

BE 4341: BIOLOGICAL REACTOR SYSTEMS DESIGN

**2012-13 Catalog
Description:**

Microbial and biochemical principles used in design of biological reactors for biotransformation; metabolic output and cellular production; design of batch and continuous flow reactors utilizing microbial kinetic models; attached and suspended growth systems and eukaryotic and prokaryotic cells.

Credit:

3 hr Credit. 2 hrs. lecture; 3 hrs. lab.

Prerequisites:

Purpose of the Course

This is a senior/graduate level course designed to help the students learn to integrate the principles of microbial growth kinetics with the design of biological reactor systems used in wastewater treatment, bioprocessing and biotechnology. The students will also gain relevant hands-on experience through laboratory experiments and project.

Course Objectives:

- 1.

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| 11/05/12 | Attached growth reactors. [<i>Project report and presentation format</i>]. | Work on Project. |
| 11/12/12 11/19/12 | Bioreactor applications. Advanced topics. | Work on Project. |

Course Policies:

Attendance Policy: Attendance is expected. Lateness beyond 5 minutes will be considered absent. Regular lateness will not be allowed, unless you ha

3. Wear lab coat or appropriate clothing in the lab (no sandals, no shorts).
4. Never mouth pipette.
5. Use boiling beads to avoid spill over when doing distillation.
6. All volatiles, explosives, strong acids or bases must be handled only in the fume hood. Wear gloves while handling these compounds.
7. Do not work alone in the lab.
8. Do not eat, drink, or smoke in the lab.
9. Keep working area clean.
10. No horseplay.

Other Helpful Information (No particular order)

- Use a 1" or 1.5" ring binder for keeping class material (front for lecture; back for lab handouts).
- Focus on coverage in class. All tests will be base

- Pay attention to what you learn in the lab. You are expected to do all the experiments independently without your group member's (or members') help. .
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