

TUSKEGEE UNIVERSITY
COLLEGE OF ENGINEERING
CHEMICAL ENGINEERING DEPARTMENT
Spring 2024

COURSE: CENG 415 ~~±~~Bioseparation Engineering
SCHEDULE: MWF 8-9 AM; Room #3~~2~~
INSTRUCTOR: Shamim Ara Begum
OFFICE: 522~~E~~ Luther Foster Hall
TELEPHONE: ext. 8795
FAX: (334) 7244188
E-MAIL: sbegum@tuskegee.edu
OFFICE HOURS: MW: 9:00-12:00; 1:00-2:00 and T: 10:00~~12:00~~
TEXT: ~~by~~ Roger G Harrison, Paul W. Todd, Scott R. Rudge, and Demetri P. Petrides, Second Edition, Oxford University Press, 2015.
REFERENCES: ~~and~~ 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 ~~biop~~ separation 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 makeup exams or retests will be given 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 quizzes, exams, and final exam.

- x Extraction (Ch. 6) (Session: 191)
- x Adsorption (Ch. 7) (Session: 227)
- x Precipitation (Ch. 8) (Session: 281)
Exam 3*
- x Crystallization (Ch. 9) (Session: 325)
- x Drying (Ch. 11) (Session: 3638)
- x Process Flow Diagram (Ch2) (Session: 3942)

Final Exam: Date will be announced by the university.

Note: *Tentative

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PROFICIENCY

Academic excellence is a tradition of the Tuskegee University College of Engineering, (COE). Students and faculty must collectively and proactively guard this tradition. The college hereby renews its commitment to the tradition by stating as follows:

1. Students are expected to develop ~~self~~ confidence through acquisition of ~~de~~ depth knowledge in all subjects through, as a minimum:
 - a. Studying to understand rather than studying to get by.
 - b. Challenging oneself to solve problems independent of textbooks or formulae sheets
 - c. Attempting diverse and multiple problems, multiple times, for depth and breadth of knowledge
2. Students are expected to be ~~sub~~ motivated through setting their own goals & schedules, spending time to study, and sharing their knowledge with peers.
 - a. Students should invest a minimum of two hours of ~~study~~ study per week for every credit hour taken.
 - b. Students should seek or establish environments that encourage positive social interaction and engages in active learning.
- 3.