

PHA5244
Principles of Evidence-Based Practice
Spring 2026 | 3 Credit Hours – [A-E Grading]

The goal of the course is to familiarize students with methods and tools to evaluate biomedical literature to inform evidence-based patient care. The course spans across three main areas: formulating and addressing patient care questions, searching and evaluating available resources, and critically appraising published biomedical literature.

Course Prerequisites: -- Successful completion of Block 1, 2, and 3 courses.

Course Corequisites: -- PHA 5781 Patient Care

Course Faculty and Staff	
Course Director	Instructional Designer
Richard Segal, RPh, PhD <ul style="list-style-type: none"> Email: segal@cop.ufl.edu Office: 6304 Malachowsky Hall/GNV Phone: 352-273-6265 	Holly Fremen, M.S. Email: holly.fremen@cop.ufl.edu Phone: 352-273-5558
Academic Coordinators	
Paul Mucci (GNV) Email: paul.mucci@cop.ufl.edu	Jessica Linares (ORL) Email: Jnoriegalinares@ufl.edu
Jaime Welsh (JAX) Email: jaimewelsh@ufl.edu	Nadja Rivera (ORL) Email: nl.riverarivera@ufl.edu
Teaching Faculty	
Sebastian Jugl, BPharm, MS <ul style="list-style-type: none"> Email: s.jugl@ufl.edu Office: 6300 Malachowsky Hall/GNV Phone: 352-294-5470 	Nicole Smolinski, PharmD, PhD <ul style="list-style-type: none"> Email: nsmolinski@ufl.edu
Lauren Adkins, MLIS <ul style="list-style-type: none"> Email: lauren.adkins@ufl.edu Office: GNV Health Science Center Libraries Phone: (352)273-8444 	

[Faculty and Staff: Who to Contact and Questions to Ask](#)

Office Hours: Please see the Canvas course site for posted office hours.

Faculty Locations:

Gainesville	POP: DSIT 5th floor
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Course Objectives and Educational Outcomes	
Course Objectives: Upon completion of this course, the student will be able to:	Linked Educational Outcome
1. Define the best practices required to address drug information questions.	Learner Problem-solver Communicator
2. Identify appropriate resources and search strategies to answer a specific patient	Steward

care question.	
3. Describe the principles of study design and measurement in the evaluation of published research studies.	Learner
4. Summarize and apply the principles of biostatistics to interpret study results of published biomedical literature.	Learner
5. Explain how clinical findings are summarized in published biomedical literature.	Learner
6. Appraise the literature to formulate an evidence-based recommendation in clinical decision-making.	Provider

Course Resources and Fees	
Course Outline	
See Appendix A. Please routinely check your Google campus calendar and the Canvas course site for any messages about changes in the schedule including meeting dates/times, deadlines, and room changes.	
Required Textbooks/Readings	
Use UF VPN to access UF Libraries Resources when off-campus. The UF HSC library staff can assist you with questions or issues related to accessing online library materials. For assistance contact your College of Pharmacy librarian or visit the HSC Library Website at this URL: http://www.library.health.ufl.edu/	
Available via HSC Library – Access Pharmacy (https://accesspharmacy.mhmedical.com/)	
1. Malone PM, Malone MJ, Park SK. eds. Drug Information: A Guide for Pharmacists, 7e New York, NY: McGraw-Hill; 2022. ISBN-10: 1260460304	
2. White S. eds. Basic & Clinical Biostatistics, 5e New York, NY: McGraw-Hill; 2020. ISBN-10: 126045536X	
Suggested Textbooks/Readings	
Available via HSC Library – Access Pharmacy (https://accesspharmacy.mhmedical.com/)	
1. Yang Y, West-Strum D. eds. Understanding Pharmacoepidemiology New York, NY: McGraw-Hill; 2011.	
2. Greenberg RS. eds. Medical Epidemiology: Population Health and Effective Health Care, 5e New York, NY: McGraw-Hill; 2015. ISBN 978-0-07-182272-5	
3. Aparasu RR, Bentley JP, Pate AN. eds. Student Handbook for Pharmacy Practice Research: A Companion Book to Conduct Practice-Based Research in Pharmacy. McGraw Hill; 2022. ISBN 978-1-260-47425-1	
Other Required Learning Resources	
None	
Materials & Supplies Fees	
None	

