

Welcome to Chem 7420
Medicinal Chemistry & Drug Discovery I
Spring 2024
Jan – Mar

Class Information: Class will be in person. Slides used will be posted on Canvas after class; lectures will not be recorded.

Instructor: Dr. Donna Huryn, Department of Chemistry; huryn@sas.upenn.edu.

Class Meeting Times: Tu, Th 8:30-9:59; 1/18-2/29; Attendance is expected.

Office hours: Monday 2:00 pm or by appointment (e-mail Professor Huryn to set up a time).

Resources:

- Canvas Web-site: powerpoint slides, announcements, information on research/ presentation assignment
- Textbook: *Medicinal Chemistry*, Dunlap & Huryn (CRC Press/ Taylor & Francis); also available in the Chem Library. Readings from the textbook will be assigned; some problems from the text book will also be assigned. Material covered will focus on Chapters 1-5, with various sections of Chapters 6-13 also included.

Assessments:

- Research Project & Presentation 40%
 - Scheduled during the last ~2 weeks of class
- Exam: 40%
- Homework/ Engagement: 20%
 - Weekly homework assignments
 - Attendance at lectures is strongly encouraged and will be considered part of grade.

Grading:

90-100: A-, A, A+
80-89: B-, B, B+
70-79: C-, C, C+
65-69: D
<65: F

	Lecture Topics (schedule subject to change)
Jan 23	Course Introduction and Goals Drug Discovery & Development Overview – Historically & Today
Jan 25	Target Identification Target Validation - Chemical Genomics
Jan 30, Feb 1	Sources of Hits/ Leads <ul style="list-style-type: none"> - Hit Identification – Types of Screening - Assays - Compounds - Hit Triage
Feb 6	Molecular Interactions Between Drugs and Their Targets Thermodynamics Pharmacophores; Structure-Activity Relationships
Feb 8	Hit and Lead Optimization – <ul style="list-style-type: none"> - Structure Activity Relationships
Feb 8, Feb 13	Adsorption, Distribution, Metabolism, Excretion, Toxicity <ul style="list-style-type: none"> - Properties that influence ADMET - Physico-chemical Characteristics of Drugs
Feb 13, 15	Metabolism <ul style="list-style-type: none"> - Medicinal chemistry to address metabolism
Feb 20	Pro-drugs and Drug Targeting
Feb 20	Lead Optimization <ul style="list-style-type: none"> - Medicinal Chemistry Strategies

Feb 22-27	Presentations

Physical Safety. Access to the Chemistry 1973 Building is controlled by a security guard and a PennID scanner. As a member of the Penn community, you have access to both the [Penn Walking Escort Service](#) (call 215-898-9255, dial 511 from a campus phone, or use a blue-light ephone on campus) and the [Penn Evening Shuttle](#) (call 215-898-7433 or use the [PennRides on Request](#) app). Additional information on Penn safety initiatives can be found [here](#).

Academic Integrity: It is our expectation that you are arriving to this class as a kind, hardworking, respectful and honest person. If you have questions or concerns about academic integrity, the Penn Code of Academic Integrity can be found [here](#).

Mental Health Resources: The Chemistry Department is here to support you! Here at Penn Chemistry, we care about the holistic well-being of our students. It is all too often that, while focusing on academics, students forget to attend to both their physical and mental health, resulting in anxiety, depression, and a multitude of detrimental issues. For guidance for resources, chemistry graduate students please feel free to reach out to the Chemistry Graduate Chair, Professor James Petersson (ejamesp@upenn.edu) or Ms. Kristen Simon, MCS students Graduate Coordinator (chemgrad@sas.upenn.edu); MCS students should contact MCS Associate Director Dr. Tina Ross (tmross@sas.upenn.edu) or MCS Coordinator Ry Eskridge (reskridg@sas.upenn.edu). Undergraduates or graduate students from other departments should seek guidance from their advisor or department coordinator. If you, or anybody you know, is in need of mental health care, please refer to the following campus resources: (1) Counseling and Psychological Services, [CAPS](#) 215-898-7021 (off hours and weekends 215-349-5490); (2) Department of Public Safety 215-898-7333, or 511 if imminent danger to themselves or others; (3) Finding Programs for Student Wellness through the [VPUL](#); and (4) [Student Health Services](#).

Inclusion and Diversity: At Penn Chemistry, we value all students regardless of their background, country of origin, race, religion, ethnicity, disability status, etc. and are committed to providing a climate of inclusiveness within all aspects of your experience in the Department. If there are elements of your culture or identity that you would like to share with me as they relate to your success in this class, I am happy to meet to discuss. Likewise, if you have any concerns in this area or are facing any special issues or challenges, you are encouraged to discuss the matter with me (set up a meeting by email) with an assurance of full confidentiality (only exceptions being mandatory reporting of academic integrity/code violations and sexual harassment), or with the Chemistry Undergraduate Office or the Undergraduate Biochemistry Program Office (see above).

Formal and Informal Accommodations: The Chemistry Department at Penn is committed to assisting students requiring special accommodations for circumstances that are registered with the Office of Student Disability Services (SDS; <https://www.vpul.upenn.edu/lrc/sds/>). The University of Pennsylvania provides reasonable accommodations to students with disabilities who have self-identified and been approved by the Office of [Student Disabilities Services](#) (SDS). If you have not yet contacted SDS and would like to request accommodations or have questions, you can make an appointment by calling SDS at 215-573-9235. The office is located in the [Weingarten Learning Resources Center](#) at Stouffer Commons 3702 Spruce Street, Suite 300. All services are confidential. If you are not formally registered with SDS and have anxiety, depression, learning disabilities or other issues that affect your ability to fully participate and learn in this class, you are encouraged to check-in with me or with the Chemistry Undergraduate Office or the Undergraduate Biochemistry Program Office (see above) so that we can help you to secure the resources to promote your success.