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BIOCHEMISTRY LAB (CH 360L)
COURSE OUTLINE
FALL SEMESTER 2001

Bülent Terem

Course Description and Objectives:
This is an upper level course aimed at students with extensive experience in experimental chemistry and biology. The experiments are chosen to improve experimental skills in ways not addressed in previous courses as well as providing a framework of concepts to emphasize topics studied in the lecture course. During the first few weeks of the semester the students are introduced into quantification techniques using spectrophotometric methods, which are further utilized in kinetic studies in subsequent experiments. In an introduction into peptide chemistry N-labeling and sequencing strategies are demonstrated, and individual amino acids are chromatographically identified. Further chromatographic techniques are used for protein identification and purification. Throughout the course the students are encouraged to look "beyond" the experiments carried out in the lab in an attempt to envision the clinical and/or forensic applications of the work, and question how these experiments could help in resolving further problems in biochemical research.

Grading:
Each student must provide a bound, hard cover laboratory note-book with numbered pages. Experiments should be written up in the note-book as well as in lab report form when instructed.

The lab grade will be based on the following criteria:

Lab quizzes	10%
Lab note-book	15%
Lab reports	18%
Lab exam	17%
Results	25%
Experimental competence	15%

No make-up labs will be given with the exception of extraordinary circumstances such as a verified medical excuse with written verification from an MD detailing student's inability to attend lab. Any student with more than one unexcused absence will not be able to pass the lab course.

LABSCHEDULE

Week	Dates	Experiment	Reading Assignment
1	8/28	Introduction	
	9/3	Labor Day Holiday	
3	9/10	Buffers and Spectroscopy: Quantification of -nitro henol	Hand-out
4	9/17	Enzyme Kinetics: Measurement of Catalase Activity	Hand-out
5	9/24	Titration of amino acids: pK_a Determination	Hand-out
6	10/1	Gl col sis	Hand-out
7	10/8	Discoverer's Day Holiday	
8	10/15	Terminal amino acid analysis of a dipeptide: DNFB labeling and hydrolysis	Hand-out
9	10/22	Terminal amino acid analysis of a dipeptide: Work-up of hydrolysis products and TLC identification	Hand-out
10	10/29	Lab Exam	Hand-out
11	1115	Solid Phase Extraction (SPE) Techniques	Hand-out
12	11/12	Isolation of trypsin from pancreatin and determination of enzyme activity: Standard activity curves	Hand-out
13	11/19	Isolation of trypsin... Column chromatography purification	Hand-out
14	11/26	Introduction to techniques in molecular biology	Hand-out
15	12/4	Conclusion	

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