

## PPY-5410-01: Molecular Pharmacology Spring 2021

**Course Director:** Dr. John Walker

**Office Location:** Schwitalla Hall, M132

**Office Hours:** Via Zoom (times TBD based upon individual instructor)

**Instructors:** Dr. John Walker ([john.k.walker@health.slu.edu](mailto:john.k.walker@health.slu.edu))  
Dr. Joe Baldassare ([joseph.baldassare@health.slu.edu](mailto:joseph.baldassare@health.slu.edu))  
Dr. John Chrivia ([john.chrivia@health.slu.edu](mailto:john.chrivia@health.slu.edu))  
Dr. Ian de Vera ([ian.devera@health.slu.edu](mailto:ian.devera@health.slu.edu))

*The instructor(s) reserves the right to modify the syllabus as needed. Any changes will be communicated via email and posted to Blackboard.*

**Prerequisites:** Graduate Status in Chemical Biology or related discipline.

**Restrictions:** Graduate Status

**Class Time and Location:** Class will meet on M, W, F from 9 – 9:50 am in Busch Student Center, room 365. Class will also be offered synchronously via zoom. **Facemasks are required at all times in class** (See full policy at the end of this document)

**Mode of Delivery:** This course is considered a hybrid/flex mode for the Spring of 2021. This means that you can attend the lecture on-campus or you can participate electronically in a synchronous fashion (via Zoom). All lectures will be recorded and uploaded to the Blackboard site so if you cannot make it to class (either on-campus or on Zoom) you will be able to access the lecture at a later date. We are doing this to make sure you can attend class (in-person or electronically) no matter your circumstances. ***Please do not come to the on-campus course if you have any COVID symptoms (rather you should attend synchronously via Zoom if you are well enough to do so).***

**Zoom Meeting Link for CLASS** ZZZZZ

**Zoom Meeting Link for OFFICE HOURS** ZZZZZ

Office hour sessions are TBD. This Zoom meeting will be kept open during each office hour session—no appointment needed—first come, first serve. You will be in a virtual waiting room until I let you in so I can meet with each student individually or as a group as needed.

**Attendance and Participation:** Students are expected to make every effort to attend class EITHER in person OR synchronously via Zoom. You will be subjectively awarded a score of 0–40 points primarily based on your attendance but also on your participation in class discussions throughout the semester, including asking questions during your classmates' presentations and providing constructive feedback.

If you attend online via Zoom, please use your video camera and mute your microphone. You may speak up at any time to ask a question as it may be difficult for me to monitor the chat/raise hand while speaking to the class simultaneously.

If you must miss class, please contact your instructor by e-mail to inform him of your absence. Notification should be provided at least one hour before class, if possible. More than one unexcused absence will result in loss of participation points.

Students who are unable to physically attend class but are well enough to participate remotely are expected to do so. If you are a student registered to take the class in-person but need to

## **Tentative Schedule**

participate in class remotely, notify the instructor by e-mail at least one hour before class begins. This class is being live-streamed on Zoom; the Zoom link is available on the course home page in Blackboard.

Students must notify instructors in writing by the end of the first week of the semester of all religious holidays they observe that conflict with their course meetings and activities.

**Course Description:** This course will provide the students with a comprehensive introduction to molecular pharmacology. Topics will include fundamentals of receptor biology, binding theory & efficacy, allosteric binding, principals of drug pharmacokinetics and assays/techniques used in modern pharmacology. Each student will participate in a group literature presentation highlighting some aspect of a course topic. Graduate students will be required to make an individual presentation on a paper provided by the instructors. Case studies will be used to illustrate these and related topics.

**Course Materials:** Class materials will be made available on <http://blackboard.slu.edu>, including the class syllabus, PowerPoint slide presentations, and other materials.

**Texts:** "A Pharmacology primer-techniques for more effective and strategic drug discovery" (5th edition) by Terry Kenakin (required)

## **Course Learning Outcomes:**

Upon completion of this course the student will be able to:

1. Demonstrate a foundational knowledge of receptor biology and the underlying concepts of binding and efficacy
2. Demonstrate a foundational knowledge of pharmacokinetics including the principles of adsorption, distribution, biotransformation and elimination
3. Recognize and how to apply the types of assay techniques or formats used in pharmacology to study various systems.
4. Give a brief presentation summarizing a journal article relevant to a topic(s) relevant to pharmacology.

