

RXRS 406: Clinical Pharmacology and Medication Management
Fall 2022

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Course Weight: 4 units

Days/Time/Location: Tue, Thu 2:00-3:20pm (THH106)

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>	Points	Weight
<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/dhdsp/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

- 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	8/23/2022	Introduction & Expectation Models of Medication Management/ Introduction to Comprehensive Medication Management (CMM)	Tam Phan, PharmD
Week 1	8/25/2022	The lifecycle of a prescription: where can patients get drugs? Drug classifications + regulations	Tam Phan, PharmD
Week 2	8/30/2022	Contemporary Topics & Advocacy in Pharmacy Practice	Tam Phan, PharmD
	9/1/2022	Implementation of a CMM service. Roles and Scope of an APh	Tam Phan, PharmD
Week 3	9/6/2022	Medication-related problems	Natalie Kanimian, PharmD
	9/8/2022	Quiz 1 Case Study: How did I end up here?	Tam Phan, PharmD
Week 4	9/13/2022	Public Health	Tam Phan, PharmD
	9/15/2022	Midterm 1	Tam Phan, PharmD
Week 5	9/20/2022	Clinical Consideration for Special populations: Aging Population	Aisha Vaiyani, PharmD (Dr. Issa to assist)
	9/22/2022	Defining a Market for your Drug	Daryl Davies, PhD
Week 6	9/27/2022	Clinical Consideration for Special populations: Pediatrics and family planning.	Nora Garabedian, PharmD
	9/29/2022	Patient Assessment: Introductions to a Physical Exam	Tam Phan, PharmD
Week 7	10/4/2022	Patient Assessment: Mental Exam	Tam Phan, PharmD
	10/6/2022	Case Study: How did I end up here?	Tam Phan, PharmD
Week 8	10/11/2022	Midterm 2	Students
Week 8	10/13/2022	Fall Recess	
Week 9	10/18/2022	Application of CMM in Diabetes	Shanon Vartanian, PharmD

Week 9	10/20/2022	Quiz 2 Case Study: How did I end up here?	Tam Phan, PharmD
Week 10	10/25/2022	Application of CMM in Hypertension	Erin Yamanaka, PharmD
Week 10	10/27/2022	Case Study: How did I end up here?	Tam Phan, PharmD
Week 11	11/1/2022	Application of Pharmacotherapy in the Inpatient/Acute Care Setting	William Kim, PharmD
Week 11	11/3/2022	Case Study: How did I end up here?	Tam Phan, PharmD
Week 12	11/8/2022	Quiz 3 Application of CMM in COPD and Asthma	Jessica Wei, PharmD
Week 12	11/10/2022	Impact of Nutrition, exercise, and other lifestyles	Tam Phan, PharmD
Week 13	11/15/2022	Application of CMM and Team-Based Care in Addiction/Substance Use Disorder	Kyle Vo, PharmD
Week 13	11/17/2022	Case Study: How did I end up here?	Tam Phan, PharmD
Week 14	11/22/2022	Role of Integrative Medicine – Supplements, Botanicals, Drug-drug interactions	Tam Phan, PharmD
Week 14	11/24/2022	Thanksgiving Break	
Week 15	11/29/2022	Group Presentations	Tam Phan, PharmD
Week 15	12/1/2022	Last Day Review, Q&A	Tam Phan, PharmD
Finals Week	Final Thursday, December 8: 2-4pm		

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with severe consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Support Systems:

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call

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

National Suicide Prevention Lifeline – 1 (800) 273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on-call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. engemannshc.usc.edu/rsvp

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support

Incidents of bias, hate crimes, and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour