

Term Information

Effective Term Spring 2026

General Information

Course Bulletin Listing/Subject Area Pharmacy
Fiscal Unit/Academic Org Pharmacy - D1800
College/Academic Group Pharmacy
Level/Career Undergraduate
Course Number/Catalog 3710
Course Title From Botanicals to Pharmaceuticals: The Evolution of Culture on Drug Production and Policies
Transcript Abbreviation Botanical to Pharm
Course Description In this course, students will examine the pivotal moments and paradigm shifts in the early rise, development, and maturation of pharmacy and pharmaceutical sciences as a profession with a keen eye on the role that power and authority played in this developmental process.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week, 7 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? Yes
Is any section of the course offered 100% at a distance
Grading Basis Letter Grade
Repeatable No
Course Components Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus, Lima, Mansfield, Marion, Newark, Wooster

Prerequisites and Exclusions

Prerequisites/Corequisites
Exclusions
Electronically Enforced No

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 51.2010
Subsidy Level Baccalaureate Course
Intended Rank Freshman, Sophomore, Junior, Senior

Requirement/Elective Designation

Traditions, Cultures, and Transformations

Course Details

Course goals or learning objectives/outcomes

- Students will learn about key developments in botanica and drug development.
- Students will read, understand, and express in writing complex ideas and issues relating to botanic and drug development.
- Students will leave the course able to comprehend, use, and produce analyses about botanic and drug development.
- Students will learn through critical engagement with and about materials presented throughout the course.

Content Topic List

- Paradigm shifts and transformational ideas; Foundations of drug, discovery, medicine and pharmacy as disciplines
- Overview of material culture as guiding lens for course; Examine the intersection of how society views disease and the response of dominant and sub-cultures in pharmacy and medicine.

Overview of identify discourses of pharmacists

- Early beginnings of Pharmacy - Role of early "pharmacist": apothecary/herbalist; use of materia medica and botanicals
- Drug Discovery via plant extraction (Age of Plants); herbal remedies and material medica; Indigenous views on botanicals
- Heroic medicine and homeopathic medicine and the intersection with pharmacy; cultural perspective of pharmacist and drug treatments
- Role of pharmacist: formulator, retailer; divergence from heroic medicine; role of ether in surgery
- Drug Discovery shifting from plant extraction to chemical synthesis; the Civil War's impact on medicine and pharmacy
- Role of Pharmacist During and Post Civil War: compounder, retailer; formation of APhA in 1852; end of nostrums
- Drug Discovery: Targeted therapies; Creation of FDA and initial regulation; Germ Theory and key influential figures
- Role of Pharmacist: Reduction of traditional compounding and dispensing; increase in retail (e.g., soda fountains and commercial goods); formation of American Society of Hospital Pharmacists (1942); patents as legal entities for drugs
- Drug Discovery: Targeted Therapies Continued; Key Drugs: Sulfa Drugs, Penicillin; Mustard Gas and Cancer
- Role of Pharmacist: reduce retail, dispensing increased (due to explosion of new drugs), but of pre-made drugs; evolution of pharmacies for patient care; new innovations in clinical pharmacy services; regulations
- Drug Discovery: Age of Genetics; evolution of Policy Making in the US
- Modern therapies for Cancer and Heart Disease; Opioid Crisis; Modern Day Role of Pharmacist: Non-dispensing services like vaccinations and medication adherence (Post-Pharmaceutical Care)
- Holistic impact of evolution of drug discovery and pharmacy profession on society; resurgence of botanicals via complementary and alternative medicine; Pharmacy, Drug Discovery and the Environment

Sought Concurrence

No

Attachments

- AWG-Botanicals to Pharmaceuticals submission-traditions.pdf: GE Themes submission worksheet

(Other Supporting Documentation. Owner: Bowman, Michael Robert)

- PHR 3710 Syllabus- Botanicals-Pharmaceuticals_OCT 1.docx: updated syllabus

(Syllabus. Owner: Bowman, Michael Robert)

- Cover letter for PHR 3710.pdf: revised cover letter

(Cover Letter. Owner: Bowman, Michael Robert)

Comments

- approved by Undergraduate Studies Committee 12/13/24

updated syllabus incorporating revisions added 2/12/25

new updated syllabus incorporating 2/25/25 revisions added 6/23/25

new updated syllabus incorporating 9/10/25 revisions added 9/16/25

new updated cover letter addressing 9/10/25 revisions added 9/16/25

new updated cover letter and syllabus addressing 9/29/25 revisions added 10/1/25 *(by Bowman, Michael Robert on 10/01/2025 09:45 AM)*

- See feedback email sent to unit 09-10-2025 RLS

Please see feedback email sent to unit 09-29-2025 RLS *(by Steele, Rachel Lea on 09/29/2025 09:17 AM)*

