

Chem 365/465
Proteomics
Dr. Ken Olsen
Spring 2019
Monday & Wednesday – 6:00- 7:15 pm
Cudahy 202

| # | Day | Date | Topic | Reading |
|----|-----|------|-----------------------------------|-------------|
| 1 | M | 1/14 | Protein Structure – background | pp. 108-110 |
| 2 | W | 1/16 | Molecular graphics – VMD software | web refs |
| | M | 1/21 | MLK Day – no class | |
| 3 | W | 1/23 | Introduction to Proteomics | 1 |
| 4 | M | 1/28 | Protein Separations | 2 |
| 5 | W | 1/30 | Protein Separations | 2 |
| 6 | M | 2/4 | Protein Identification | 3 |
| 7 | W | 2/6 | Protein Identification | 3 |
| 8 | M | 2/11 | Protein Quantitation | 4 |
| 9 | W | 2/13 | Homology Modeling | 5 |
| 10 | M | 2/18 | Homology Modeling | 5 |
| 11 | W | 2/20 | Model Verification | 5 |
| 12 | M | 2/25 | Homology Modeling Assignment | Handout |
| 13 | W | 2/27 | X-Ray Crystallography of Proteins | pp. 114-118 |
| | M | 3/4 | Mid-term break – no class | |
| | W | 3/6 | Mid-term break – no class | |
| 14 | M | 3/11 | X-Ray Crystallography of Proteins | pp. 114-118 |
| 15 | W | 3/13 | Structural Proteomics | 6 |
| 16 | M | 3/18 | Structural Proteomics | 6 |
| 17 | W | 3/20 | Mid-Term Examination | 1-5 |
| 18 | M | 3/25 | Molecular Mechanics | Handout |
| 19 | W | 3/27 | Energy Minimization | Handout |
| 20 | M | 4/1 | Molecular Dynamics | Handout |
| 21 | W | 4/3 | Molecular Dynamics Assignment | Handout |
| 22 | M | 4/8 | Interaction Proteomics | 7 |
| 23 | W | 4/10 | Interaction Proteomics | 7 |
| 24 | M | 4/15 | Protein Modifications | 8 |
| 25 | W | 4/17 | Protein Modifications | 8 |
| 26 | M | 4/22 | Protein Chips | 9 |
| 27 | W | 4/24 | Proteomics Applications | 10 |
| | M | 4/29 | Final Exam at 7 pm | |

Grading: 25% Mid-Term, 5% VMD Graphics, 10% Homology modeling project, 10% MD project, 5% network project, 10% homework, 25% Final

For the homology modeling project, you must include analyses of your model using Verify 3D. It also most include at least two diagrams showing the model structure by itself and the structure compared to the template(s). You need to demonstrate where the model differs from the template structure.

The molecular dynamics assignment will include setting up the files to run an MD simulation and analyzing the data. The data will come from simulations already run in my laboratory because we will not have enough time to run them ourselves.

The final exam will include everything cover since the mid-term.

It should be obvious that all answers on examinations must arise from independent, honest efforts. Nothing less is acceptable at Loyola. Thus, any student found cheating on any test will receive an automatic “0” for that examination and his (her) name will be brought to the attention of the Chair of the Department and the Dean of the College, who will decide if further disciplinary action is necessary.

Text: *Principles of Proteomics* by R. M. Twyman, 2nd Edition, 2014, Garland Science

You should read the appropriate chapter **before** class. Please realize that I will not have time to lecture on every topic but will emphasize what I consider to be the most important topics. Obviously, these more important topics will be emphasized on examinations but you are responsible for all of the text and lecture material.

Contact: Dr. Ken Olsen
Flanner 409
(50)8-3121
kolsen@luc.edu (e-mail is the best way to get in touch with me)

Office Hours: After class on MW evenings or by arrangement.

Web site: I plan to use the Sakai website (sakai.luc.edu) for all class notes and announcements. Please see the attached handout for instructions on how to use this site. It is essential that you access the site regularly to do well in this class.

Final Exam

The University sets the schedule for all final exams. The final will be held on:

7 pm on Monday, 4/29/19

in (LOCATION). You will have exactly 2 hours to complete the exam. Additional time will not be granted, even if you arrive late. There will be no make-up final exams given

under any circumstance, and the exam will not be given early, either. Instructors may not reschedule final exams for a class for another day and/or time during the final exam period. There can be no divergence from the posted schedule of dates for final exams. Individual students who have four (4) final examinations scheduled for the same date may request to have one of those exams rescheduled. If a student reports having four final examinations scheduled for the same date, students should be directed to e-mail a petition to Lester Manzano, Assistant Dean for Student Academic Affairs, CAS Dean's Office (lmanzan@luc.edu).

Course Repeat Rule

Effective with the Fall 2017 semester, students are allowed only THREE attempts to pass Chemistry courses with a C- or better grade. The three attempts include withdrawals (W). After the second attempt, the student must secure approval for a third attempt. Students must come to the Chemistry Department, fill out a permission to register form or print it from the Department of Chemistry & Biochemistry website: <http://www.luc.edu/chemistry/forms/> and personally meet and obtain a signature from either the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form is then taken to your Academic Advisor in Sullivan to secure final permission for the attempt.

Student Accommodations

If you have any special needs, please let me know in the first week of classes. The university provides services for students with disabilities. Any student who would like to use any of these university services should contact the Student Accessibility Center (SAC), Sullivan Center, (773) 508-3700. Further information is available at <http://www.luc.edu/sac/>.

Academic Integrity

All students in this course are expected to have read and to abide by the demanding standard of personal honesty, drafted by the College of Arts & Sciences, which can be viewed at: <http://www.luc.edu/cas/advising/academicintegritystatement/>

A basic mission of a university is to search for and to communicate the truth as it is honestly perceived. A genuine learning community cannot exist unless this demanding standard is a fundamental tenet of the intellectual life of the community. Students of Loyola University Chicago are expected to know, to respect, and to practice this standard of personal honesty. Academic dishonesty can take several forms, including, but not limited to cheating, plagiarism, copying another student's work, and submitting false documents.

Any instance of dishonesty (including those detailed on the website provided above or in this syllabus) will be reported to The Chair of The Department of Chemistry & Biochemistry who will decide what the next steps may be. In terms of the grade in this course, academic dishonesty will result in a zero grade for the assignment or test in question.

Loyola University Absence Policy for Students in Co-Curricular Activities (including ROTC):

Students missing classes while representing Loyola University Chicago in an official capacity (e.g. intercollegiate athletics, debate team, model government organization) shall be allowed by the faculty member of record to make up any assignments and to receive notes or other written information distributed in the missed classes. Students should discuss with faculty the potential consequences of missing lectures and the ways in which they can be remedied. Students must provide their instructors with proper documentation describing the reason for and date of the absence. This documentation must be signed by an appropriate faculty or staff member, and it must be provided as far in advance of the absence as possible. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to give the student the opportunity to take the examination at another time.

<https://www.luc.edu/athletheadvising/attendance.shtml>

Accommodations for Religious Reasons

If you have observances of religious holidays that will cause you to miss class or otherwise affect your performance in the class you must alert the instructor ***within 10 calendar days of the first class meeting of the semester*** to request special accommodations, which will be handled on a case by case basis.