

The purpose of this course is to introduce the student to sterile compounding in pharmacy practice. The content examines the current standards and best practices for preparing a sterile compound. Topics include pertinent information from USP Chapter 797/800, calculations, microbiological considerations, selection of sterile compounding equipment, engineering controls, aseptic technique, stability and compatibility considerations, quality assurance and product verification. Special topics include preparation of total parenteral nutrition, hazardous preparations, and special needs of infants and children. This course prepares the student for developing skills related to sterile compounding during the professional practice skills laboratory courses and sterile compounding during the Hospital Introductory Pharmacy Practice Experience (HIPPE). This will enable the student to prepare sterile compounds as a pharmacist.

Course Prerequisites: Completion of all Year 1 Pharm.D. program coursework including milestones.

Course Corequisites: PHA5164 Professional Practice Skills Laboratory 4

Course Faculty and Staff

Course Faculty and Staff		
Course Director		Instructional Designer
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Academic Coordinators		
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Teaching Faculty		
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[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	PEP: HPNP 2336 PC: P-320	Orlando	UFRAC 420
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Course Resources and Fees

Course Outline
See Appendix A. Please routinely check your 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
Students will be guided through setting up a free USP account online in Module 1 to access USP chapters <797> and <800> for required 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/

Suggested Textbooks/Readings
None
Other Required Learning Resources
Non-programmable calculators are required for this course.
Materials & Supplies Fees
None

Course Objectives and Educational Outcomes	
Course Objectives	Linked Educational Outcome
1. Name and explain the applicability of the standards and regulations for sterile compounding.	Learner
2. Describe the key principles and requirements of USP <797> and <800>.	Learner
3. Describe concepts related to microbiological contamination of compounded sterile preparations	Learner
4. Describe labeling requirements and data management for compounded sterile preparations.	Learner Steward
5. Describe supplies, equipment, and key safety features used to compound, administer and dispose of compounded sterile preparations.	Learner Steward
6. List the roles, responsibilities, and competency testing requirements of personnel involved in sterile compounding.	Steward Provider
7. Outline steps of aseptic technique and specific compounding manipulations.	Provider
8. Describe engineering and safety controls important for the proper preparation, handling and disposal of hazardous agents used in sterile compounding	Steward
9. Describe quality assurance programs and data-driven decision making for compounded sterile preparations	Steward
10. Describe methods of final product verification of compounded sterile preparations.	Provider
11. Perform calculations commonly utilized for the compounding and administration of compounded sterile products.	Provider
12. List factors that influence the compatibility and stability of parenteral preparations.	Learner
13. Describe Beyond Use Dates (BUDs) and how to assign them using available resources.	Steward
14. Describe essential concepts for the preparation, storage and administration of special products in sterile compounding (parenteral nutrition, epidural, ophthalmic, intradermal, and cellular and gene therapies).	Provider Steward
15. Describe key considerations for the safe provision of IV drug therapy to infants and children.	Provider

Evaluation and Grading	
Student Evaluation & Grading	
The Canvas© gradebook will be set-up using the percentages below to compute the grade.	
Assessment Item	Grade Percentage
Online Assessments (n=5 @ 2% each [Modules 1-5])	10%
In-Class Quiz (ALS 1)	10%
USP Account Verification	5%
ALS 1 Documentation	5%
NIOSH Reflection	5%
Final Exam	65%
Total	100%

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 NO EXCEPTIONS 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. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Assignment Descriptions
Online Quizzes (n=5 @ 2% each). Students will complete online, open-book quizzes by their due date. These quizzes are to be completed individually without assistance from AI or other learners. These quiz questions provide students with extra practice to self-assess knowledge.
In-Class Quiz ALS 1 (10%). Students will begin class by taking an individual quiz based on the content in the module. Please refer to the course schedule for specifics on what will be covered for each ALS.
USP Account Verification (5%). Students will set up a free online USP account to access USP chapters <797> and <800>. After completion of account set up, students will upload a confirmation PDF by the deadline for credit.
Active Learning Documentation (5%) Students will submit documentation related to ALS 1 by the end of class.
Hazardous Drug Reflection (5%). Students will complete a guided reflection on hazardous drug lists by the deadline.
Final Exam (65%). A closed book, comprehensive final examination will take place at the end of the course. This examination is administered in a proctored environment and examination policies apply to this assessment.

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: <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 2 required sessions (ALS). A student who misses greater than 1 session(s) for this course will receive an incomplete in the course and will retake the course during the next offering, resulting in delayed graduation.

Makeup Assignments

Makeup assignments WILL be required for excused absences from all Active Learning Sessions. Students will be required to complete the makeup assignment within one week of the missed session.

Late Assignments

Late assignments will not be accepted and a grade of zero will be assigned.