Evaluation and Grading	
Student Evaluation & Grading	
The Canvas© gradebook will be set-up using the percentages below to compute the grade.	
Grade adjustments for RATs and Exams: Grades for readiness assessment tests (iRAT/tRATs) and exams (midterm and final) will be evaluated by the course coordinators using item analyses statistics provided by Canvas™ and ExamSoft™. Coordinators will only give credit back for those questions deemed to perform poorly based on objective criteria (i.e. Percent of students who answered the question correctly, the Discrimination Index, and the Point Biserial).	
Assessment Item	Grade Percentage
iRATs (6 at 2.5% each)	15%
tRATs (6 at 1.67% each)	10%
Assignment – Escape Room**	2%

Assignment – Drug Information Form**	18%
Assignment – Biostatistics NaviGator AI Tutor Knowledge Gap Identification**	2%
Midterm Exam	26%
Final Exam	27%
Total	100%

** Late Assignment Policy: Late Assignments will NOT be accepted

Grading Scale					
Percentage	Letter Grade	Percentage	Letter Grade	Percentage	Letter Grade
92.50-100%	A	79.50-82.49%	B-	66.50-69.49%	D+
89.50-92.49%	A-	76.50-79.49%	C+	62.50-66.49%	D
86.50-89.49%	B+	72.50-76.49%	C	59.50-62.49%	D-
82.50-86.49%	B	69.50-72.49%	C-	< 59.50%	E

Rounding of Grades
Final grades in Canvas will be rounded to the 2nd decimal place. If the decimal is X.495 or higher, Canvas will round the grade to X.50. The above scale depicts this policy and grades are determined accordingly. Grade assignment is made using this policy and <u>NO EXCEPTIONS</u> will be made in situations where a student’s grade is “close.”
University of Florida Honor Pledge and Academic Dishonesty
UF students are bound by The Honor Pledge which states “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Expectations for Artificial Intelligence and when use constitutes academic dishonesty is outlined below.
Tendering information (giving your work to another to be copied, giving someone answers to assessment questions, informing another person in a later section about the questions that appear on an assessment that you have taken, or giving or selling a paper to another student), is considered academic dishonesty. If you have any questions or concerns, please consult the course’s Teaching Partnership Leader/Course Director or Assistant Dean for Curricular Affairs. See the UF Conduct Code website for more information.

Assignment Descriptions

There are three assignments in this course, and all are to be completed individually with no assistance from classmates or others. You may not have assistance from AI with the Escape Room and Drug Information Form assignments. The Biostatistics NaviGator AI Tutor Knowledge Gap Identification Assignment, as indicated in the assignment name, requires using the NaviGator AI Tutor portal to complete the assignment.

Course-Related Policies

UF Resources and Policies

University of Florida resources and policies can be found at this URL: <https://go.ufl.edu/syllabuspolicies>

PharmD Course Policies

The Policies in the following link apply to this course. Review the General [Pharm.D. Course Policies](#) carefully, at this URL:

Course-Related Policies

<http://curriculum.pharmacy.ufl.edu/current-students/course-policies/>

Attendance Policy

Attendance is mandatory for active learning sessions such as team-based learning sessions, case discussions, laboratory sessions, and other activities that the instructor designates as required. This course has 6 required sessions (ALS). A student who misses more than 1 session for this course (greater than 25% of the required active learning sessions) will receive an incomplete in the course and will retake the course during the next offering, resulting in delayed graduation.

Makeup Assignments

N/A

Late Assignments

Late assignments will NOT be accepted.

Educational Technology Use

The following technology below will be used during the course and the student must have the appropriate technology and software.

1. ExamSoft™ Testing Platform
2. Canvas™ Learning Management System

For technical support, navigate to [Educational Technology and IT Support Contact Information](#) at this URL:

<http://curriculum.pharmacy.ufl.edu/current-students/technical-help/>

Artificial Intelligence (AI) Use for Assessments

The use of generative AI in assessments is prohibited, unless explicitly allowed by the course instructor. Assessments include any submitted work, graded or ungraded, that will be evaluated. These include, but are not limited to, quizzes, exams, assignments, writing projects, etc. If a student is uncertain about the use of AI technology, it is the student's responsibility to ask the instructor prior to beginning the assignment or assessment.

