

Dr. John B. Vincent
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Chemistry 463/563 **Biochemistry Laboratory** **Spring 2007**

Description: Three credit hours; one lecture and one six hour laboratory per week. This course carries the University's writing (W) designation. Therefore, writing proficiency is required for a passing grade in this course.

Lecture: W, 12:00-12:50 p.m., Room 251 Shelby.

Laboratory: W, 1:00-7:00 p.m., Room L231 Shelby.

Required Textbook: None. Handouts will be provided.

Course Objective: Biochemical techniques will be introduced within the structure of a semester-long research project examining the protein cytochrome c. Emphases will be placed on active learning and team learning.

Course Content: Cytochrome c

Isolation and purification techniques

- a) homogenization
- b) centrifugation
- c) precipitation
- d) chromatography

Characterization

- a) determination of purity
- b) estimation of molecular weight
- c) spectroscopic properties

Function

- a) enzyme assays
- b) redox properties
- c) DNA chemistry
 - i) plasmid preparation
 - ii) DNA cleavage reactions

Grading: Grades will be based on two laboratory reports (100 pts each), a midterm and final examination (100 pts each), and laboratory participation (100 pts). Graduate students (CH 563) will be expected to take a lead in experiments, particularly in occasional activities which fall outside the scheduled laboratory time.

Attendance: Attendance at all lectures and laboratories is mandatory.

Suggested Additional References:

Scott, R. A. and Mauk, A. G. *Cytochrome c: A Multidisciplinary Approach*. University Science Book: Mill Valley, CA, 1996.

Okunuki, K., Kamen, M. D., and Sekuzu, I. *Structure and Function of Cytochromes*. University of Tokyo Press: Tokyo, 1968.

Pettigrew, G. and Moore, G. R. *Cytochromes c: Evolutionary, Structural, and Physicochemical Aspects*. Springer-Verlag: Berlin, 1990.

Margoliash, E. and Schejter, A. "Cytochrome c." *Adv. Protein Chem.* **21**, 114-286, 1966.

Ninfa, A. J. and Ballou, D. P. *Fundamental Laboratory Approaches for Biochemistry and Biotechnology*. Fitzgerald Science: Bethesda, MD, 1998.

Academic Honor Code:

All acts of dishonesty in any work will constitute academic misconduct. The Academic Conduct Disciplinary Policy will be followed in the event of academic misconduct.

Stockroom Policy:

No transactions can be carried out at the stockroom unless you present a valid student activity card. The stockroom does not accept cash.

Disability Accommodations:

To request disability accommodations, please contact Disability Services (348-4285). After initial arrangements are made with that office, contact the instructor.