## **Grading:**

Final grades in this course will be determined by performance on the following:

Exams	400 points
Presentation	50 points

Total 450 points

### **Cutoffs:**

92% (414-450 pts) <b>A</b>	70% (315-332 pts) <b>C+</b>
88% (396-413 pts) <b>A-</b>	65% (292-314 pts) <b>C</b>
83% (373-395 pts) <b>B+</b>	60% (270-291 pts) <b>C-</b>
79% (355-372 pts) <b>B</b>	50% (225-269 pts) <b>D</b>
74% (333-354 pts) <b>B-</b>	<50% (0-224 pts) <b>F</b>

## **Individual Project (PPY-5410 ONLY)**

Students will be required to choose a suitable paper tackling one or more aspect of pharmacology that was discussed in the class. The course instructors will provide a list of suitable papers for the students to choose from. Once selected, student will be required to review the paper and make a presentation, approximately 20 minutes in length, which highlight key aspects of the paper and discuss the findings. Students will be graded on the depth of understanding of the paper and its findings as well as the quality

## Tentative Schedule

of the presentation and ability to answer questions on the paper.

**Exam Policies:** There will be 4 exams given. There is no final exam. The exams are scheduled on:

Exam 1 – February 19th

Exam 2 – March 12th

Exam 3 – April 14th

Exam 4 – May 10<sup>th</sup>

No makeup exams will be given. If you miss an exam for a valid reason such as illness (doctor's note required) or a death in the family, contact the instructor as soon as possible before the exam is given. There may be other extenuating circumstances, and must be discussed with the instructor. If you miss an exam and do not have a valid excuse, a grade of zero will be given. The only exceptions are designated by the University.

**Cell Phone Policy:** Cell phones must be turned OFF when you enter the classroom. Talking on the phone, checking for messages, and texting are not allowed in the classroom. If your phone rings/vibrates or you are using your phone during class, you will be asked to leave the classroom.

**Academic Integrity:** Academic integrity is honest, truthful and responsible conduct in all academic endeavors. The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care, and community service via which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern. The governing University-level Academic Integrity Policy was adopted in Spring 2015, and can be accessed on the Provost's Office website at: [https://www.slu.edu/provost/policies/academic-and-course/policy\\_academic-integrity\\_6-26-2015.pdf](https://www.slu.edu/provost/policies/academic-and-course/policy_academic-integrity_6-26-2015.pdf). Additionally, each SLU College, School, and Center has adopted its own academic integrity policies, available on their respective websites. All SLU students are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions, and appeals. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program, or the Dean/Director of the College, School or Center in which your program is housed.

**Title IX:** Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual harassment, including sexual assault, stalking, domestic or dating violence, we encourage you to report this to the University. If you speak with a faculty member about an incident that involves a Title IX matter, **that faculty member must notify SLU's Title IX Coordinator and share the basic facts of your experience.** This is true even if you ask the faculty member not to disclose the incident. The Title IX Coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

Anna Kratky is the Title IX Coordinator at Saint Louis University (DuBourg Hall, room 36; [anna.kratky@slu.edu](mailto:anna.kratky@slu.edu); 314-977-3886). If you wish to speak with a confidential source, you may contact the counselors at the University Counseling Center at 314-977-TALK or make an anonymous report through SLU's Integrity Hotline by calling 1-877-525-5669 or online at <http://www.lighthouse-services.com/slu>. To view SLU's policies, and for resources, please visit the following web addresses: <https://www.slu.edu/here4you> and <https://www.slu.edu/general-counsel>.

**IMPORTANT UPDATE:** SLU's Title IX Policy (formerly called the Sexual Misconduct Policy) has been significantly revised to adhere to a new federal law governing Title IX that was released on May 6, 2020.

## Tentative Schedule

Please take a moment to review the new policy and information on the following web address: <https://www.slu.edu/about/safety/sexual-assault-resources/index.php>. Please contact the Anna Kratky, the Title IX Coordinator, with any questions or concerns.

**Student Success Center:** In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. The Student Success Center assists students with academic-related services and is located in the Busch Student Center (Suite, 331). Students can visit the [Student Success Center](#) to learn more about tutoring services, university writing services, disability services, and academic coaching.

**Disability Services:** Students with a documented disability who wish to request academic accommodations must formally register their disability with the University. Once successfully registered, students also must notify their course instructor that they wish to use their approved accommodations in the course.

