

MEDICINAL CHEMISTRY II

(30:715:410)

SPRING 2021

Monday, Wednesday, Friday, 11:10 AM - 12:05 PM ONLINE

Course Description: The mission of the Medicinal Chemistry courses is to help students gain a comprehensive understanding of the fundamental concepts related to the actions and clinical uses of major classes of drugs from their chemical structures. The major topics and classes of drugs covered in Medicinal Chemistry II include 1) antibacterial, antifungal and antiviral agents & antiprotozoals and antihelminthics, 2) Antineoplastic agents, steroids and blood glucose regulators, 3) Local anesthetics, analgesics and NSAIDS, and 4) CNS depressants. In this class, students are expected to relate the physico-chemical properties, pharmacological activities, mechanisms of action, ADME (adsorption, distribution, metabolism, and excretion), and pharmacokinetic properties of drugs to their chemical structures.

Course Objectives: Students completing the Medicinal Chemistry I course will be expected to demonstrate the following abilities-based outcomes (ABOs)

1. Develop and demonstrate depth and breadth of knowledge in biomedical, pharmaceutical, social/administrative/behavioral, and clinical sciences. (1.1.1)
2. Integrate knowledge from foundational sciences to explain how specific drugs or drug classes work and evaluate their potential value in individuals and populations. (1.1.2)
3. Apply knowledge in foundational sciences to solve therapeutic problems. (1.1.3)
4. Critically analyze scientific literature related to drugs and disease to enhance clinical decision making. (1.1.4)
5. Identify and critically analyze emerging theories, information, and technologies that may impact patient-centered and population based care. (1.1.5)

Course Instructors: Edmond LaVoie, Ph.D. (Coordinator)
Professor of Medicinal Chemistry

Longqin Hu, Ph.D.
Professor of Medicinal Chemistry

Samuel Chackalamannil, Ph.D.
Adjunct Professor, Medicinal Chemistry

Required Textbooks:

- *Foye's Principles of Medicinal Chemistry, Eighth Edition*, By Victoria F. Roche, S. William Zito, Thomas L. Lemke, Lippincott Williams & Wilkins, 2020
- *Organic Chemistry Concepts and Applications for Medicinal Chemistry*, By Joseph E. Rice, Academic Press, 2014

Optional Resource: ChemDraw Ultra 17.0

(<http://sitelicense.cambridgesoft.com/sitelicense.cfm?sid=113>)

Course Home Page: <https://pharmacy.rutgers.edu/med-chem-medicinal-chemistry-ii/>

and Canvas Medicinal Chemistry II homepage

Examinations: Four mandatory exams and weekly quizzes.

Grading: Numerical grades are calculated as: grade = [0.9 (exam average) + 0.1 (quiz average)].
Grades: A, 100-90; B+, 89-85; B, 84-80; C+, 79-75; C, 74-70; D, 69-60; F, <60.

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Tentative Course Outline

PART A: (January 20th – February 12th)

Dr. LaVoie

Rm 326 Office Hours: By Appointment; email: elavoie@pharmacy.rutgers.edu

Reading: Class Notes; Rice, Chapter 6; Foye – Chapters 29, 30, 31, and 32

- *Antibacterial Agents*
- *Antituberculosis Agents, Misc. Antibiotics*
- *Antifungal Agents*
- *Antiviral Agents*

EXAM #1 – Tuesday, February 16, 2021, 5:30pm – 7:00pm, ONLINE

PART B: (February 15th – March 10th)

Dr. Chackalamannil

Office Hours: By Appointment; email: samuel.chackalamannil@rutgers.edu

Reading: Class Notes; Rice, Chapters 6 and 7; Foye – Chapters 20, 21, 22, 23, 24, 33 and 34

- *Antineoplastic Agents*
- *Steroids*
- *Blood Glucose Regulators*

EXAM # 2 - Friday, March 12, 2021, 10:30am – 12:00pm, ONLINE

PART C: (March 22nd – April 9th)

Dr. Chackalamannil

Reading: Class Notes; Rice, Chapters 6 and 7; Foye – Chapters 14 and 15

- *Local Anesthetics*
- *Central Analgesics*
- *NSAIDS*

EXAM # 3 - Tuesday, April 13, 2021, 5:30pm – 7:00pm, ONLINE

PART D: (April 12th – May 3rd)

Dr. Hu

Rm 314 Office Hours: By Appointment; email: longhu@pharmacy.rutgers.edu

Reading: Class Notes; Rice, Chapters 6 and 7; Foye – Chapters 10, 11, 12, and 13

- *Central Nervous System Depressants*

EXAM # 4 – TBD (during finals week)

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Course Policies

Grading:

In addition to the examinations, there will be weekly quizzes via Respondus Monitor & Lockdown Browser on canvas per the course schedule throughout the semester, worth up to 10% of your semester grade. Quizzes will be based on concepts discussed in lectures as well as on the reading assignments from the handouts posted on Canvas and the textbook. **Make up quizzes are not given.** Students are expected to be logged into real-time lectures as well as quizzes and exams at the scheduled times. Grades in medicinal chemistry are based solely on the numerical average of your tests and quizzes and are not curved.

