

**TUSKEGEE UNIVERSITY**  
**COLLEGE OF ENGINEERING**  
**CHEMICAL ENGINEERING DEPARTMENT**  
**Spring 2024**

**COURSE:** CENG 415 – Bioseparation Engineering  
**SCHEDULE:** MWF 8-9 AM; Room #328  
**INSTRUCTOR:** Shamim Ara Begum  
**OFFICE:** 522E Luther Foster Hall  
**TELEPHONE:** ext. 8795  
**FAX:** (334) 724-4188  
**E-MAIL:** sbegum@tuskegee.edu  
**OFFICE HOURS:** MW: 9:00 -12:00; 1:00 -2:00 and T: 10:00 -12:00  
**TEXT:** Bioseparations Science and Engineering by Roger G Harrison, Paul W. Todd, Scott R. Rudge, and Demetri P. Petrides, Second Edition, Oxford University Press, 2015.  
**REFERENCES:** Bioseparation, Downstream Processing for Biotechnology by P.A. Belter, E.L. Cussler, and W. Hu, John Wiley and Sons, 1988.

**CATALOG DESCRIPTION**

Recovery and purification of biologically produced proteins and chemicals. Basic principles and engineering design of various separation processes including chromatography, electrophoresis, extraction, crystallization, and membrane separation.

**COURSE OBJECTIVES:**

Students will:

1. Understand the basic information about bioproducts and engineering analysis
2. Develop an understanding of a broad range of analytical methods for bioproduct
3. Gain advanced knowledge of the basic principles of bioseparation processes
4. Design and scaleup of many unit operations involved in bioseparation
5. Demonstrate an ability to utilize a process flow diagram





Quizzes may or may not be announced.

No make-up exams or retests will be taken without a valid written excuse.

Cheating will not be tolerated. Any student caught cheating will get a zero for that homework, design report, quiz and exam.

Students are not allowed to talk with each other during lecture, quizzes, exams, and final exam.

Extraction (Ch. 6) (Session: 19 - 21)

Adsorption (Ch. 7) (Session: 22 - 27)

Precipitation (Ch. 8) (Session: 28 - 31)

**Exam 3\***

Crystallization (Ch. 9) (Session: 32 - 35)

Drying (Ch. 11) (Session: 36 - 38)

Process Flow Diagram (Ch. 12) (Session: 39 - 42)

**Final Exam: Date will be announced by the**