- Please see feedback email sent 2/25/24. *(by Neff, Jennifer on 02/25/2025 04:13 PM)*

- This is a syllabus without a weekly schedule of activities. Also, the goals and ELOs of the requested GE category + explanatory paragraph do not appear in the syllabus. Please address. *(by Vankeerbergen, Bernadette Chantal on 01/29/2025 02:11 PM)*

COURSE REQUEST
3710 - Status: PENDING

Last Updated: Kwiek,Nicole Cartwright
10/01/2025

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Bowman,Michael Robert	01/10/2025 11:41 AM	Submitted for Approval
Approved	Mercerhill,Jessica Leigh	01/10/2025 12:52 PM	Unit Approval
Approved	Kwiek,Nicole Cartwright	01/10/2025 03:01 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	01/29/2025 02:12 PM	ASCCAO Approval
Submitted	Bowman,Michael Robert	02/12/2025 03:41 PM	Submitted for Approval
Approved	Mercerhill,Jessica Leigh	02/12/2025 04:32 PM	Unit Approval
Approved	Kwiek,Nicole Cartwright	02/12/2025 04:43 PM	College Approval
Revision Requested	Neff,Jennifer	02/25/2025 04:13 PM	ASCCAO Approval
Submitted	Bowman,Michael Robert	06/23/2025 10:12 AM	Submitted for Approval
Approved	Mercerhill,Jessica Leigh	06/24/2025 08:25 AM	Unit Approval
Approved	Kwiek,Nicole Cartwright	06/24/2025 09:35 AM	College Approval
Revision Requested	Steele,Rachel Lea	09/10/2025 12:52 PM	ASCCAO Approval
Submitted	Bowman,Michael Robert	09/16/2025 09:48 AM	Submitted for Approval
Approved	Mercerhill,Jessica Leigh	09/16/2025 09:55 AM	Unit Approval
Approved	Kwiek,Nicole Cartwright	09/16/2025 01:55 PM	College Approval
Revision Requested	Steele,Rachel Lea	09/29/2025 09:17 AM	ASCCAO Approval
Submitted	Bowman,Michael Robert	10/01/2025 09:46 AM	Submitted for Approval
Approved	Mercerhill,Jessica Leigh	10/01/2025 10:49 AM	Unit Approval
Approved	Kwiek,Nicole Cartwright	10/01/2025 10:51 AM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Neff,Jennifer Vankeerbergen,Bernadette Chantal Steele,Rachel Lea	10/01/2025 10:51 AM	ASCCAO Approval



October 1, 2025

Dear reviewers,

Thank you for your thoughtful feedback on PHR 3710: Botanicals to Pharmaceuticals. Dr. Gregg has addressed the committee's concerns and has clarified the role of recorded lectures in the course design. Please find her explanation of the details of these adjustments below:

In response to the Subcommittee's request for more detail on the use of EchoVideo as a central instructional tool aligned with ELO 1.2, we have made the following revisions:

- Page 4: We added a line under "pace of online activities" which explains to students that when each weekly module opens, students will be able to access the course readings, embedded lecture materials, and assignments for the week.
- Page 5: We expanded the description of EchoVideo to specify that students will engage with three recorded lectures per week, each ranging from 15–20 minutes. These lectures include content delivered by Dr. Amy Welling Gregg and interviews with subject matter experts. Lectures are embedded directly into the weekly CarmenCanvas modules and become available as each module opens.
- We explained that other video materials will be provided via Films on Demand or Kanopy. These are identified in the course schedule.
- Page 7, 9, and 10: We clarified that students are expected to integrate concepts from pre-recorded lectures and other video content into weekly discussion assignments, the midterm project, and the final project. This ensures that student engagement with lecture content is both active and assessed.
- On page 20, there was a minor typo with Dr. Welling Gregg's email address that we corrected.
- Pages 22 through 29 now have a new column called "Lecture Topics" in which we identify the topics for each week and specialty videos from Films on Demand or Kanopy to watch.

These changes aim to provide students with a clearer understanding of how recorded lectures function as a core instructional component and how their engagement with this content is structured and assessed throughout the course.

Please let us know if further adjustments are needed.

Thank you again for your time and consideration of PHR 3710.

Sincerely,

Leslie Newman

Botanicals to Pharmaceuticals Syllabus

PHR 3710 Spring 2026

Course Information

- **Course times and location:** No required schedule meetings; all instruction occurs in Carmen each week
- **Credit hours:** 3
- **Mode of delivery:** Distance Learning

Instructor

- **Name:** Dr. Amy Welling Gregg
- **Email:** gregg.86@osu.edu
- **Office hours:** Optional Zoom Weekly Office Hour: 2:30 PM to 3:30 PM
- **Preferred means of communication:**
 - My preferred method of communication for questions is **email**.
 - My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to be sure you receive these messages.
- The professor reserves the right to change details in the syllabus once the course is underway

Course Prerequisites

None.

