

USC Mann

Alfred E. Mann School of Pharmacy
and Pharmaceutical Sciences

RXRS 406: Clinical Pharmacology and Medication Management

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Course Weight: 4 units

Days/Time/Location: Tue, Thu 2:00-3:20pm (VHE214)

Catalogue description: Comprehensive Medication Management Applications in Pharmacotherapy; evidence-based, pharmacist driven medication selection; improved and/or optimized medication therapy; patient compliance; better and safer health outcomes.

Introduction

As healthcare continues to evolve, there is an emphasis on value-based care and outcome measures that are driven by the Centers for Medicare and Medicaid Services (CMS) Triple Aim (improving population health, patient experience, and health care costs). Chronic diseases and their management consume a growing proportion of overall expenditures, and better approaches to disease management are crucial. Complex high-risk patients tend to account for the majority of healthcare costs and require significantly more time, focus, and follow-up than relatively lower-risk patients. Yet, there exist underserved populations who face barriers in access to care. With the shortage of primary care physicians, there is a need for comprehensive and collaborative health care services that meet patient care needs. Not only should health care delivery improve access to skilled professional resources, but services should be evidence-based and result in better health outcomes. This course will integrate clinical pharmacology and principles behind optimal pharmacotherapy selection, implementation, and monitoring

parameters to promote medication effectiveness and safety.

Comprehensive Medication Management (CMM) is an evidenced-based preventive clinical service demonstrated to decrease health care costs and improve chronic disease treatment outcomes by ensuring optimal prescribing, monitoring, education, and use of medications that engages physicians, pharmacists, and patients. CMM is defined as the standard of care that ensures each patient's medications (whether they are prescription, nonprescription, alternative, traditional, vitamins, or nutritional supplements) are individually assessed to determine whether each medication is appropriate for the patient, effective for the medical condition, safe given the comorbidities and other medications being taken, and able to be taken by the patient as intended. CMM includes an individualized care plan that achieves the intended goals of therapy with appropriate follow-up to determine actual patient outcomes. When directed at complex high-risk patients, CMM is proven to improve quality of life, access to other healthcare providers, patients' health literacy and decision making, physician and other non-pharmacist provider satisfaction, and continuity of care

Objectives

This course is designed for upper-level undergraduate and early graduate students who are interested in the management of patients and populations with poorly controlled chronic diseases through the optimal use of medications. USC students who are pursuing a career in health or biological science majors, such as pharmacy or any other medical profession, would be most appropriate to take this course. Also, this course would be of interest to early-stage Master students in health/biological sciences or students who are interested in principles behind designing an optimized drug regimen for patients with multiple risk factors, comorbidities, and risk for drug-drug, drug-food, drug-disease, and drug-lifestyle interactions.

Chapters from the core textbook will be supplemented with a variety of source materials, including online resources, media outlets, and cinema.

Upon successful completion of this course, the student should be able to:

- Describe the barriers healthcare providers face in delivering optimal medication management services. [Understand]
- Describe the needs and challenges associated with improving public health and chronic disease control. [Understand]
- Describe a comprehensive medication management (CMM) and an implementation strategy. [Understand]
- Explain the process for assessing each medication for appropriateness, effectiveness, safety, and proper use. [Understand]
- Evaluate medication-related problems that prevent patients from reaching optimal health outcomes given a standardized patient case. [Evaluate]
- Develop a care plan designed to resolve all medication-related problems [Create]
- List the core elements of appropriate clinical documentation during the patient care process [Remember]

Evaluation and Grading:

Evaluation will be based on class participation, quizzes, one midterm exam, one final exam, and one group presentation.

<i>Description</i>	<i>Points</i>	<i>Weight</i>
<i>Class participation</i>	10 pts	(5%)
<i>Quizzes 3 @ 15 pts each</i>	45 pts	(22.5%)
<i>Group presentation</i>	25 pts	(12.5%)
<i>2 Midterm exams (35 points each)</i>	70 pts	(35%)
<i>Final exam (partially cumulative)</i>	50 pts	(25%)
Total	200 pts	(100%)

Attendance at all classes is expected. Participation will include asking and answering questions and being actively involved in the discussion as well as group assignments. It is expected that the students read the assigned papers before the lecture, prepare for group presentations and be prepared to discuss the background, current understanding, treatments, and gaps in knowledge for the topic in each lecture.

20% Quizzes: There will be 3 quizzes over the semester to count towards the overall grade. The quizzes will be based on questions from the lecture and content discussed in class. Quizzes will include multiple-choice, T/F, and fill-in-the-blank questions. Quizzes may also be in the form of in-class writing assignments to assess the comprehension of topics presented in class.

35% Midterm: There will be 2 midterms for this course that will assess students' comprehension of the material presented in class. The midterms will include multiple-choice questions T/F questions fill-in-the-blank questions and possibly short answers. This midterm exam will help students to generate a critical assessment of critical topics in this course, to develop a suitable argument, and to convey their ideas and interpretations through the written word.