When authorized by the course director/course instructors, students may use AI technologies in the completion of an assessment if they acknowledge all use by naming the technology, describing how it was employed, and adhering to any other requirement stipulated in the assessment's instructions. Failure to acknowledge the use of AI technology or disregarding instructions related to the use of AI for assessments is considered academic misconduct. Students must disclose the use of AI and AI-assisted technologies by following the instructions below.

Application of AI technology must be done with human oversight and control, and students should carefully review and edit the result, as AI can generate outputs that can be incorrect, incomplete, or biased. **Students assume full responsibility for all content, including errors and omissions, if AI is employed.** Additionally, privacy is a concern with AI-generated content. Most commercially available AI systems are not compliant with [HIPAA](#) or FERPA protections, inputting patient or student information is prohibited by federal law.

Instructions to acknowledge the use of AI:

Statement: During the preparation of this assignment I/we, [INSERT NAME/S], used [INSERT TOOL / SERVICE] in order to [INSERT REASON OR PURPOSE]. After using this tool/service, I/we reviewed and edited the content as needed and take full responsibility for the content of the submission.

Penalties for unauthorized use:

Unauthorized use of AI text generators for assessments is considered evidence of academic dishonesty (see [policy on academic dishonesty](#)).

Guidance on Using AI Tools for Learning

You are welcome to use AI tools to support your learning in this course, including for tasks such as brainstorming,

Course-Related Policies

outlining, or summarizing complex topics. However, please be aware that AI-generated content may contain false or misleading information. It is your responsibility to critically evaluate and fact-check any information you use. For all assessments, your responses should be based on the content provided in course materials and lectures.

To protect instructional content and comply with university policies, if you choose to create your own study aids using AI, instructor materials (e.g., PowerPoint slides, lecture transcripts, course handouts) may only be uploaded to university-supported, secure platforms such as the Navigator suite of AI tools (<https://it.ufl.edu/ai/>) or Microsoft Copilot (<https://copilot.microsoft.com/>) using your GatorLink credentials. When using Navigator AI, students should select a model approved for handling sensitive data. Individual instructors may choose not to permit the use of their instructional materials with AI tools. Any course materials that are restricted from AI use will be communicated to students through the course learning management system, Canvas.

Students are prohibited from uploading instructor materials to open or non-university-supported AI tools unless they have received written permission from the course instructor. Students are expected to use AI tools responsibly and must not upload any content that violates copyright laws or terms of use. If you are unsure whether an AI tool is appropriate to use, please consult the instructor.

Disability Resource Center

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. See the [Get Started with the DRC webpage](#) on the Disability Resource Center site. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online. Students can complete evaluations in three ways:

1. The email they receive from GatorEvals,
2. Their Canvas course menu under GatorEvals, or
3. The central portal at <https://my-ufl.bluera.com>

Guidance on how to provide constructive feedback is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>

Appendix A: Course Outline

Date / Time [Recommended for Independent Study]	Mod#	Activity	Activity Title	Contact Time (Min)	Faculty
03/09/26	1	Module	Module 1: Evidence-Based Medicine and Drug Information (Objectives 1-2)		
03/09/26	1	Video Lecture	Watch: Course Introduction Video	26	Richard Segal
03/09/26	1.1	Video Lecture	Watch: Principles of Evidence- Based Medicine	43	Richard Segal
03/09/26	1.2	Video Lecture	Watch: Formulating an Effective Response	41	Richard Segal

