

Spring 2020

CHEM 777-102: Principles of Pharmaceutical Chemistry

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Onyewuenyi, Nonyerem, "CHEM 777-102: Principles of Pharmaceutical Chemistry" (2020). *Chemistry and Environmental Science Syllabi*. 221.

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Chemistry and Environmental Science Syllabi

CHEM777

Principles of Pharmaceutical Chemistry

Spring 2020 Course

Time: 6 – 8:50 pm

Place: Rm 113, Tiernan Hall

Number of Credits: 3

Instructor: Dr. Nonye Onyewuenyi, Email: TBD

Phone: 650-575-9295.

COURSE INFORMATION

Course Description: Principles of Pharmaceutical Chemistry, CHEM 777 is a core course designed to acquaint students to fundamentals of pharmaceutical Chemistry including many important biochemical reactions, bio molecular structures, binding and molecular interactions, and drug targets such as, proteins, nucleic acids and enzymes. In addition, the topics would highlight pharmacokinetics, drug absorption and distributions, designing drugs based on their chemical structures and quantitative structure activity relationships. In addition, there would be discussions on common drugs and their functions.

Prerequisites: Students must have an in-depth understanding of general, organic and biochemistry.

Text Book:

1. *An Introduction to Medicinal Chemistry*, 5th Edition, Graham L. Patrick, Oxford.

Office hour: by appointment.

Prerequisites: Undergraduate organic chemistry. Undergraduate biochemistry.

NJIT Academic Integrity Code: All students should be aware that the Department of Chemistry & Environmental Science (CES) takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

Grading Policy: The final grade in this course will be determined as follows:

Exam 1	100 points
Exam 2	100 points
Project report on an assigned topic	50 points

Your final letter grade in this course will be based on the following tentative curve:

A	90 % and above	C	50 to 59 %
B+	80 to 89 %	F	Below 50 %
B	70 to 79 %		
C+	60 to 69 %		

Attendance policy: Attendance at classes will be recorded and is **mandatory**. Each class is a learning experience that cannot be replicated through simply “getting the notes.”

Exams: There will be two exams during the semester and students have to write a paper on an assigned topic. The following exam periods are tentative, subject to change:

NEW JERSEY INSTITUTE OF TECHNOLOGY (NJIT)

Exam 1	March, 2020 (*TBC)
Exam 2	April, 2020 (TBC)
Assigned topic	May, 2020 (TBC)

***TBC – To be confirmed.**

Make-up Exam Policy: There will normally be **NO MAKE-UP EXAMS** during the semester. In the event that a student has a legitimate reason for missing a quiz or exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the CES Department Office/Instructor that the exam will be missed so that appropriate steps can be taken to make up the grade.

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class-times. Such devices must be stowed in bags during exams or quizzes.

Topics to be covered (*This plan, may be subject to change*)

Lecture	Topic	Assignment
1	Primer: Overview of Drug Journey from Concept to Consumption <ul style="list-style-type: none"> • Identify the complexity of Drug Development – When do you fit in or can you fit? • Journey of A Drug to the Medicine Cabinet • Overall Flow Process – Drug Development Continuum • Case Study 	
2	An Overview: Drugs, Activity, Potency and Side Effects	
	Protein Structures and Functions, Binding	
3	Enzyme Structures, Substrate Binding and Kinetics	
4	Nucleic Acids: Structures and Functions of DNA and RNA	
5	Receptors: Types, Activation, Signal Transduction	
6	Drug Targets: Enzyme, Isozymes, Inhibitors, Medicinal Uses	
7	Drug Targets: Receptors, Design, Tolerance, Efficacy	
8	Drug Targets: Nucleic Acids, Alkylating Agents	
9	Exam 1	
10	Other Drug Targets: Proteins, Lipids, Carbohydrates	
11	Drug Actions: Absorption, Distributions, Metabolism	
12	Drug Discovery/Design: Finding a Lead, Screening, Bioassay	
13	Quantitative Structure Activity Relationship	
14	Antibacterial, Antiviral & Anticancer Agents: Course Review	
15	Discussions of projects	
16	Exam 2 and Submission of Reports on Assigned Topic	