

BMED/AE/CHE/ME 4765 Drug Design, Development, and Delivery (Elective)

Catalog Description: BMED 4765 Drug Design, Development & Delivery (3-0-3)
Prerequisite(s): CHEM 3511 or CHEM 4511
Introduction to the pharmaceutical development process, including design of new drugs, synthesis and manufacturing issues, and methods for delivery into the body.

Textbook: None

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Topics Covered:

1. Introduction
2. Drug Design
3. Drug Development
4. Drug Delivery
5. Case Study 1: Testosterone patch
6. Case Study 2: Ocular Dorzolamide
7. Case Study 3: Leuprolide Implant

Course outcomes:

Students who complete this course will be able to:

Outcome 1: Appreciate critical issues, perform analysis, and make quantitative calculations related to drug design (Student Outcome e)

Outcome 2: Appreciate critical issues, perform analysis, and make quantitative calculations related to drug development (Student Outcome e)

Outcome 3: Appreciate critical issues, perform analysis, and make quantitative calculations related to drug delivery (Student Outcome e)

Outcome 4: Integrate concepts from drug design, development and delivery and appreciate their interdependence (Student Outcome j)

Outcome 5: Understand the different phases of the pharmaceutical process (Student Outcome j)

Outcome 6: Appreciate the role of alternative methods and broader implications of the pharmaceutical process (Student Outcome j)

Outcome 7: Communicate with professionals in the pharmaceutical community (Student Outcome g).

Correlation between course outcomes and student outcomes:

BMED 4765											
	Biomedical Engineering Student Outcomes										
Course outcomes	a	b	c	d	e	f	g	h	i	j	k
1					X						
2					X						
3					X						
4										X	
5										X	
6										X	
7							X				

The Wallace H. Coulter Department of Biomedical Engineering Student Outcomes:

- a. an ability to apply knowledge of mathematics, science, and engineering;
- b. an ability to design and conduct experiments, as well as to analyze and interpret data;
- c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, societal, political, ethical, health and safety, manufacturability, and sustainability;
- d. an ability to function on multidisciplinary teams;
- e. an ability to identify, formulate, and solve engineering problems;
- f. an understanding of professional and ethical responsibility;
- g. an ability to communicate effectively;
- h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
- i. a recognition of the need for, and an ability to engage in lifelong learning;
- j. a knowledge of contemporary issues;
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;