Course Description

In this course, students will examine the pivotal moments, and paradigm shifts in the early rise, development, and maturation of pharmacy and pharmaceutical sciences as a profession with a keen eye on the role that power and authority played in this developmental process. Key pivotal points include the examination of the early field of Botany, the divergence of pharmacy from medicine, the formalization and maturation of pharmaceuticals as a distinct discipline. While exploring the maturation of pharmaceuticals, students examine



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[College]
[Department]

pharmacogenomics and personalized medicine and two significant disease states that contributed to the rise of the pharmaceutical industry: cancer and heart disease. Finally, throughout the course, students consider the field's cultural, societal, and technological impacts and its "return to roots" in its resurgence in Botany.

The readings are compiled from various disciplines to broaden student understanding from a historical, socio-political, economic, and pharmaceutical standpoint. Readings are selected from online sources via the OSU Libraries; consequently, textbook purchase is not required. The course is 100% online.

Learning Outcomes

By the end of this course, students should successfully be able to:

- Students will learn about key developments in botanical and drug development.
- Students will read, understand, and express in writing complex ideas and issues relating to botanic and drug development.
- Students will leave the course able to comprehend, use, and produce analyses about botanic and drug development.
- Students will learn through critical engagement with and about materials presented throughout the course. This course takes two things for granted: first, the material is relevant to our understanding of drug development. Second, historical and contemporary drug development impacts societies across the globe, and this impact can be accessed and analyzed through thoughtful engagement and rhetorical analysis.

General Education Expected Learning Outcomes

As part of the Traditions, Cultures, and Transformations category of the General Education curriculum, this course is designed to prepare students to be able to do the following:

Goals:

1. Successful students will analyze an important topic or idea at a more advanced and in-depth level than in the Foundations component. [Note: In this context, "advanced" refers to courses that are e.g., synthetic, rely on research or cutting-edge findings, or deeply engage with the subject matter, among other possibilities.]
2. Successful students will integrate approaches to the theme by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.
3. Successful students will engage in a systematic assessment of how cultures and sub-cultures develop and interact, historically or in contemporary society.

4. Successful students will engage in a systematic assessment of differences among societies, institutions, and individuals' experience within traditions and cultures.

Expected Learning Outcomes:

Successful students are able to:

- 1.1. Engage in critical and logical thinking about the topic or idea of the theme.
- 1.2. Engage in an advance, in-depth, scholarly exploration of the topic or idea of the theme.
- 2.1. Identify, describe, and synthesize approaches or experiences as they apply to the theme.
- 2.2. Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.
- 3.1. Describe the influence of an aspect of culture (e.g., religious belief, gender roles, institutional organization, technology, epistemology, philosophy, scientific discovery, etc.) on at least one historical or contemporary issue.
- 3.2. Analyze the impact of a "big" idea or technological advancement in creating a major and long-lasting change in a specific culture.
- 3.3. Examine the interactions among dominant and sub-cultures.
- 3.4. Explore changes and continuities over time within a culture or society.
- 4.1. Recognize and explain differences, similarities, and disparities among institutions, organizations, cultures, societies, and/or individuals.
- 4.2. Explain ways in which categories such as race, ethnicity, and gender and perceptions of difference impact individual outcomes and broader societal issues.

Theme Rationale

The course explores various perspectives and methodologies in medicine and pharmacy, focusing on societal and institutional viewpoints (e.g., eclectics versus allopathic). It delves into the evolution of pharmacy and drug discovery, highlighting the significant paradigm shifts that have shaped the field and influenced societal and cultural transformations. The course will emphasize major changes in approaches within pharmacy and medicine, particularly as pharmacy has emerged as a distinct discipline from medicine. Course readings will concentrate on historical, epidemiological, and cultural factors that have contributed to the development and rise of pharmacy, drug discovery and pharmaceutical sciences.

How This Online Course Works

Mode of delivery: This course is 100% online.

Pace of online activities: This course is divided into weekly modules that are released one week ahead of time. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame. As soon as the weekly module opens, students will be able to access the course readings, embedded lecture materials, and assignments for the week.

Credit hours and work expectations: This is a 3 credit-hour course. According to [Ohio State bylaws on instruction](https://go.osu.edu/credit-hours) (go.osu.edu/credit hours), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of C average.

Based on university policy, for each course credit hour, students are expected to spend one hour in a classroom setting and two additional hours outside the classroom dedicated to course studies. Accordingly, for a 3-credit hour, 16-week term, synchronous online course, students are expected to dedicate approximately nine hours per week to completing the various module activities—this includes the reading of texts, viewing of online videos and narrated lectures, writing guide exercises, studying course materials, participation in weekly discussions, and completing all course assessments.