03/09/26	1.3	Reading	Read: Chapter 3. Drug Information Resources	25	Richard Segal
03/09/26	1.4	Video Lecture	Watch: Searching the Literature	39	Lauren Adkins
03/09/26	1.5	Video Lecture	Watch: PubMed Tutorial	36	Lauren Adkins
03/09/26	1.6	Video Lecture	Watch: Embase Tutorial	22	Lauren Adkins
03/10/26	1.7	Video Lecture	Watch: Finding Primary Sources	18	Lauren Adkins
03/10/26	1.8	Video Lecture	Watch: AI and Drug Information	8	Lauren Adkins
03/10/26	1.9	Video Lecture	Watch: AI for Drug Information Questions	18	Lauren Adkins
03/10/26	1.10	Video Lecture	Watch: Drug Labeling	69	Richard Segal
03/10/26	1.11	Optional/ Supplemental	Read: Evaluating Internet Health Information Tutorial		Richard Segal
03/10/26	1.12	Optional/ Supplemental	Read: Chapter 25. Drug Information and Contemporary Community Pharmacy Practice		Richard Segal
DUE: 3/23/2026 at 11:59 pm		Assignment Graded	Assignment: Escape Room		Lauren Adkins
03/11/2026 at 3:00pm-4:50pm	1	Active Learning Session--VC	Active Learning Session 1: Applied Drug Information	100	Richard Segal
		Quiz In-class Graded	iRAT 1		Richard Segal
		Quiz In-class Graded	tRat 01		Richard Segal
	2	Module	Module 2: Adverse Drug Reactions and Uncontrolled Studies (Objectives 2-3)		Richard Segal
03/24/26	2.1	Video Lecture	Watch: Principles of Causal Inference	29	Richard Segal
03/24/26	2.2	Video Lecture	Watch: Hierarchy of Evidence	44	Richard Segal
03/24/26	2.3	Video Lecture	Watch: Case Reports and Case Series	34	Richard Segal
03/24/26	2.4	Video Lecture	Watch: Determining Causality	48	Richard Segal
03/24/26	2.5	Video Lecture	Watch: Internal Validity	59	Richard Segal
03/25/26	2.6	Reading	Read: Example of Case Report (ALS prep)	25	Richard Segal
03/25/26	2.7	Reading	Read: Example of Case Report (ALS prep)	25	Richard Segal
03/25/26	2.8	Optional/ Supplemental	Read: Consistency of psychotropic drug-drug interactions listed in drug monographs (ALS prep)		Richard Segal
03/27/2026 8:00am-9:50am	1	Active Learning Session--VC	Active Learning Session 2: Case Report and Drug Interactions	100	Richard Segal
		Quiz In-class Graded	iRAT 02		Richard Segal
		Quiz In-class Graded	tRat 02		Richard Segal
	3	Module	Module 3: Applying Biostatistics for Study Appraisal (Objectives 3-5)		Sebastian Jugl
03/27/26	3.1	Video Lecture	Watch: Anatomy of a Research Article	44	Sebastian Jugl
03/27/26	3.2	Reading	Read: Drug Literature Evaluation Template	13.5	Sebastian Jugl

03/27/26	3.3	Reading	Read: Chapter 3. Summarizing data & presenting data in tables and graphs	25	Sebastian Jugl
03/27/26	3.4	Video Lecture	Watch: Levels of Measurement and Hypothesis testing	37	Sebastian Jugl
03/30/26	3.5	Video Lecture	Watch: Margins of Truth: Confidence Intervals, Power, and P-Values	52	Sebastian Jugl
03/30/26	3.6	Video Lecture	Watch: Absolute and Relative Measures	41	Sebastian Jugl
03/30/26	3.7	Video Lecture	Watch: A Roadmap to Statistical Testing	69	Sebastian Jugl
03/30/26	3.8	Video Lecture	Watch: Confounding 101: What it is and How to Handle it	31	Sebastian Jugl
03/30/2026 at 11:59 pm		Assignment Graded	Assignment: Biostatistics Navigator AI Tutor Knowledge Gap Identification		Sebastian Jugl
04/02/2026 8:00am-9:50am	3	Active Learning Session--VC	Active Learning Session 3: Biostatistics in Practice	100	Sebastian Jugl
		Quiz In-class Graded	iRAT 03		Sebastian Jugl
		Quiz In-class Graded	tRat 03		Sebastian Jugl
04/06/2026 at 11:59 pm		Assignment Graded	Assignment: Drug Information Form		Richard Segal
04/14/2026 9:00am - 11:30am	1-3	Exam	Midterm Exam	120	Lauren Adkins, Richard Segal, Sebastian Jugl
	4	Module	Module 4: Experimental Studies (Objectives 3-6)		Nicole Smolinski
04/15/26	4.1	Video Lecture	Watch: Randomized Clinical Controlled Trials	12	Nicole Smolinski
04/15/26	4.2	Video Lecture	Watch: Sampling and Randomization	11	Nicole Smolinski
04/15/26	4.3	Video Lecture	Watch: Attrition in RCTs	16	Nicole Smolinski
04/15/26	4.4	Video Lecture	Watch: Clinical Outcomes	15	Nicole Smolinski
04/15/26	4.5	Video Lecture	Watch: Statistical and Clinical Significance	6	Nicole Smolinski
04/15/26	4.6	Video Lecture	Watch: External Validity	14	Nicole Smolinski
04/16/26	4.7	Video Lecture	Watch: Limitations of RCTs	14	Nicole Smolinski
04/16/26	4.8	Reading	https://www.mdpi.com/2072-6643/17/4/708	25	Nicole Smolinski
04/16/26	4.9	Reading	Read: RCT example article (ALS prep)	25	Nicole Smolinski
04/17/2026 10:00am - 11:50am	4	Active Learning Session--VC	Active Learning Session 4: Journal Club RCT	100	Nicole Smolinski
		Quiz In-class Graded	iRAT 04		Nicole Smolinski
		Quiz In-class Graded	tRat 04		Nicole Smolinski
	5	Module	Module 5: Observational / Non-Interventional Studies (Objectives 4-6)		

