



ChE 483: Bioseparation Engineering

Code and Name: ChE 483, Bioseparation Engineering

Credit Hours: 3 (Lecture: 3, Tutorial: 1)

Textbook:

- Principles of Bioseparations Engineering, Raja GHOSH, World Scientific Publishing, 2006

Other References:

- None

Course Description:

Understand the concept of flocculation, microfiltration, ultrafiltration and diafiltration, crystallization, electrophoresis, liquid/liquid, extraction, precipitation, dialysis/electrodialysis, reverse osmosis and drying. Develop the ability to design a complete equilibrium-staged separation process.

Pre-requisites: CHE 481, Biochemical Engineering

Co-requisites: None

Course Learning Outcomes:

With relation to ABET Student Outcomes (SOs: 1-7)

1. Recognize basic concepts of Bioseparation such as temperature, pressure, system, properties (1)
2. Understand the impact of the process on economic context and environmental (4)
3. Estimate the properties of substances using diagrams and obtain the data from property tables (1)
4. Analyze the performance of the process using energy and mass balances (1)
5. Evaluate the performance of engineering equipment. (7)

Topics to be covered:

- Introduction to Bioproducts and Bioseparations
- Properties of biological material
- Mass transfer
- Cell disruption
- Precipitation
- Centrifugation
- Extraction
- Adsorption
- Chromatography

Grading Policy:

The grading for the course are 60% coursework and 40% Final Exam. The course work consists of two Midterm Exams, where each midterm exam is worth 20%. It also includes quizzes, homework, and projects for the remaining 20% that is modified by the course instructor.