Attendance and participation requirements: Research shows regular participation is one of the highest predictors of success. With that in mind, I have the following expectations for everyone's participation:

- **Participating in online activities for attendance: at least twice per week**
You are expected to log in to the course in Carmen every week. During most weeks you will probably log in many times. If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.
- **Zoom office hours: optional**
My office hours are optional.
- **Participating in discussion forums: two or more times per week**
As part of your participation, each week you can expect to post at least twice as part of our substantive class discussion on the week's topics.

IMPORTANT: All graded assignments must be submitted in Carmen no later than 11:59 p.m. on their respective due dates to avoid the associated late penalty noted in the syllabus posted in Carmen. The professor reserves the right to change details in the syllabus once the course is underway.

Course Materials, Fees and Technologies

Required Materials and/or Technologies

- OSU Libraries website
- **Hypothes.is**: Students will engage with course reading materials via this social annotation tool for deeper engagement with the text, their peers, and instructor. These assignments will alternate with regular discussion boards to provide peer to peer and instructor to peer communication.
- **EchoVideo**: Students will engage with pre-recorded lecture materials by Dr. Amy Welling Gregg and recorded interviews with experts via EchoVideo. These videos will be directly embedded on their respective CarmenCanvas page for the week. You can expect these videos to range from 15-20 minutes per lecture and typically 3 videos per week. Other video materials will be provided via OSU Libraries (e.g., Film on Demand, Kanopy). These videos, too, will be available once the module for the week has opened. Students are expected to integrate concepts from these videos into the course discussion assignments, midterm assignment, and the final project and its associated checkpoints.

Required Equipment

- **Computer**: current Mac (MacOS) or PC (Windows 10) with high-speed internet connection
- **Webcam**: built-in or external webcam, fully installed and tested
- **Microphone**: built-in laptop or tablet mic or external microphone
- **Other**: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for technology and internet access at go.osu.edu/student-tech-access.

Required Software

Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Visit the [installing Office 365](https://go.osu.edu/office365help) (go.osu.edu/office365help) help article for full instructions.

CarmenCanvas Access

You will need to use [BuckeyePass](https://buckeyepass.osu.edu) (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you can always connect to Carmen, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions.



- [Install the Duo Mobile application](#) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.
- Read about options to [authenticate with BuckeyePass](#).

If none of these options meet your needs, please contact the IT Service Desk at [614-688-4357 \(HELP\)](tel:614-688-4357) and IT support staff will work out a solution with you.

Technology Skills Needed for This Course

- Basic computer and web-browsing skills
- [Navigating CarmenCanvas](https://go.osu.edu/canvasstudent) (go.osu.edu/canvasstudent)
- [CarmenZoom virtual meetings](https://go.osu.edu/zoom-meetings) (go.osu.edu/zoom-meetings)

Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

- **Self Service and Chat:** go.osu.edu/it
- **Phone:** [614-688-4357 \(HELP\)](tel:614-688-4357)
- **Email:** servicedesk@osu.edu

Grading and Faculty Response

How Your Grade is Calculated

Assignment Category	Points
Discussion Assignments (7 at 20 points each) [The two lowest scores are dropped]	100 points
Hypothesis Assignments (8 at 15 points each) [The two lowest scores are dropped]	90 points
Midterm Assignment	40 pts
Final Project: Checkpoint #1 (topic and thesis) Checkpoint #2 (annotated bibliography) Checkpoint #3 (draft) Final Paper	10 points 25 points 70 points 110 points
Total points:	445

See [Course Schedule](#) for due dates.

Descriptions of Major Course Assignments

Discussion Assignments

Description: Students will participate in seven asynchronous discussions throughout the semester. These discussions encourage critical analysis and reflection with course content. Successful responses will thoroughly integrate course readings and lecture materials with specific, direct references. Students will submit their initial responses by Friday evenings and complete peer responses by Sunday evenings.

Discussion Topics below:

- Pre/Post Course Reflection: During the first week of the course, students will consider what they understand about the role of culture, tradition, scientific discovery in shaping

the history and practice of pharmacy and drug discovery? Whose perspectives do you think have been most influential and whose might be missing? During the final week of the course, students will answer: How has your understanding of pharmacy and drug discovery's history, cultural influences, and professional evolution changed? What new questions or perspectives do you now bring to your understanding of pharmacy as a cultural and scientific practice? What additional perspectives may you continue to seek out to refine your understandings?

