%
Organization: 20%
Presentation: 20%
Language skills: 20%
Quality of Discussion: 20%

A detailed scoring sheet will be provided to students when oral and written presentations are assigned.

Support Services:
Support services will be provided by the University of Alaska Library system, online resources and the instructor. Additional services are available through Student Support Services (http://www.uaf.edu/sssp/) at UAF.

Disabilities Services:
We will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide accommodations for students with disabilities. If you have a disability and require special assistance, please contact the instructor as soon as possible. Students with disabilities must provide a written statement indicating any special requirements that will be necessary as early in the semester as possible (preferably within the first week).

Department Policy on Cheating:
The Chemistry & Biochemistry Department Policy on Cheating is: “Any student caught cheating will be assigned a course grade of F. The student’s academic advisor will be notified of this failing grade and the student will not be allowed to drop the course.”