

# Spring 2021 Syllabus, CHEM 363

## Introduction to Drug Discovery and Pharmacokinetics

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**Important Note:** This syllabus, along with course assignments and due dates, are subject to change. It is the student's responsibility to check Canvas for corrections or updates to the syllabus. Any changes will be clearly noted in a course announcement or through email.

**Instructor:** Dr. Amanda Jonsson

**Office:** CBB 400 (Note: I will rarely be on campus other than for labs)

**Virtual Office Hours:** Zoom links will be provided in Canvas.

Monday 9 – 10 a.m., Wednesday 2 – 3 p.m., Thursday 1 – 2 p.m.

**E-mail:** [ajonsson@uwsp.edu](mailto:ajonsson@uwsp.edu)

**\*\*\*The best way to contact me is by email\*\*\***

### Instructor Schedule

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:00		Chem 365 *online*	Chem 365 Lab 01L1 CBB 336	Chem 365 *online*	Chem 365 *online*
9:00	<b>Office Hour</b> *online*	Prep			
10:00					
11:00		Chem 365 Lab 01L2 CBB 336	Prep		
12:00					
1:00					<b>Office Hour</b> *online*
2:00		Prep	<b>Office Hour</b> *online*	Chem 101 Lab 01L3 *online*	Meetings
3:00					
4:00	Chem 363 3:30 – 4:45 *online*				

**\*Email me to set up a time outside of office hours to meet!**

**Course Description:** Overview of the drug discovery process and introduction to concepts in pharmacokinetics such as drug absorption, distribution, and metabolism as well as methods for structural determination of drug targets. Introduction to basic concepts in biochemistry while applying concepts from thermodynamics, kinetics, organic chemistry, and molecular modeling (3 credits).

*Prerequisites:* CHEM 220 or CHEM 326, or instructor consent

### Expected Instructor Response Times

- I will attempt to respond to student emails within 1 business day. I cannot guarantee email response on the weekend or on holidays.

- I will attempt to grade written work within 72 hours, however longer assignments or exams may take longer.

## **Textbook & Course Materials**

**Lecture Text:** Medicinal Chemistry: The Modern Drug Discovery Process by Stevens, Pearson, 2014. This book is available for rental at the University Bookstore. Textbooks can be picked up in person or shipped to your home if you will be not be on campus. Please see the [University Store and Text Rental webpage](#) for more information.

### **Scientific Calculator**

**Computer/Tablet (including a webcam and microphone) and Internet Connection:** Consistent access to the internet to view lecture materials and participate in online class sessions is necessary to succeed in this class. The university has resources to help students, for example: [COVID Student FAQ](#) and [UWSP Online Student Support](#). Please let me know if you face challenges connecting to class resources and meetings. We will be using a OneNote Class Notebook in this course. OneNote is part of Office 365 and free for all UWSP students. Find more information at [UWSP IT](#), including how to download Office 365 desktop and/or mobile apps (including OneNote).

## **Course Learning Outcomes**

By the end of this course students should be able to:

- Describe the steps and timeline for modern drug discovery including bringing the drug to market.
- Describe how drugs: enter the body, are distributed via the blood to other tissues, reach their target, and are eliminated from the body.
- Compare and contrast the study of enzymes, receptors, and oligonucleotides as drug targets.
- Use principles of kinetics to mathematically describe the pharmacokinetics of different administration routes such as oral, intravenous infusion, and intravenous bolus.
- Explain the process by which the body metabolizes pharmaceutical compounds.
- Explain how X-ray crystallography, NMR, and molecular modeling are used to determine the structure of drug targets.
- Explain how an understanding of target structure assists in the drug discovery process.

## **Course Structure**

We will be using Canvas, a OneNote Class Notebook, and Zoom in this class. I will not be using class time for lecture. Instead, I will assign videos and/or readings for you to complete before attending a lecture session.

- Canvas will be updated each week with a list of required readings and videos. Canvas will also have all information related to course grades.
- **Mondays and Wednesdays:** we will meet at our designated lecture time (3:30 – 4:45 p.m.) on Zoom (link in Canvas). These class sessions will consist of group work and discussions to fully understand the material.