Please contact Disability Services to schedule an appointment to discuss accommodation requests and eligibility requirements. Most students on the St. Louis campus will contact Disability Services, located in the Student Success Center and available by email at [Disability\\_services@slu.edu](mailto:Disability_services@slu.edu) or by phone at 314.977.3484. Once approved, information about a student's eligibility for academic accommodations will be shared with course instructors by email from Disability Services and within the instructor's official course roster. Students who do not have a documented disability but who think they may have one also are encouraged to contact Disability Services. Confidentiality will be observed in all inquiries.

## Mandatory Statement on Face Masks (Fall 2020)

The University's [Interim Policy on Face Masks](#) governs all students, faculty, staff, and campus visitors in all University-owned, leased, or operated facilities. All persons physically present in any such University facility associated with this course shall comply fully with this policy at all times. Masks must be worn before entry to all such University facilities (as well as outdoors on all University property when six feet of distance is unpredictable or cannot be maintained).

Saint Louis University is committed to maintaining an inclusive and accessible environment. Individuals who are unable to wear a face mask due to medical reasons should contact the Office of Disability Services or Human Resources to initiate the accommodation process identified in the University's [ADA Policy](#). Inquiries or concerns may also be directed to the [Office of Institutional Equity and Diversity](#). Notification to instructors of SLU-approved ADA accommodations should be made in writing prior to the first class session in any term (or as soon thereafter as possible).

As the instructor of this course, I shall comply fully with SLU's policy and all related ADA regulations. Students who attempt to enter a classroom without wearing masks will be asked by the instructor to wear masks prior to entry. Students who remove their masks at any time during a class session will be asked by the instructor to resume wearing their masks.

**Note: Accordingly, no consumption of any food will be allowed in class.**

Students who do not comply with a request by a SLU instructor to wear a mask in accordance with the University's [Interim Policy on Face Masks](#) may be subject to disciplinary actions per the rules, regulations, and policies of Saint Louis University, including but not limited to the *Student Handbook*. Non-compliance with this policy may result in disciplinary action, up to and including any of the following:

- dismissal from the course(s)
- removal from campus housing (if applicable)
- dismissal from the University

To immediately protect the health and well-being of all students, instructors, and staff, instructors reserve the right to cancel or terminate any class session at which any student fails to comply with faculty or staff request to wear a mask in accordance with University policy.

Students are strongly encouraged to identify to their instructor any student or instructor not in

## **Tentative Schedule**

compliance. Non-compliance may be anonymously reported via the SLU Integrity Hotline at 1-877-525-5669 (or confidentially via the Integrity Hotline's website at <http://www.lighthouse-services.com/slu>).

## **Attendance**

The health and well-being of SLU's students, staff, and faculty are critical concerns. Accordingly, the following University policy statements on in-person class attendance are designed to preserve and advance the collective health and well-being of our institutional constituencies.

1. Students who exhibit any **potential COVID symptoms** (those that cannot be attributed to some other medical condition the students are known to have, such as allergies, asthma, etc.) shall absent themselves from any in-person class attendance or in-person participation in any class-related activity until they have been evaluated by a qualified medical official. Students should contact the **University Student Health Center** for immediate assistance.
2. Students who exhibit any **potential COVID symptoms** (those that cannot be attributed to some other medical condition the students are known to have, such as allergies, asthma, etc.) but who feel well enough to a) attend the course synchronously in an online class session or b) participate in asynchronous online class activities, are expected to do so. Those who do not feel well enough to do so should absent themselves accordingly.
3. Students (whether exhibiting any of potential COVID symptoms or not, and regardless of how they feel) who are under either an isolation or quarantine directive issued by a qualified health official must absent themselves from all in-person course activity per the stipulations of the isolation or quarantine directive. They are expected to participate in synchronous or asynchronous online class activities as they feel able to do so, or absent themselves accordingly.
4. Students are responsible for notifying each instructor of an absence as far in advance as possible; when advance notification is not possible, students are responsible for notifying each instructor as soon after the absence as possible.
5. As a temporary amendment to the current **University Attendance Policy**, all absences due to illness or an isolation/quarantine directive issued by a qualified health official shall be considered "Authorized" absences (effective August 2020 through May 2021).

