**Course Purpose:**

This course includes methods for evaluation and improvement of drug therapy outcomes including critical appraisal of drug literature, clinical service literature, and quality assessment and improvement techniques with special focus on patient and medication safety.

The Institute of Medicine published a series of reports addressing the improvement of health care quality. Its recommendations for reinventing the health care system have two major themes: the application of evidence to health care delivery; and full adoption of quality improvement through the comprehensive use of information technology and systems that reward rather than impede quality.

This course trains pharmacy students to balance individual patient care with a population-based assessment of pharmacotherapy outcomes. Evidence-based medicine requires clinicians to monitor, evaluate and implement evidence from the rapidly evolving medical literature. Students will learn how efficacy, effectiveness, safety, and efficiency data are summarized into evidence reports and clinical guidelines and learn about the limitations of this process. They will appraise original research to support clinical decision-making and to evaluate whether current practice complies with the best evidence.

Quality assessment and improvement exercises will be introduced to identify and review variation in pharmacotherapy processes and outcomes. Students will use published evidence as well as primary data to identify targets for quality improvement, to formulate strategies for identifying high-risk patients and to improve patient care, and to define process and outcome measures to evaluate patient outcomes.

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**Note:** This course is approved by the Board of Pharmacy to fulfill the requirements for 2 hours of continuing education (CE) credit on Medication Safety for licensure. The Office for Student Affairs will issue a letter for every student who achieves a grade of at least 70% for Case #10 (Medication Safety) that will be done during Week 17. This medication-safety grade will be calculated by giving 50% of the grade for participation in the case and 50% based on the online quiz for this week that will be administered at the beginning of class. Students must also receive a C- or better in this class to receive the medication safety CE credit.

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**Course Faculty and Office Hours**

**Course Coordinators:**

Coordinator: Randy Hatton, BPharm, PharmD, FCCP, BCPS  
Email: rhatton@cop.ufl.edu  
Office: HPNP2331  
Cell Phone: 352.262.0736  
Office Phone: 352.294.5785

Co-Coordinator: Priti Patel, PharmD, BCPS  
Email: ppatel@cop.ufl.edu  
Office: PH 105  
Office Phone: 727.394.6213
Teaching Partners:
Paul L. Doering, RPh, MS, GNV Facilitator  
doering@cop.ufl.edu
Randy C. Hatton, PharmD, GNV Facilitator  
rhatton@cop.ufl.edu
Priti Patel, PharmD, STP Facilitator  
ppatel@cop.ufl.edu
Lisa Vandervoort, PharmD, ORL Facilitator  
lvandervoort@cop.ufl.edu
Allison Van Rossum, PharmD, JAX Facilitator  
Alison.VanRossum@jax.ufl.edu
Yanmin (Zoe) Zhu, BA Facilitator (GNV)  
zoe3695@ufl.edu

Teaching Assistants:
Chao Chen, BS, GNV TA  
charl.coverc@ufl.edu
Cheng (Alice) Chen, GNV TA  
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cdave@ufl.edu
Xi Wang, MB, MPH, GNV TA  
xiwang17@ufl.edu
Yanmin (Zoe) Zhu, BA Lead GNV TA  
zoe3695@ufl.edu

Academic Coordinator
Julie Stewart Thomas, M.A.  
Office: HPNP4309  
Office: HPNP4309  
Office Hours by appointment: please email for an appointment