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, 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 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
	1	Module	Introduction to Sterile Compounding (Objectives 1-5)		
01/05/26	1.1	Other	Setting up your USP Account	10	Taylor
01/06/2026 due by 11:59 pm		Assignment (Graded)	USP Account Verification		Taylor
01/05/26	1.1	Reading (Web)	Reading: USP <797> (see Canvas for assigned pages)	30	Taylor
01/05/26	1.2	Lecture Video	Contamination Considerations in Sterile Compounding	25	Taylor
01/05/26	1.3	Lecture Video	Primary and Secondary Engineering Controls	33	Taylor
01/05/26	1.4	Lecture Video	Cleaning and Disinfecting Primary and Secondary Engineering Controls	18	Taylor
01/05/26	1.5	Video Other	Cleanroom Design Video	5	Taylor
01/05/26	1.6	Lecture Video	Garbing and Handwashing	13	Taylor
		Optional/ Supplemental	Hand Hygiene and Garbing Video from Johns Hopkins Medicine		
01/05/26	1.7	Lecture Video	Movement within the Compounding Area	13	Taylor
01/05/26	1.8	Lecture Video	Routine Monitoring and Documentation	7	Taylor
01/05/26	1.9	Reading (Web)	Regulatory Requirements & Quality Assurance	30	Taylor
01/06/2026 due by 11:59 pm	1	Quiz (Online)	Online Assessment (Module 1)		Taylor
	2	Module	Compounding Sterile Preparations (Objectives 4-6, 9, 10)		
01/07/26	2.1	Reading (Web)	Compounded Sterile Product Categories	3	Taylor
01/07/26	2.2	Lecture Video	Supplies, Equipment & Components	15	Taylor
01/07/26	2.3	Reading (Web)	Cleaning and Disinfecting Agents and Supplies	5	Taylor
01/07/26	2.4	Reading (Web)	Master Formulation Records and Compounding Records	5	Taylor
		Optional/Supplemental	ASHP List of Standard Operating Procedures		
01/07/26	2.5	Reading (Web)	Personnel Competency Testing	15	Taylor
01/07/26	2.6	Lecture Video	Labeling & Dispensing	15	Taylor
01/07/26	2.7	Lecture Video	Immediate Use Preparation Special Considerations	14	Taylor
01/07/26	2.8	Video Other	Final Product Verification Technology Videos	30	Taylor
		Optional/Supplemental	ASHP IV Workflow Implementation Checklist		
		Optional/Supplemental	ISMP Guidelines for Sterile Compounding and the Safe Use of Sterile Compounding Technology		
01/07/26	2.9	Lecture Video	Managing Pharmaceutical Waste	12	Taylor
01/08/2026 Due by 11:59 pm	2	Quiz (Online)	Online Assessment (Module 2)		
	3	Module	Calculations (Objectives 7, 11)		
01/08/26	3.1	Lecture Video	Watch: Calculations for Parenterals I	50	Mobley
01/08/26	3.2	Lecture Video	Watch: Calculations for Parenterals II	57	
01/09/2026 due by 11:59 pm	3	Quiz (Online)	Online Assessment (Module 3)		Mobley
01/12/2026 from 1pm- 2:50pm		Active Learning Session	ALS 1: Hospital Pharmacist Sterile Compounding Calculations	100	Mobley, Vandervoort
01/12/26		Quiz (In Class)	In-Class Quiz		Mobley
01/12/2026 by 2:50 pm		Assignment (Graded)	ALS 1 Documentation		
	4	Module	Stability and Compatibility of Sterile Preparations (Objectives 5, 12, 13)		

Date / Time [Recommended for Independent Study]	Mod #	Activity	Activity Title	Contact Time (min)	Faculty
01/12/26	4.1	Lecture Video	Checking for Compatibility	15	Taylor
01/12/26	4.2	Reading (Web)	Stability Resources	10	Taylor
01/12/26	4.3	Lecture Video	Beyond Use Dating	15	Taylor
01/13/2026 Due by 11:59 pm	4	Quiz (Online)	Online Assessment (Module 3)		Taylor
01/14/2026 from 10am- 11:50am		Active Learning Session	ALS 2: Compatibility and Beyond Use Dating	100	Taylor
	5	Module	Module 5: Hazardous Drugs (Objectives 2, 8)		
01/13/26	5.1	Reading (Web)	Reading: Hazardous Drug Lists	15	Taylor
01/14/2026 due by 11:59 pm		Assignment (Graded)	Hazardous Drug List Reflection		Taylor
01/13/26	5.2	Reading (Web)	Reading: USP <800> (see Canvas for assigned pages)	15	Taylor
01/13/26	5.3	Reading (Web)	USP <800> Requirements	12	Taylor
01/13/26	5.4	Lecture Video	Hazardous Drug Compounding	15	Taylor
01/13/26	5.5	Lecture Video	Hazardous Drug Handling and Administration Considerations	15	Taylor
01/13/26	5.6	Lecture Video	Closed System Transfer Devices	10	Taylor
01/14/2026 Due by 11:59 pm	5	Quiz (Online)	Online Assessment (Module 5)		Taylor
	6	Module	Module 6: Special Products in Sterile Compounding (Objectives 14, 15)		
01/14/26	6.1	Lecture Video	Total Parenteral Nutrition	15	Taylor
01/14/26	6.2	Lecture Video	IV Drug Therapy in Infants and Children	15	Taylor
01/14/26	6.3	Lecture Video	Epidural Products	10	Taylor
01/14/26	6.4	Lecture Video	Ophthalmic Products	10	Taylor
01/14/26	6.5	Lecture Video	Intradermal Products	15	Taylor
01/14/26	6.6	Reading (PDF)	Cellular & Gene Therapies	30	Taylor
01/14/2026 from 11:50am- 12:10am		Course Evaluation	Sterile Compounding Course Evaluation		Taylor
01/16/2026 9- 11:30am	1-6	Exam	Final Exam (Comprehensive)		Taylor
			Total Contact Hours in Course:	15.00	