30% Final: The Final Exam will be in the form of an in-class exam during exam week. The final exam will be composed of two parts, one to assess comprehension of course content and the latter to assess application knowledge of these principles. The final exam (50 points) will consist of multiple choice and T/F questions as well. The final exam will be cumulative but will majorly emphasize material related to the application and integration of pharmacologic principles.

10% Group Presentation: There will be 1 group presentation, approximately 25 minutes, and a 5 minutes Q&A from peers and the instructor. Students will be presenting in groups to discuss and share a standardized patient case with the information given to the students prior by the instructor. In addition to developing a care plan designed to resolve a patient's medication-related problem, students will also have the opportunity to collaborate with peers to develop verbal and writing skills. Students will be assessed on knowledge of pharmacology, medical documentation,

and accuracies in identifying medication related problems. In addition, a SOAP note is to be submitted to the instructor prior to the presentation. Additional information will be released after Exam 1.

5% Participation: To receive full credit, you must attend class regularly. It is your responsibility to make sure that you attend class consistently. Attendance will be taken periodically and will be used to determine participation throughout the semester.

Exam Policy

All exams and assignments dates are listed in the course schedule. Students are expected to take exams during the scheduled time period listed. Instructors may make arrangements with individual students to take final examinations at times other than the regularly scheduled time if there are **exceptional circumstances**. It is up to the instructors to work in cooperation with students to schedule appropriate makeup final examination arrangements according to the makeup final examination scheduling policies.

Notes, books, calculators, electronic dictionaries, regular dictionaries, cell phones or any other aids are not allowed during exams.

Students will be asked to complete an anonymous critical evaluation of the course at its completion.

Class Policies Regarding Class Discussions and Etiquette

An overview of the class policies and how they relate to the discussions and interactions that will occur in this class can be found below. We expect each student to review, understand and adhere to these policies.

Respect

- Listen actively and attentively
- No name calling or other character attacks
- Always use a respectful tone
- Be aware of the fact that tone of voice and body language are powerful communicators. Some postures or facial expressions can silence, intimidate, or hurt your classmates (e.g. crossed arms, eye rolls). Other postures or facial expressions can show you are listening respectfully (e.g. making eye contact, staying quiet, nodding).

Constructiveness

- If you wish to challenge something that has been said, challenge the idea not the individual sharing it
- Ask for clarification if you are confused
- Commit to learning, not debating

Inclusivity

- Try not to silence yourself out of concern for what others will think about what you say
- Try not to let your question (or answer) run on. Give others the chance to speak, too.
- Do not remain silent. Make sure to contribute to the discussion
- Take responsibility for the quality of the discussion

Online learning Etiquette

- If it is not possible to have you webcam on during the entire class, do you best to have it on when speaking
- Turn off your microphone when not speaking
- If you need to step away from your computer during class (e.g. get a drink of water, use the bathroom, attend to a family member/pet) please do so quietly and without disturbing your classmates. Return to the class when you can.
- Be aware the contents of conversations typed into the chat box, even private conversations, are visible by the instructors

Please note below is the “Approximate” grading scale breakdown. However, this scale is not set in stone and may slightly shift up or down based on overall scores.

Percent	Letter Grade
92-100%	A
90-91%	A-
88-89%	B+
82-87%	B
80-81%	B-
78-79%	C+
72-77%	C
70-71%	C-
60-69%	D
Below 60%	F

Course Readings

Required Readings (selected, short, easy to read chapters)

- Patient-Centered Primary Care Collaborative (PCPCC) 2012. The Patient Centered-Medical Home: Integrating Comprehensive Medication Management to Optimize Patient Outcomes. 2nd Ed. <http://www.pcpcc.net/sites/default/files/media/medmanagement.pdf>
- CDC. 2017. Using the Pharmacists’ Patient Care Process to Manage High Blood Pressure: A Resource Guide for Pharmacists. <https://www.cdc.gov/dhbsp/pubs/docs/pharmacist-resource-guide.pdf>
- Drugs for Type 2 Diabetes. Med Lett Drugs Ther. 2017 Jan 16;59(1512):9-18
- Drugs for Depression. Med Lett Drugs Ther. 2016 Jul 4;58(1498):85-90
- Lipid-Lowering Drugs. Med Lett Drugs Ther. 2016 Oct 24;58(1506):133-40
- Statin Use for the Primary Prevention of Cardiovascular Disease in Adults. US Preventive Services Task Force Recommendation Statement. JAMA. 2016;316(19):1997-

2007. doi:10.1001/jama.2016.15450.

<http://jamanetwork.com.libproxy1.usc.edu/journals/jama/fullarticle/2584058>

- Global Initiative for Asthma. Pocket Guide for Asthma Management and Prevention., 2016. <http://ginasthma.org/2016-pocket-guide-for-asthma-management-and-prevention/>

Recommended Readings

- [AccessPharmacy - Medication Therapy Management](#): A Comprehensive Approach, 2e by Karen Whalen, Heather C. Hardin
- USC School of Pharmacy Comprehensive Medication Management resources. Available at: <http://pharmweb.usc.edu/MedicationManagement/>
- American Diabetes Association. Standards of Care in Diabetes, 2017. http://professional.diabetes.org/sites/professional.diabetes.org/files/media/dc_40_s1_final.pdf
- Health Resources and Services Administration. Quality Improvement. 2011. <https://www.hrsa.gov/quality/toolbox/508pdfs/qualityimprovement.pdf>

Supplemental Readings

Supplemental readings are posted on <http://blackboard.usc.edu/> for your convenience. These readings have been compiled to provide you with current evidence-based practices from the field of pharmacology.