Office Hours by appointment: please email for an appointment

Place and Time of Class Sessions

<table>
<thead>
<tr>
<th>Campus</th>
<th>Section</th>
<th>Room</th>
<th>Date and timea</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNV</td>
<td>5687</td>
<td>HPNP 1102</td>
<td>Wednesdays 9:35 a.m. - 11:30 a.m.</td>
</tr>
<tr>
<td>GNV</td>
<td>5696</td>
<td>HPNP G-114</td>
<td>Wednesdays 9:35 a.m. – 11:30 a.m.</td>
</tr>
<tr>
<td>GNV</td>
<td>7764</td>
<td>HPNP G-210</td>
<td>Wednesdays 9:35 a.m. – 11:30 a.m.</td>
</tr>
<tr>
<td>JAX</td>
<td>7765</td>
<td>Charter Theater</td>
<td>Tuesdays or Wednesdays 4:05–6:00 p.m.</td>
</tr>
<tr>
<td>JAX</td>
<td>7765</td>
<td>Charter Theater</td>
<td>(See campus schedule on course site for more details)</td>
</tr>
<tr>
<td>ORL</td>
<td>7768</td>
<td>334</td>
<td>Wednesdays 10:00 a.m.–12:00 p.m.</td>
</tr>
<tr>
<td>ORL</td>
<td>7768</td>
<td>334</td>
<td>(See campus schedule on course site for more details)</td>
</tr>
<tr>
<td>STP</td>
<td>7770</td>
<td>115a–117b</td>
<td>Tuesdays 10 a.m. – 12:00 p.m.</td>
</tr>
<tr>
<td>STP</td>
<td>7770</td>
<td>115a–117b</td>
<td>(See campus schedule on course site for more details)</td>
</tr>
</tbody>
</table>

aCheck with your local calendar for specifics. Dates and times may change from week to week. Therefore, it is your responsibility to check the campus schedule regularly.

Classes will meet 11 times over the course of the semester. Please refer to the Calendar on Canvas and the table below for specifics. Please check your campus schedule regularly for changes in rooms and dates or times. There will be an online Canvas quiz at the beginning of each class meeting.

<table>
<thead>
<tr>
<th>Week</th>
<th>Class Datesa</th>
<th>Quiz #</th>
<th>Case #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No class</td>
<td>1(^b)</td>
<td>No case or Quiz</td>
</tr>
</tbody>
</table>
The Literature/Case Reports/Uncontrolled Trials
Small Randomized Controlled Trials
Large Randomized Controlled Trials
Noninferiority RCTs
Cohort Studies
Case-Control Studies
Meta-Analyses
No quiz
MIDTERM
In class launch of final projects
Quality Improvement/Quasi-Experimental
Quality Improvement/RCT
Work on final projects
Work on final projects (Thanksgiving break)
Medication Safety/Final Paper Due 12/2
Medication Safety

The midterm will take place on Thursday, October 20th from 4:30 to 7:30 PM. In Jacksonville, the midterm will be in Banquet Room. In Orlando, the midterm will be in C/R133. In St. Petersburg, the midterm will be in rooms UP 303/309. In Gainesville, the midterm will be in rooms C1-15 and C1-17 (an announcement will be made before the exam with rooms assigned based on the first letter of your last name).

Your final project presentation paper and slides are due December 2nd and the final group presentations will take place sometime between 8:00 AM-6:00 PM on either December 12th or December 13th. Rooms will be announced later in the semester.

<table>
<thead>
<tr>
<th>Presentation Date</th>
<th>Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 12th between 8:00 a.m. – 6:00 p.m.</td>
<td>Gainesville and Jacksonville</td>
</tr>
<tr>
<td>December 13th between 8:00 a.m. – 6:00 p.m.</td>
<td>Gainesville, Orlando, St. Petersburg</td>
</tr>
</tbody>
</table>

For planning purposes, assume you will not be finished with the class until 6:00 PM on the days you will be presenting. A final team presentation schedule will be published on Canvas at least 6 weeks before the final presentations so you can make travel plans. There will be no accommodations for students wishing to leave early (i.e., presenting early in the day). The order of team presentations will be assigned randomly. You are expected to listen to other presentations and ask questions as part of your presentation [participation] grade.
How This Course Relates to the Learning Outcomes You Will Achieve in the PharmD Program:

This course prepares PharmD students to accomplish the following abilities and related Student Learning Outcomes (SLOs) upon graduation:

1. Provide Patient-centered Care - Specifically: Design, implement, monitor, evaluate, and adjust pharmacy care plans that are patient-specific; address health literacy, cultural diversity, and behavioral psychosocial issues; are evidence-based and accomplished in collaboration with other health professionals. (SLO 1.1)
2. Provide Population Health by promoting effective drug use & disease prevention/wellness. (SLO 2.1)
3. Perform pharmacist responsibilities within the medication use system and relate to the larger health care systems to assure safe and quality patient care. (SLO 3.3)
4. Solve complex practice problems (both patient-specific and general practice) using an evidence-based approach, other aspects of good clinical science, and informatics. (SLO 8.3)

Course Objectives

The overall goal of the course is to familiarize students with methods and tools to evaluate as well as select patient-centered pharmacy services, drugs, and other medical technologies. It has two components, the critical appraisal of pharmaceutical and medical literature and the quality assessment and improvement of drug therapy and pharmaceutical care services.

