



Introductory Biochemistry Laboratory

Chemistry 3710 • Dr. Harris
Summer 2021 Course Syllabus
1 credit

| Dates | | Experiment/Activity |
|-------|------------------|--|
| May | 11 th | Course Policies – Safety Review – Excel Introduction |
| May | 13 th | Amino Acid Titrations |
| May | 18 th | UV Absorption of Sun Screen Lotions |
| May | 20 th | Got Protein |
| May | 25 th | SDS-PAGE of Milk Protein |
| May | 27 th | Size Exclusion Chromatography |
| June | 1 st | Lactase Enzyme Kinetics |
| June | 3 rd | Kinetics Data Analysis |
| June | 8 th | PDB/Literature Data Bases Introduction |
| June | 10 th | Inhibiting the Flu |
| June | 15 th | Inhibiting the Flu Lab Report Submission and Score Check |
| June | 17 th | The Flu Fights Back – Make Up Experiment |

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Materials

Safety splash goggles, long-sleeve lab coat, full-length jeans with no holes, and closed-toe shoes are required in the laboratory. A flash drive is also required. The lab fee of \$75 is used to purchase equipment and supplies for the laboratory.

Prerequisites

Concurrent enrollment in Chemistry 3700. Prior general and organic chemistry experience is expected.

Grades

A score of 90% is guaranteed an A- and 95% or better is guaranteed an A. Final scores will be rounded to nearest one's place (94.4% = 94% and 94.5% = 95%).

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|---|-------------------|
| Signed Safety Documentation | 20 points |
| 8 Lab reports @ 20 pts for each report | 160 points |
| Instructor Evaluation (safety, cooperation, independence) | 20 points |
| Total | 200 points |

All lab reports are due at the beginning of the next laboratory section meeting time after completion of the experiment. Late reports will be assessed a 10% penalty per lab meeting that has passed since the date the report was due. The lab report for the make-up experiment (The Flu Fights Back) will be due at the conclusion of the lab period that it is performed. Students must review all lab course scores at the score check meeting time (June 15th). It is also recommended that students retain all scored course laboratory work. Dr. Harris will not declare a student's final lab course grade at the score check meeting.

Policies and Procedures

1. The administration of Chemistry 3710 will adhere strictly to the policies (including the issuing of incompletes) outlined in the USU 2020 – 2021 General Catalog.
2. Qualified students with disabilities may be eligible for reasonable accommodations. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, 797-2444 voice, 797-0740 TTY, or toll-free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.
3. Service Animals in the CHEM 3710 lab: Utah State University is committed to providing access for service dog handlers. Due to the unique nature of the laboratory environment service animal handlers must meet with the Disability Resource Center prior to bringing a service dog into the lab. The purpose of this meeting is not to prevent you from having your service animal with you but rather to understand how to best accommodate your needs and the needs of your animal. Please contact the Disability Resource Center at 435-797-2444 or drc@usu.edu to set up an appointment.
4. Attendance at all the assigned meetings is required. Experiments will not be rescheduled to a different lab section meeting time. A missed experiment which has an excused absence will be made up by appointment only with the last experiment (The Flu Fights Back) during the scheduled lab section meeting time the last week (June 17th) of the course. Excused absences include: (1) school excused absences outlined in the general catalog, (2) illness, and (3) a family emergency. Planned family trips, vacations, outings, and weddings are not excused absences. Students should notify Dr. Harris in advance, if possible, prior to missing an experiment. Students missing an experiment will have one week to notify Dr. Harris that they have a valid excuse. A missed experiment that is not made up will be scored as **zero**. Only one missed experiment can be made up.
5. Individuals not wearing safety goggles, full-length jeans with no holes, or closed-toed shoes (no sandals or pumps) will not be allowed in the laboratory, no exceptions.
6. The Banner/Access system will automatically drop a student from the CHEM 3710 lab course if the student drops the concurrently enrolled CHEM 3700 lecture course. Students that have completed all of the experiments up to the Size Exclusion Chromatography experiment may make a special request to Dr. Harris to remain registered for the CHEM 3710 lab course.

Course Objectives and Assessment

This course is designed to provide hands-on experience with techniques and concepts common to biochemistry research. This will be accomplished through a laboratory experience that will involve directed reading, observations of demonstrations, performance of experiments, data analysis, and completion of laboratory reports. This course is intended to be taken concurrently with chemistry 3700.

Learning objectives include:

1. Appreciation of laboratory safety
2. Use of photometry
3. Understanding of chromatography
4. Use of gel electrophoresis
5. Understanding of enzyme kinetics and protein structure

Exposure to these topics is appropriate for all pre-health and pre-vet professionals, along with majors in many other life science areas.

Assessment of the course will include direct student feedback while completing each experiment.