Required and supplemental readings should be read according to the course outline below; these materials are relevant for graded assignments, quizzes, and exams.

Other topical materials, including but not limited to the syllabus, supplemental reading assignments, additional handouts, and study guides, will be posted on <http://blackboard.usc.edu/>. Students will also be encouraged to use the online discussion sessions (via Blackboard) as an additional learning tool.

Course Outline

This course will be in the format of a directed seminar/lecture under the guidance of the instructor for the specific session. During each biweekly session, the instructor will engage the students with questions and draw comments or interpretations primarily based on the assigned reading. Students are expected to ask questions and participate in an interactive fashion. Because this is an area of rapid change in policies, the readings may vary from one term to the next. Additional readings for each section that may be of added use are listed in the table below.

The course schedule is as follows:

Week	Date	Topic	Presenter
Week 1	8/22/23	Introduction & Expectation	Tam Phan, PharmD

		Models of Medication Management/ Introduction to Comprehensive Medication Management (CMM)	
Week 1	8/24/23	The lifecycle of a prescription: where can patients get drugs? Drug classifications + regulations Readings: Comprehensive Medication Management	Tam Phan, PharmD
Week 2	8/29/23	Contemporary Topics & Advocacy in Pharmacy Practice	Tam Phan, PharmD
	8/31/23	Implementation of a CMM service. Roles and Scope of an APh Readings: Integrating CMM to Optimize Patient Outcomes Chapter 3: Considerations for Establishing a MTM Service Practice Model	Tam Phan, PharmD
Week 3	9/5/23	Medication-related problems Readings: Chapter 11: The Complicated Patient	Natalie Kanimian, PharmD
	9/7/23	Quiz 1 Introduction to Pharmacology (Pharmacokinetics + Pharmacodynamics)	Tam Phan, PharmD
Week 4	9/12/23	Introduction to Pharmacology (Pharmacokinetics + Pharmacodynamics)	Tam Phan, PharmD
	9/14/23	Midterm 1	Tam Phan, PharmD
Week 5	9/19/23	Clinical Consideration for Special populations: Aging Population Readings: Chapter 11: The Complicated Patient	Aisha Vaiyani, PharmD (Dr. Issa to assist)
	9/21/23	Defining a Market for your Drug	Daryl Davies, PhD

Week 6	9/26/23	Clinical Consideration for Special populations: Pediatrics and family planning.	
	9/28/23	Patient Assessment: Introductions to a Physical Exam	
Week 7	10/3/23	Patient Assessment: Mental Exam	
	10/5/23	Case Study: How did I end up here?	
Week 8	10/10/23	Midterm 2	Students
Week 8	10/12/23	Fall Recess	
Week 9	10/17/23	Application of CMM in Diabetes	Shanon Vartanian, PharmD
Week 9	10/19/23	Quiz 2 Case Study: How did I end up here?	Tam Phan, PharmD
Week 10	10/24/23	Application of CMM in Hypertension	Erin Yamanaka, PharmD
Week 10	10/26/23	Case Study: How did I end up here?	Tam Phan, PharmD
Week 11	10/31/23	Application of Pharmacotherapy in the Inpatient/Acute Care Setting	William Kim, PharmD
Week 11	11/2/23	Case Study: How did I end up here?	Tam Phan, PharmD
Week 12	11/7/23	Quiz 3 Application of CMM in COPD and Asthma	Jessica Wei, PharmD
Week 12	11/9/23	Impact of Nutrition, exercise, and other lifestyles	Tam Phan, PharmD
Week 13	11/14/23	Application of CMM and Team-Based Care in Addiction/Substance Use Disorder	Kyle Vo, PharmD
Week 13	11/16/23	Case Study: How did I end up here?	Tam Phan, PharmD

Week 14	11/21/23	Role of Integrative Medicine – Supplements, Botanicals, Drug-drug interactions	Tam Phan, PharmD
Week 14	11/23/23	Thanksgiving Break	
Week 15	11/28/23	Group Presentations	Tam Phan, PharmD
Week 15	11/30/23	Last Day Review, Q&A	Tam Phan, PharmD
Finals Week	Thursday, December 7, 2023 from 2 to 4 PM, VHE 214		

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment. Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Academic Integrity:

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the [student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Statement on Academic Conduct and Support Systems

Academic Integrity:

The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, comprises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or “recycle” work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see [the student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

[Diversity, Equity and Inclusion](#) - (213) 740-2101

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

[USC Emergency](#) - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

[USC Department of Public Safety](#) - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.