Upon completion of the course students will be able to:

- Find and evaluate published medical literature for use in clinical decision-making and understand scientific reasoning and the research process in this context;
- Describe how clinical findings are summarized in evidence reports and apply them appropriately in clinical decision-making;
- Describe current evidence related to the assessment and improvement of patient safety, and the epidemiology of medication errors and adverse drug events
- Devise ways to assess the quality of pharmacotherapy for the patients seen in practice, compare differences in clinical practices and quality and their effect on patient outcomes.
- Identify opportunities for changes in practice that are feasible and effective for improving patient outcomes.
- Describe how to design, implement, and evaluate quality improvement programs.

Attitudinal objectives include an appreciation for pharmacists’ professional responsibilities and role in pharmaceutical services, quality improvement, and impact on patient outcomes.

Pre-Requisite Knowledge and Skills

Successful completion of the 1PD & 2PD coursework in the PharmD program is required.
Course Structure & Outline

The course is split into two components following the philosophy of evidence-based medicine: critical literature appraisal and quality assessment and improvement. New content will be presented in lectures, online tutorials, and assigned readings. Content will be applied in problem-solving exercises online and in small group sessions that will meet for 2-hour time periods ten times during the course of the semester. Exercises and exams will include assessments of published evidence and proposals for quality improvement programs and be presented in oral presentations and written reports.

1. Critical literature appraisal will address the following issues

   a) Introduction to evidence-based pharmacy
   b) Retrieval methods for primary medical literature, drug references, and other evidence sources
   c) Methods for critical literature appraisal
   d) Study types and their relevance to study validity and application in practice
   e) Interpretation of epidemiologic measures of frequency and risk
   f) Threats to internal validity (confounding, bias, random error), hypothesis testing and scientific reasoning
   g) Generalizability and the scientific method
   h) Methods and resources for evidence summaries (meta-analysis, evidence reports, clinical guidelines)

2. Quality assessment and improvement

   a) Definitions and elements of quality and examples of quality deficits in healthcare
   b) Means to measure quality and current applications; selection of high-priority areas for QI
   c) Aggregation of individual patient data for quality assessment: measure of process and outcomes quality
   d) Methods to explore and explain variation in quality, benchmarking
   e) Selection of QI strategies and plans for implementation (including screening/recruitment of high-risk patients, process measures for monitoring, design of an evaluation plan)

3. Additional content related to patient safety and drug safety

   a) Review of drug safety information, methodological issues related to pharmacovigilance and post-marketing studies
   b) Epidemiology of patient safety and medication errors, ascertainment and analysis of medication error data
   c) Examples of medication safety initiatives

Textbook

The course does not use a formal textbook, but recommendations for readings will be posted. Many of the required readings come from an eBook available via the Health Science Center Library:
Active Learning Requirements

- Team participation in small discussion groups led by a facilitator.
- Completing cases, which consist of evaluating a relevant article (should be done individually, to prepare you to discuss in class among your team members) and discussing them in the small group sessions.
- Completion of online quizzes in class.
- Completing a midterm multiple-choice exam that will assess knowledge and literature evaluation skills.
- Developing and presenting a QI program proposal written as a student team (final exam).

Student Evaluation & Grading

This class embraces the teaching and evaluation methods described in the College of Pharmacy’s educational philosophy. The COP’s Educational Philosophy uses multi-faceted, active-learning teaching strategies.

The course consists of video lectures and cases that are completed individually and online and then, discussed in weekly small group sessions (2 hours on a day specific to your campus). Lectures are not live. Weekly cases focus either on the retrieval or critical appraisal of selected published evidence or quality assessment and improvement exercises. Cases will be completed by students in self-study. Successful completion of the cases is evaluated through in-class, online quizzes and team participation. These quizzes will be closed book and no other electronic devices are permitted, and the Repondus lock-down browser must be downloaded on your laptop or tablet before the first quiz. Students are allowed to discuss the cases, but they are responsible for their own original work during the quiz. You will participate with your team during the small group sessions.