Numerical grades are calculated as: $\text{grade} = [0.9 (\text{exam average}) + 0.1 (\text{quiz average})]$.

Grades: A, 100-90; B+, 89-85; B, 84-80; C+, 79-75; C, 74-70; D, 69-60; F, <60.

Absence From Class:

Students are expected to log into all lectures; if you expect to miss one or two lectures, please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to the faculty coordinator.

Technology Requirements for Spring 2021

- A reliable desktop/laptop with a webcam, microphone, keyboard, mouse
- High speed internet connection
- Canvas with Lockdown Browser installed

Additional Remote Learning Instructions

- Lectures will be given in real-time using WebEx with link provided ahead of time for each lecture or available as MP4 videos posted on Canvas.
- The WebEx sessions will be recorded, and the recordings will be posted on Canvas as soon as WebEx makes them available usually on the same day or the day after.
- Students are responsible for all lecture material posted. Resource materials may be posted prior to each lecture.
- Students can use “Discussions” in Canvas to post questions under the respective lecture topic. Instructors and TAs will respond as quickly as possible to all questions.
- Online Recitation Sessions will be scheduled, and invitations will be extended. Any student who does not receive an invitation but would like to participate may send an email request to Elissa Glinn (elissa.glinn@rutgers.edu). Recitation sessions will be held in “Conferences” via Canvas. Once your name is on the recitation list, you may participate in any of the “live” recitation sessions and recitation materials will be available to all students to download via the Canvas module.

Exams and Quizzes using Respondus Monitor and Lockdown Browser

- Students must complete all quizzes and exams during the specified times using Respondus Monitor and Lockdown Browser on Canvas which will act as a remote proctor to continuously verify the identity of online test-takers to ensure the integrity of the course and the success of the students.
- Weekly timed quizzes (10 questions, 10 points total, 15 minutes) will be given between 10:30 am and 11:00am on Fridays with the exception of exam weeks according to the schedule posted on Canvas.
- Before each quiz or exam, students must have their student ID ready to complete an identity verification scan as well as a thorough room scan of their intended workspace. **A complete and thorough room scan MUST include the student's entire workspace (the area where the student will be working, the area immediately in front of the student as well as above, below and to the left and right of the view of the student).** Any student failing to provide a thorough and complete room scan may lose points or possibly have their quiz or exam nullified. Textbooks, notes, handouts, scrap paper, writing utensils, multiple monitors, calculators, PDAs, cell phones, pagers, portable radios, etc. may NOT be used during quizzes or exams!
- Students who fail to abide by the guidelines posted will result in your session being flagged and once evaluated, points (5-100) may be deducted or if cheating is observed, a grade of "F" will be given for the exam or quiz in question and the incident will be reported to the school. Respondus Monitor will provide that evidence if cheating occurs.
- Once you have clicked on the quiz through Quizzes in Canvas, you will be prompted that Lockdown Browser will begin and you will be asked to complete the verification and room scan process. After this, you will be taken to the quiz to begin and your time will start at question #1.
- Once in the quiz or exam, after you hit the next button on a question, you may not go back to a previous question so please be sure to carefully consider the question and your answer before moving forward. The time remaining will be displayed on the screen and once the allotted time has expired or the portal closes, your quiz or exam will be submitted as complete.
- When it is announced in Canvas that your quizzes/exams may be viewed, you will have 5 calendar days from the date of posting to submit any issues. You must send a detailed email to Elissa Glinn (elissa.glinn@rutgers.edu). **No regrading of any exam for any reason will be done after 5 days.**

Remediation Policy:

Course faculty is committed to academic success for all students and use a system to identify students with academic deficiency early in the semester and encourage them to attend weekly recitation sessions and utilize our Students-Assisting-Students (SAS) program throughout the semester. After a student receives an F as the final grade for this course, the sole remediation option is to repeat the course when next offered, subject to approval of the School's Scholastic Standing Committee.

Academic Misconduct:

Rutgers University's policy on academic integrity will be strictly followed. If a student is found to be cheating during an exam or quiz, a grade of "F" will be given for the exam or quiz in question and the incident will be reported to the school.

The consequences of scholastic dishonesty are very serious. Please review the Rutgers' academic integrity policy at <http://academicintegrity.rutgers.edu/academic-integrity-policy/>.