- GE ELOs: 1.1, 2.1, 3.2, 3.3, 3.4, 4.1, 4.2
- Generative AI considerations for doing research: During one class discussion, students will complete a critical evaluation of outputs from a Generative AI tool as it relates to gathering resources for research around the evolution of drug discovery and/or the professionalization of pharmacy. Students will be provided with at least two prompts to help curate useful resources to engage a Generative AI tool. Students will then evaluate the outputs for accuracy, reliability, and quality. Dr. Welling Gregg will also provide her assessment of outputs from these two prompts. Students will then be asked to react and reflect upon her application of subject matter expertise on reviewing these Generative AI outputs.
 - GE ELOs: 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4
- Cultural analysis: During two discussion assignments, students will discuss dominant and sub-cultures (e.g., Indigenous approach and Western approaches to botanical medicines, allopaths and eclectics on treatment options).
 - GE ELOs: 1.1, 3.3., 3.4, 4.1
- Case studies: During two discussion assignments, students will create a short presentation on a historical medical case with botanical treatment and a short presentation on a modern treatment with pharmaceuticals. In these presentations, students should review and consider cultural, ethical, and institutional responses to these treatments including an analysis of public trust and pharmaceutical regulation (or lack thereof) in the case.
 - GE ELOs: 1.1, 1.2, 2.2, 3.4, 4.2

Hypothes.is Annotation Assignments

Description: Students will participate in eight hypothes.is annotation assignments to dive deeper into course reading materials. Students will be asked to answer specific questions about the readings in addition to identifying paradigm shifting and/or transformational ideas or



broader impacts to the development and maturation of the field of pharmacy as conveyed by the authors.

Students will submit their initial responses by Thursday evenings and complete peer responses by Sunday evenings.

GE ELOs: 1.1, 3.1, 3.4

Midterm Project

Description: For the midterm project, students will analyze three different researchers: Curtis Gates Lloyd, Francis Porcher, and Paul Stamets and their investigation of mushrooms for potential drugs. Students will gain additional practice in comparing the scientific approaches of researchers taken toward drug discovery in the 19th, 20th, and 21st century, in analysis of how their approaches contributed to the paradigm shifts in drug discovery, overall, and how their approaches impacted or intersect with elements of culture. For this project, students will read two references about mushrooms from the 19th and 20th centuries [[Fungi, edible and poisonous](#), Porcher, 1886; The Lycoperdaceae of Australia, New Zealand and Neighboring Islands, Lloyd, 1905] while having the opportunity to select a reading of their choosing for the 21st century from the peer-reviewed literature.

In addition to the two references about mushrooms provided above, students should leverage pre-recorded lecture material and course readings about Lloyd, Porcher, and Stamets to compose their analysis.

Students will also use this assignment as an opportunity to reflect on how to hone their research and interdisciplinary skills for their final project.

GE ELOs: 1.1., 1.2., 2.2, 3.1, 3.4, 4.1, 4.2

Final Project

Description: For the final project, students will analyze how society impacted the rise of pharmacy as a profession or the pharmaceutical industry. Throughout this multi-step project, students will develop a cumulative response that discusses the construction of pharmacy as a profession, the drug discovery process and/or the pharmaceutical industry. Students should aim to consider elements of culture such as scientific discovery, technology, education, institutions, etc., in this analysis. Instructions for each checkpoint and the final paper are posted in the Assignment tab on Carmen Canvas.

GE ELOs: 1.1., 1.2., 2.2, 3.1, 3.4, 4.1, 4.2

There are four checkpoint assignments:

1. Checkpoint 1: Students will submit a selected topic and thesis statement for the first checkpoint

2. Checkpoint 2: An annotated bibliography, citations correctly formatted in the APA Style.
3. Checkpoint 3: A rough draft of your paper for the third checkpoint.

For the final paper, in 2000 to 2500 words (no more, no less,) analyze how society impacted the rise of pharmacy as a profession or the pharmaceutical industry. Your final project is a cumulative response paper that discusses the construction of pharmacy as a profession or the pharmaceutical industry.

- Use at least five-course materials. Reading materials ARE NOT PowerPoints but rather the cited literature from the week, while the other may be a film or materials from a course lecture. You can choose any mixture of course content but you must include direct, specific references to at least two course lectures.
- You will need to find four primary sources outside of the course materials. These source should be directly relevant to the course materials.
- The secondary sources you find must connect your primary sources to the course material. When you identify these sources, be sure to highlight their connections to either course reading materials or lecture materials.
- Failure to utilize the required course materials and four primary sources will reduce the paper's final grade by 15 points for every missing source. Use of outside sources other than the four primary sources and two secondary sources will reduce your letter grade by 30 points for every outside source employed.

All papers must be typed in 12-point Times New Roman font, titled, and double-spaced, and each page must be numbered. Cover sheets are required, which must include your name, course section, semester, and title for your paper. You must use the APA citation style. It is due, via upload, in Carmen by 11:59 PM on April 28th. There is no final exam. Your final papers are due when assigned. NO LATE ASSIGNMENTS will be accepted without proof of a life event (serious illness, including COVID-19, family death, or military deployment.)