Exams include a midterm after the first 8-week period assessing the ability to apply knowledge learned, to critique studies and demonstrate an understanding of course materials and a team-based quality improvement project at the end of the term.

Cases will be posted online at least two weeks before the class session and will be used for team/individual participation grades and online quizzes. There will be a quiz [outside of class] covering the syllabus in the first week of class and an in-class quiz about the final project when this assignment is launched in class.

Class participation. Students are expected to be prepared for and to participate in classes. Students will receive 15 points for team and individual participation throughout the class; points will be deducted when students are not prepared or are not focused on the assignments in class.
**Online quizzes.** Assignments and cases will be evaluated using online quizzes at the beginning of class in Canvas. These will assess your readiness to participate in the active learning session.

**Midterm exam.** The midterm exam will be a multiple-choice exam using ExamSoft®. This will be a closed book exam. You must have a functioning laptop or tablet to take this exam. If necessary, you must borrow a functioning device prior to the exam. You must take and demonstrate that your computer is functioning with a practice exam prior to the midterm. Five points will be deducted from your final grade if you do not take and successfully submit the practice exam.

**QI program proposal (final project).** Student groups of 4-5 students will develop a quality improvement program and present their work during a formal presentation session (about 12-15 minutes). The final project has 3 components (30 points): final paper (17 pts), slides (3 pts), and final presentation (10 pts).

<table>
<thead>
<tr>
<th>Grading</th>
<th>% of grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm Exam</td>
<td>35%</td>
</tr>
<tr>
<td>Final quality improvement project</td>
<td>30%</td>
</tr>
<tr>
<td>(Final project, a team of max. 5 students)</td>
<td></td>
</tr>
<tr>
<td>Online quizzes (10 of 12; lowest two will be dropped)</td>
<td>20%</td>
</tr>
<tr>
<td>The purpose of dropping quizzes is for technical problems or excused absences, not poor preparation or performance</td>
<td></td>
</tr>
<tr>
<td>Team/Individual class participation</td>
<td>15%</td>
</tr>
</tbody>
</table>

**Grading Scale**

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;92.500%</td>
<td>A</td>
</tr>
<tr>
<td>89.500–92.499%</td>
<td>A-</td>
</tr>
<tr>
<td>86.500–89.499%</td>
<td>B+</td>
</tr>
<tr>
<td>82.500–86.499%</td>
<td>B</td>
</tr>
<tr>
<td>79.500–82.499%</td>
<td>B-</td>
</tr>
<tr>
<td>76.500–79.499%</td>
<td>C+</td>
</tr>
<tr>
<td>72.500–76.499%</td>
<td>C</td>
</tr>
<tr>
<td>69.500–72.499%</td>
<td>C-</td>
</tr>
<tr>
<td>66.500–69.499%</td>
<td>D+</td>
</tr>
<tr>
<td>62.500–66.499%</td>
<td>D</td>
</tr>
<tr>
<td>59.500–62.499%</td>
<td>D-</td>
</tr>
<tr>
<td>&lt;59.499%</td>
<td>E</td>
</tr>
</tbody>
</table>

**Rounding of grades:** Final course grade will only be rounded up if the decimal is 0.500 or higher. The Grading Scale above reflects this 0.5-point rounding policy. Please note that the actual grading scale is 0.5 points higher than indicated (e.g., A ≥ 93%). No additional rounding will be considered.
Class Attendance Policy

Unexcused absences from the group discussions carry a 4-point (≈1/2 letter grade) penalty taken off the final grade. Absences due to illness and other emergencies must be conveyed by e-mail to your facilitator AND Dr. Hatton (rhatton@cop.ufl.edu) before the group discussion begins. Email is preferred but a telephone call/text will be accepted if you cannot email. Messages from friends will not be accepted. When a student has an excused absence, they will receive a zero for the in-class quiz [which can be one of the dropped quiz scores], but no deduction for participation. If more than 2 excused absences occur, the course coordinator may either offer a make-up quiz or determine the overall quiz grade as an average of the quizzes taken. Excused absences will require a short make-up paper within 2 weeks of the missed class to obtain your participation points. Contact the course coordinator for this assignment.