## **Distance Education Etiquette**

Your actions in distance education contexts are just as important as in on-ground, face-to-face educational contexts – and sometimes require additional attention and commitment, as some distance education technologies might be less familiar to us. Accordingly, all students are expected to follow the guidelines below:

### **Synchronous Video Contexts (Zoom, etc.)**

1. Mute your microphone when you are not speaking. Remember to "un-mute" yourself just prior to speaking. Identify yourself when you begin speaking.
2. Expect a few seconds of delay in getting a response from the instructor or another class member to a question; wait before repeating your question or assuming it was not heard.
3. If possible, position your camera such that your video feed does not capture too much of your surroundings or other activity/sound from your home/location. Be conscious of posters, art, or other surroundings that others might find offensive or inappropriate for an educational context.
4. Use the "Raise Hand" and "Chat" (or similar) features of your video-conferencing tool. This limits verbal interruptions and the confusion generated when multiple people try to speak at once.
5. Just as in an on-ground, face-to-face class, limit side conversations, multi-tasking (on your computer or otherwise), and use of your cellphone.
6. Temporarily turn off your video feed and mute your microphone when engaged in any non-class conversation or activity.
7. Respect and be attentive to the diversity of your classmates and instructor. Before communicating, consider your message in the context of the class' diversity in race, ethnicity, religion, disabilities, gender, sexual orientation, age, social class, marital status, geography, etc. Consider the

## **Tentative Schedule**

diversity you can see or know – as well as that you cannot.

8. Remember that video-based class sessions (including chat transcripts) may be recorded and retrieved for later viewing.

## **Non-Video & Asynchronous Contexts (Blackboard, Canvas, Online Chats, Discussion Boards, etc.)**

1. When using the “Chat” or “Discussion Board” (or similar) features of your course management system, remember that your course-related communications to the instructor or other students should be considered “professional” (they are not like texts to your friends). Remember that course context and all related written work – including chat and discussion board transcripts – can be recorded and retrieved.

2. Be cautious when using humor or sarcasm; without the context of facial expressions or other body language, your tone or intent could be missed or misunderstood by others.

3. Respect and be attentive to the diversity of your classmates and instructor. Before communicating, consider your message in the context of the class’ diversity in race, ethnicity, religion, disabilities, gender, sexual orientation, age, social class, marital status, geography, etc. Consider the diversity you can see or know – as well as that you cannot.

4. Respect others’ time and life circumstances, which often don’t allow for an immediate response to a question or comment.

## Tentative Schedule

Date	Day	Lecture	Teacher	Chapter
29-Jan	Friday	Intro	JW	1
1-Feb	Monday	Receptor Biology	JC	2
3-Feb	Wednesday	Receptor Biology	JC	2
5-Feb	Friday	Receptor Biology	JC	2
8-Feb	Monday	Receptor Biology	JC	2
10-Feb	Wednesday	Receptor Biology	JC	2
12-Feb	Friday	Thermodynamics	JB	6
15-Feb	Mon	Review		
17-Feb	Wed	<b>NO CLASS</b>		
19-Feb	Fri	<b>EXAM 1</b>		
22-Feb	Mon	Receptor Binding	JB	5
24-Feb	Wed	Receptor Binding	JB	5
26-Feb	Fri	Receptor Binding	JB	5
1-Mar	Mon	Receptor Binding	JB	5
3-Mar	Wed	Efficacy	JB	8
5-Mar	Fri	Efficacy	JB	8
8-Mar	Mon	Efficacy	JB	8
10-Mar	Wed	Review		
12-Mar	Fri	<b>EXAM 2</b>		
15-Mar	Mon	Literature Presentation		
17-Mar	Wed	Literature Presentation		
19-Mar	Fri	Allostery	JB	7
22-Mar	Mon	Allostery	JB	7
24-Mar	Wed	Allostery	JB	7
26-Mar	Fri	Pharmacokinetics	JB/JW	9
29-Mar	Mon	Pharmacokinetics	JB/JW	9
31-Mar	Wed	Pharmacokinetics	JB/JW	9
2-Apr	Fri	<b>NO CLASS</b>		
5-Apr	Mon	Pharmacokinetics	JB/JW	9
7-Apr	Wed	Biotransformation	JW	10
9-Apr	Fri	Biotransformation	JW	10
12-Apr	Mon	Review		
14-Apr	Wed	<b>EXAM 3</b>		
16-Apr	Fri	Literature Presentation		
19-Apr	Mon	Literature Presentation		
21-Apr	Wed	Safety Pharmacology	JW	10
23-Apr	Fri	Drug Discovery	JW	11
26-Apr	Mon	Drug Discovery	JW	11
28-Apr	Wed	Assays/Techniques	IdV	4
30-Apr	Fri	Assays/Techniques	IdV	4
3-May	Mon	Assays/Techniques	IdV	4
5-May	Wed	Assays/Techniques	IdV	4
7-May	Fri	Review		
10-May	Mon	<b>EXAM 4</b>		

## Tentative Schedule