Academic integrity and collaboration: Your written assignments, including discussion posts, should be your own original work. In formal assignments, you should follow APA style to cite the ideas and words of your research sources. You are encouraged to ask a trusted person to proofread your assignments before you turn them in but no one else should revise or rewrite your work.

Late Assignments

Please refer to Carmen for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments.

Illness or Other Issues: If you are unable to complete an assignment by the due date or find yourself falling behind due to illness, technological problems, life disruptions, or other personal issues, please contact Dr. Welling Gregg by email to discuss your situation no later than 24 hours before the assignment's due date. NO LATE ASSIGNMENTS will be accepted without proof of a life event (serious illness, including COVID-19, family death, or military deployment.)

Weather or Other Short-Term Closing: Online classes are not normally affected by weather closures but may be subject to other types of university closings. In the case of a closure, communication will be available via an Announcement in CarmenCanvas.

Instructor Feedback and Response Time

I am providing the following list to give you an idea of my intended availability throughout the course. Remember that you can call [614-688-4357 \(HELP\)](tel:614-688-4357) at any time if you have a technical problem.

- **Preferred contact method:** If you have a question, please contact me first through my Ohio State email address-gregg.86@osu.edu. I will reply to e-mails within 24 hours, Monday through Sunday, unless otherwise noted via a course Announcement.
- **Class announcements:** I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Grading and feedback:** You can generally expect feedback for all assignments within 7 – 10 days. Feedback may appear in a written, audio, or video format.

Grading Scale

Note: I round final course grades to the percentage point if it is going to change the earned letter grade (e.g., 89 will be rounded to a 90.0; however, an 88.99 will not be rounded to a 90.0). Your total score is calculated as an unweighted percent of total of points available.

Grade Appeal Procedure: If you believe your grade on any assignment should be different from the grade received, you must clearly explain in writing the basis for your request for re-evaluation. This gives you an opportunity to prepare and present cogent arguments for reassessment. While a grade appeal may result in a higher grade, there is no guarantee, and a re-evaluation may result in a lower grade if such is warranted. Any rebuts to grades earned must be brought to the instructor's attention no later than 48 hours after receiving the grade. Do this by either emailing or meeting with your instructor on Carmen Zoom. Do not communicate using the comments boxes on the assignment submission page. Further information on formal grade appeal rights and procedures is outlined in your student handbook.

93–100: A
90–92.9: A-

87–89.9: B+
83–86.9: B
80–82.9: B-
77–79.9: C+
73–76.9: C
70–72.9: C-
67–69.9: D+
60–66.9: D
Below 60: E



Other Course Policies

Discussion and Communication Guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let us maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online. I will provide specific guidance for discussions on controversial or personal topics.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Netiquette

Virginia Shea wrote “Netiquette,” which is available online at <http://www.albion.com/netiquette/book/>. Netiquette is a code of behavior for using the internet. Your language demonstrates your personality, age, locality, and attitude.

Please follow the proper online etiquette when completing all course assessments and communicating with your instructor via email.

- **Avoid using all caps.**
Using all capitalization to compile your words is ineffective—when communicating online, it is equivalent to screaming. In addition, it confuses the eye and makes it difficult to focus.
- **Avoid dramatic punctuation.**
While you can use the exclamation mark (!) to show excitement, do not solely rely on it. It is often hard to tell if an exclamation mark is negative excitement or positive excitement. Try using word choice and syntax to help convey your feelings rather than a single keystroke.
- **Understand that word choice counts.**
Please consider word choice when composing your discussion posts and assignments. One word can change an entire statement. Avoid offensive language and flaming. Flaming is a form of verbal abuse when you intentionally attack or disparage someone.



- **Use proper grammar and spelling. Always refrain from e-speak.**

If u rite liek this u will drvie prof P crrrrrrrazy lol. :) Typos and basic spelling mistakes will happen. However, using e-speak to communicate in an academic setting is unacceptable. It affects your credibility, confuses the reader, and will result in loss of points. Please ensure your academic writing, including any communication with your instructor, uses proper grammar, spelling, and punctuation.

- Shea, Virginia. Netiquette. Albion Books, 1994.

Academic Integrity Policy

See [Descriptions of Major Course Assignments](#) for specific guidelines about collaboration and academic integrity in the context of this online class.

Ohio State's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the [Committee on Academic Misconduct](#) (COAM) expect that all students have read and understand the University's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so please review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If an instructor suspects that a student has committed academic misconduct in this course, the instructor is obligated by University Rules to report those suspicions to the Committee on Academic Misconduct. If COAM determines that a student violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in the course and suspension or dismissal from the University. If students have questions about the above policy or what constitutes academic misconduct in this course, they should contact the instructor.

