Undergraduate Syllabus, Fall 2023
PHRM 5400, Molecules & Medicine – Principles of Drug Design, 3 credits

Meeting Time and Location
Tuesdays and Thursdays 11:40 am – 12:55 pm, Stafford Hall 101

Course Directors

- Dr. Wolfgang Dostmann, Professor of Pharmacology, Given B303B, wdostman@uvm.edu
- Dr. Karen C. Glass, Associate Professor of Pharmacology, Firestone 362, karen.glass@med.uvm.edu

Office Hours
By appointment

Prerequisites
Organic Chemistry and Background in Biology or Biochemistry or Permission

Course Description
This 3-credit course conveys the molecular mechanisms by which drugs act in the body and the principles drug design. It highlights the importance of medicinal chemistry as it overlaps with the disciplines of chemistry, biochemistry, microbiology, cell biology, and pharmacology.

Most lectures are split into two parts. Part 1 lasts 40-45 minutes and loosely follows the flow of the textbook. Following a questions/answers break, Part 2 will be more relaxing, and we will take a trip back in time and review an example of the "*Most important drugs in history".* These are world changing, famous compounds that have had a significant impact on civilization.

Format
All lectures will be in-person in Stafford 101. All lecture materials (PowerPoint files, handouts, etc.) will be made available through Brightspace.

Required Textbook
An Introduction to Medicinal Chemistry (7th Ed), Graham L. Patrick, Oxford Press, 2023, or 6th edition, 2017. **This textbook is required for the class**. The course is tightly structured along this awesome book, which is not just a great read but also a valuable resource. You will be asked to prepare by reading certain chapter(s) before each lecture.

Required Platforms and Software
Brightspace, www.brightspace.uvm.edu
iClickers, https://www.uvm.edu/it/kb/article/iclicker-cloud/

- Starting this Fall 2023 Brightspace has replaced Blackboard as the UVM LIMS. For Brightspace information students can access the following UVM Knowledge Base article:
  https://www.uvm.edu/it/kb/article/brightspace-for-students/

Handouts
Handouts will be posted before each lecture. The handouts are detailed and usually contain learning objectives, when appropriate background information not in your textbook, web links and, chemical structures to memorize. Most importantly, the handouts contain lots and lots of study questions including detailed answers to the study questions. Working with the study questions will provide an accessible and straight forward metric to master this course with ease.

Discussion board
Undergraduate students are encouraged to post and respond to 'muddiest point' questions on ***concepts*** that were unclear from the lecture sessions to the Brightspace discussion boards for each exam. Students have the ability to make anonymous posts.

Exam Format (100% of grade)
Throughout the course all students will be required to complete **4 exams**. Exams will be held in person, Stafford Hall 101 using paper copies. All exams are essentially cumulative.
All exam questions will be multiple choice, increasing in difficultly from simple recall to applying critical thinking skills. The topics will strictly follow the format from the study questions.

Extra Credit
Undergraduate Students
Undergraduate students who wish to obtain extra credit can do so by submitting up to **two papers** on a subject **approved by the course directors**. Each paper is approximately worth an **additional 5-7%** of any of your exams (equivalent of a full letter grade bump).

Extra Credit Format
- Undergraduate and graduate students who wish to obtain extra credit can do so by submitting up to two papers on a drug approved by me (submit your choice by email).
- Students will be graded 1-10 points on the thoroughness and quality of their paper.
- Points will be added to the lowest scored exam (a paper scoring 10 points would be worth the equivalent of a full letter grade bump up).
- If possible, the paper(s) should include the drug's discovery, structure, chemical properties, synthesis, SAR, biological effects, and historical significance.
- Here are the specifics: 6-8 pages, 1-inch margins, 1.5 space, 11 font.
- Figures do not count towards the page limit.
- References at the end; they are not counted towards the page limitation.
- Figures are welcome.
- The structure of the drug is required.
- Papers are due at midnight at the day of the final exam.

- For every day past the due date, a point will be subtracted.
- Submit your paper as pdf to wdostman@uvm.edu.