04/20/26	5.1	Video Lecture	Watch: Observational Studies	51	Sebastian Jugl
04/20/26	5.2	Video Lecture	Watch: Data Matters: Understanding Different Data Sources in Observational Studies	43	Sebastian Jugl
04/20/26	5.3	Video Lecture	Watch: The Trust Factor: Understanding Reliability & Validity	41	Sebastian Jugl
04/20/26	5.4	Video Lecture	Watch: From Records to Results: Measuring Exposure & Outcomes in Observational Studies	49	Sebastian Jugl
04/21/26	5.5	Video Lecture	Watch: Study Designs in Observational Studies	64	Sebastian Jugl
04/21/26	5.6	Reading	Read: Cohort Study Example Article (ALS prep)	38.5	Sebastian Jugl
04/23/2026 1:00pm - 2:50pm	5	Active Learning Session--VC	Active Learning Session 5: Journal Club Cohort study	100	Sebastian Jugl
		Quiz In-class Graded	iRAT 05		Sebastian Jugl
		Quiz In-class Graded	tRat 05		Sebastian Jugl
	6	Module	Module 6: Summarizing the Evidence (Objectives 4-6)		Sebastian Jugl
04/24/26	6.1	Video Lecture	Watch: Evidence Synthesis: Understanding & Conducting Systematic Reviews	27	Sebastian Jugl
04/24/26	6.2	Video Lecture	Watch: Pooling Data for Insight: Meta-Analysis Essentials	39	Sebastian Jugl
04/24/26	6.3	Video Lecture	Watch: From Research to Recommendations: Understanding Clinical Practice Guidelines	28	Sebastian Jugl
04/24/26	6.4	Reading	Read: Systematic review/meta-analysis example article	38.5	Sebastian Jugl
04/24/26	6.5	Reading	Read: Guidelines example article	25	Sebastian Jugl
04/24/26	6.6	Reading	Read: Chapter 14. Drug Evaluation Monographs	25	Sebastian Jugl
04/24/26	6.7	Video Lecture	Watch: From a PharmD to a research career	31	Richard Segal
04/29/2026 1:00pm - 2:50pm	6	Active Learning Session--VC	Active Learning Session 6: Meta-analysis and Guidelines, Case #7	100	Sebastian Jugl
		Quiz In-class Graded	iRAT 06		Sebastian Jugl
		Quiz In-class Graded	tRat 06		Sebastian Jugl
05/01/2026 2:50pm - 3:15pm		Course Eval	Course Eval Due		
05/05/2026 9:00am - 11:30am	1-6	Exam	Final Exam		Nicole Smolinski, Sebastian Jugl
			Total Contact Min	2279.5	
			Total Contact Hours	45.59	