Artificial Intelligence and Academic Integrity

There has been a significant increase in the popularity and availability of a variety of generative artificial intelligence (AI) tools, including ChatGPT, Sudowrite and others. These

tools will help shape the future of work, research and technology but when used in the wrong way, they can stand in conflict with academic integrity at Ohio State.

All students have important obligations under the [Code of Student Conduct](#) to complete all academic and scholarly activities with fairness and honesty. Our professional students also have the responsibility to uphold the professional and ethical standards found in their respective academic honor codes. Specifically, students are not to use unauthorized assistance in the laboratory, on field work, in scholarship or on a course assignment unless such assistance has been authorized specifically by the course instructor. In addition, students are not to submit their work without acknowledging any word-for-word use and/or paraphrasing of writing, ideas or other work that is not your own. These requirements apply to all students undergraduate, graduate, and professional.

To maintain a culture of integrity and respect, these generative AI tools should not be used in the completion of course assignments unless an instructor for a given course specifically authorizes their use. Some instructors may approve of using generative AI tools in the academic setting for specific goals. However, these tools should be used only with the explicit and clear permission of each individual instructor, and then only in the ways allowed by the instructor.

Artificial Intelligence Policy for this Course

Acceptable and Unacceptable Uses of AI

- Students are expected to generate their own work in this course. Submitting content that has been generated by someone other than yourself or that was created or written by a computer application or tool, including artificial intelligence (AI) programs such as ChatGPT and Google Bard, outside of the acceptable uses outlined below constitutes a violation of the Ohio State University Code of Student Conduct. Specific examples of acceptable and unacceptable uses of AI tools in this course are highlighted below.

The use of generative AI tools is permitted in this course for the following activities:

- Brainstorming and refining your ideas
- Fine-tuning your research questions
- Finding information/sources on your topic (although multiple tools should be used for this purpose)
- Organizing your thoughts and ideas into a paper structure
- Suggesting counterarguments or objections; and



- Checking grammar and style.

The use of generative AI tools is NOT permitted in this course for the following activities:

- Impersonating you in classroom contexts, including using these tools to compose discussion board prompts, answer quiz questions, or complete other assignments.
- Drafting a thesis statement.
- Writing a draft of a writing assignment.
- Writing entire sentences, paragraphs, or papers to complete class assignments and
- Other uses that are determined to represent abuse of course policy.

The use of AI for allowable tasks, including both benefits and shortcomings, is discussed throughout the semester. You will also be asked to acknowledge any use of AI in writing assignments when you turn them in. You will not be penalized for allowable uses, and this policy is intended to prepare you for real-world situations in which acknowledgment of the use of AI is expected. If you have any questions about a specific use of AI for a course assignment, please contact your instructor for more information.

Additionally, you are responsible for the content of all work that you submit. AI tools tend to fabricate information to meet user-supplied prompts, including (but not limited to) misrepresenting research findings and creating imaginary sources. Any work turned in with false information will receive a grade deduction based on the assignment rubric and may be subject to penalty under Ohio State's Code of Student Conduct, depending on the severity of the infraction.

Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a welcoming community. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual

misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Civil Rights Compliance Office (CRCO):

- Online reporting form: <http://civilrights.osu.edu/>
- Call 614-247-5838 or TTY 614-688-8605
- civilrights@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Civil Rights Compliance Office to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Religious Accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement **and** the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy. If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the [Civil Rights Compliance Office](#).

Policy: [Religious Holidays, Holy Days and Observances](#)

Your Mental Health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing.

If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614-292-5766. CCS is located on the 4th floor of the Younkin Success Center and 10th floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at 614-292-5766 and 24-hour emergency help is also available through the 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

College of Pharmacy specific resources

Any College of Pharmacy student may contact Dr. Levstek directly via email (levstek.4@osu.edu), and he will offer you an initial counseling session via Zoom to initiate services. During this meeting he will address your current concerns and mental health needs,

in addition to collecting background information and assessing your history of concerns. He will also discuss future treatment options with you, and can connect you with other resources as well, where appropriate. If any students have questions or concerns, please email Dr. Levstek directly.



Disability Statement (with Accommodations for Illness)

Requesting Accommodations

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If students anticipate or experience academic barriers based on a disability (including mental health and medical conditions, whether chronic or temporary), they should let their instructor know immediately so that they can privately discuss options. Students do not need to disclose specific information about a disability to faculty. To establish reasonable accommodations, students may be asked to register with Student Life Disability Services (see below for campus-specific contact information). After registration, students should make arrangements with their instructors as soon as possible to discuss your accommodations so that accommodations may be implemented in a timely fashion.

If students are ill and need to miss class, including if they are staying home and away from others while experiencing symptoms of viral infection or fever, they should let their instructor know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations.