Quiz/Exam Policy

There will be no appeals for quizzes, the midterm exam, or the final project grading. Analytics will be used to make adjustments to these assessments as needed.

Make-up Quiz/Exam Policy

Make-up exams for the midterm and final project presentation will be handled by the course coordinator on a case-by-case basis. If you cannot attend the final presentation at the scheduled time, you likely will receive an incomplete (i.e., I grade) and perform an individual make-up assignment during the next semester to successfully complete the course.

Policy on Old Quizzes and Assignments

No old quizzes, exams, or assignment examples will be provided.

Assignment Deadlines

Assignments will be posted with explicit due dates. Students are responsible for complying with these deadlines. Late assignments will not be graded (0 points). Delays due to unforeseen and/or distressing events will be treated on a case-by-case basis by the course coordinator.

General College of Pharmacy Course Policies

The College of Pharmacy has a website that lists course policies that are common to all courses. This website covers the following:

1. University Grading Policies
2. Academic Integrity Policy
3. How to request learning accommodations
4. Faculty and course evaluations
5. Student expectations in class
6. Discussion board policy
7. Email communications  
8. Religious holidays  
9. Counseling & student health  
10. How to access services for student success

Please see the following URL for this information:

Complaints

Should you have any complaints with your experience in this course, please contact your course coordinator as soon as possible. Do NOT put these concerns off. It is unreasonable to wait until a situation cannot be resolved to file a complaint. If your complaint is unresolved, contact the COP’s Senior Associate Dean-Professional Affairs. For unresolved issues, see:

http://www.distancelearning.ufl.edu/student-complaints to submit a complaint.

Other Course Information

Canvas:

Class materials, pre-recorded lecture videos, and quizzes will be available on the website for this course via the Canvas learning management system. You will be able to access course announcements, course information, supplemental materials and grades through this website. Students are expected to check the course website regularly for updated information.

If you have technical problems with Canvas, please contact the UF IT Help Desk (352.392.4357) or the College of Pharmacy IT Department (352.273.6281). If you have a Canvas content problem or cannot resolve a problem with the previous contacts, please contact the Course Coordinator.

Note: When contacting the College of Pharmacy Educational Technologies Support Office staff, we suggest e-mailing your request to our edu-help@ahc.ufl.edu address. This address is monitored by multiple staff and will likely result in the fastest support response. When reporting technical issues, please include the course name and location of the course where you are experiencing a problem. For example: “PHA1234, Resources, Module 1, video title.”
Appendix A: Directions for Contacting Faculty & Course Faculty List

Directions for Contacting Course Faculty

Canvas will be used for most communications between the faculty and students. Check for new announcements at least once a day for any course updates. Email will also be used occasionally for mass communication to the class, so please check your email at least once a day as well. All emails sent out to the entire class will also be posted as an announcement on Canvas.

General questions about course content (e.g., assignments or lectures) or policies should be posted to the discussion board. We expect students to help each other track down answers as best as possible. Read through all the other posts in the discussion board first before posting to make sure your question has not been addressed/answered already. Please include clear subjects for your post topics to make it clear to all what your post pertains to.

Emotions can easily be misinterpreted on a discussion board/emails so make sure your message is clear before sending it since there are no physical gestures or voice inflections that accompany posts/emails. Any posts/emails deemed inappropriate by the faculty will be dealt with on a case by case basis with either the faculty directly or they will be sent on to the Associate Dean for Professional Affairs.

For personal issues/questions please email your facilitator directly and copy Dr. Hatton (rhatton@cop.ufl.edu). Be sure to include in your subject line the course listing and then a quick subject (i.e. PHA5226 – Your Name - Cat got sick this morning). This will allow coordinators to easily identify emails related to the course amongst the plethora of junk and other emails that are received each day. Emails not properly addressed may get lost in the shuffle and unintentionally deleted or ignored so be sure to follow the guidelines exactly. If you have any issues with the course site please email Dr. Hatton.