## **Attendance**

Attendance at all Zoom lecture sessions is expected. All required Zoom lecture sessions will be recorded and available on Canvas. Not attending or participating in classes will make this course much harder than it needs to be.

## **Academic Responsibility & Integrity**

I encourage students to work and study in groups. However, any work submitted for a grade must reflect your own work and understanding of the material. Academic dishonesty will be dealt with following the rules on academic misconduct in the current [UWSP student handbook](#) (UWSP Chapter 14) and, at a minimum, a score of 0 on the assignment. Egregious and/or repeated problems will result in an F in the course. Each student is expected to act with honesty and integrity, and must respect the rights of others to learn in a safe, respectful and inviting environment. *Please do not hesitate to contact me if you have any questions or concerns.*

## **Equal Access for Students with Disabilities**

UWSP will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities. The modifications should not affect the substance of educational programs or compromise academic standards; nor should they intrude upon academic freedom. Examinations or other procedures used for evaluating students' academic achievements may be adapted. The results of such evaluation must demonstrate the student's achievement in the academic activity, rather than describe his/her disability.

*If modifications are required due to a disability, please inform the instructor and contact the [Disability and Assistive Technology Center](#) to complete an Accommodations Request form.*

## **Grade Policy**

Your grade in this class will consist of the following components. **These categories/percentages may change!** Any changes to this scheme will be announced in class, through email, and/or on Canvas.

**In-Class Activities (10%):** These are activities you will complete during class Zoom sessions where you will have time to discuss the questions with your classmates before submitting answers. These activities will be designed to help you understand the lecture materials (videos, readings, etc.).

**Homework (20%):** These are assignments that will be completed outside of class and will assess your understanding of relevant lecture material. They may include looking up information on different drugs or drug targets, or end of chapter problems from the textbook.

**Case Studies (20%):** You will have a chance to discuss case studies in lecture with the class before submitting your work. Typically, in a week where a case study is due, there will not be a separate homework assignment.

**Projects and Presentations (50%):** Projects and presentations will take the place of exams as formal assessments in the class. These assignments may be completed in groups but may also include an individual portion. There will be at least one presentation that groups will upload to Canvas midway through the semester.

Due dates will be announced in class, through email, and/or on Canvas. Unexcused late material will result in a grade penalty or a 0 for that assignment. If you need extra time on an assignment, please ask for an extension.

Letter grades will be assigned according to this scale:

Percent	Grade	Percent	Grade
≥ 93 %	A	73 – 76 %	C
90 – 92 %	A-	70 – 72 %	C-
87 – 89 %	B+	67 – 69 %	D+
83 – 86 %	B	63 – 66 %	D
80 – 82 %	B-	< 63 %	F
77 – 79 %	C+		

I reserve the right to alter this scale depending on the overall performance of the class. Under no circumstances will you require a higher percentage to achieve a letter grade than what is listed in the above table. Questions regarding grades on any assignment should be addressed as soon as possible after the return of graded material to you.

## **Important Dates**

February 3<sup>rd</sup>      Last day to drop without a W grade reported  
April 23<sup>rd</sup>      Last day to drop a 16-week course

## **Tips for Success**

- Engage with provided lecture material
  - Complete assigned readings, watch videos, etc. **BEFORE** the designated lecture.
- Attend all classes
  - There is no substitute for being present and engaged in class!
- Participate in class discussions
- Attend office hours when you have questions or are confused by a topic
- Complete projects and assignments on time
  - I will try to be as flexible as I can when granting extensions. But putting work off can easily lead to being overwhelmed with the amount of a material you need to complete (for this class and others).
- **Communication is key**
  - If you are unsure about what an assignment or project is asking you to do, email me or ask in office hours.
  - If you need an extension or are feeling overwhelmed, email me or ask for help in office hours.
  - If you can't attend office hours one week but still have questions or concerns, email me and we will find a time that works for both of us to meet.
  - If your situation suddenly changes and you face new challenges in completing course work, email me and we can discuss options.
  - ***I can't help if I don't know there is an issue!***