Contact information:

- slds@osu.edu
- <https://slds.osu.edu>
- 098 Baker Hall, 113 W. 12th Avenue
- 614-292-3307 phone

Accessibility of Course Technology

This course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- [CarmenCanvas accessibility](https://go.osu.edu/canvas-accessibility) (go.osu.edu/canvas-accessibility)
- [CarmenZoom accessibility](https://go.osu.edu/zoom-accessibility) (go.osu.edu/zoom-accessibility)
- The College of Pharmacy uses Echo360 for lecture capture and hosting of recorded lecture content. Echo360 generates transcripts for recorded lecture content through automated speech recognition. If you experience difficulties with these autogenerated transcripts, please contact your instructor at gregg.86@osu.edu.

- This course requires the use of a digital social annotation tool called Hypothes.is. If you encounter an issue with access to this tool, please contact your instructor at gregg.86@osu.edu and cop-digitalaccessibility@osu.edu. Accommodation and assistance will be arranged for you to complete any work required with this tool free of penalty.



Course Schedule

Refer to the CarmenCanvas course for up-to-date due dates.

Week	GE EL Os	Topics	Readings	Lecture Topics	Assignments
1	1.1 , 3.1 , 3.2	Course introduction Paradigm shifts and transformational ideas Foundations of drug, discovery, medicine and pharmacy as disciplines	<u>What is a paradigm shift?</u> NPR article Ch 1. Historical Overview of Drug Discovery Historical review of medicinal plants' usage (Petrovska, 2012) Anand, Larson, and Mahoney: Thomas Kuhn on Paradigms Production and Operations Management 29(7), pp. 1650–1657 Price, Johnathon, CHEMISTRY, PHARMACY AND REVOLUTION IN FRANCE, 1777-1809, Ashgate Publishing, Ltd., May 28, 2013	How this course works How to organize and critically evaluate readings for this course Methods of analyzing paradigm shifts Derrida's rupture and Kuhn's paradigm shift	Practice Hypothesis Assignment Discussion: Pre-course reflection
2	1.1 , 3.1 , 3.2	Overview of material culture as guiding lens for course Examine the intersection	History and Material Introduction: Historians, Material Culture and Materiality	Interview on Material Culture with Kristin Rodgers, Curator of Medical Heritage Center Take-aways from Framing Disease	Hypothesis Assignment 1 Discussion: GenerativeAI considerations for doing research



		of how society views disease and the response of dominant and sub-cultures in pharmacy and medicine. Overview of identify discourses of pharmacists	Pharmacists and Physicians: An uneasy relationship (Cowen, 1992) A Historical Discourse Analysis of Pharmacy Identity in Pharmacy Education (Keller et al, 2020)	excerpt (dominant and sub-cultures) The value of understanding the history of a profession	
3	1.1 , 2.1 , 2.2 , 3.4	Early beginnings of Pharmacy - Role of early “pharmacist” : apothecary/herbalist; use of materia medica and botanicals	The foundations of Pharmacy in the US (Cowan, 1976); Chapter 2 Introduction to the History and Profession of Pharmacy (Higby, pp 1 through 10); History of Pharmacopoeia (Fullerton, 1946)	British Medical Heritage in Colonial America Scotland, The University of Edinburgh ARTE France., Films for the Humanities & Sciences, & Infobase. (2006). <i>A Treasury of plant medicines</i> [Video recording]. Infobase. https://fod.infobase.com/PortalPlaylists.aspx?xtid=35707&wID=97401	Hypothesis Assignment 2
4	3.4 , 4.1	Drug Discovery via plant extraction (Age of Plants); herbal remedies and material medica;	Podophyllum Peltatum and Observations on the Creek and Cherokee Indians: William Bartram’s Preservation of Native American Pharmacology (Ray, 2009)	Indigenous perspectives on Materia Medica Jefferson’s Notes on State of Virginia (how a country’s dominance is impacted by cures discovered)	Discussion Board: Cultural Analysis I Final Project: Checkpoint 1 – Topic & Thesis Statement

		early figures: Bartram, Barton, & Hosack; Indigenous views on botanicals	Selections from "Collections for an essay towards Materia medica of the United States"	Medicinal plants role in driving conflict, transfer of assets Colonial Williamsburg Pasteur and Galt Apothecary	
5	3.3 , 3.4 , 4.1 , 4.2	Heroic medicine and homeopathic medicine and the intersection with pharmacy Influential figures: Rush, Hosack, Hahneman Key Drugs: Calomel, Blue Tartar Emetic, Willow bark Cultural perspective of pharmacist and drug treatments	An Enquiry into the effects of spirituous liquors upon the human body, and their influence upon the happiness of society (Rush, 1791) Allopathy and homeopathy before the judgment of common sense (Hiller, 1872) Historical Vignette Calomel and the American Medical Sects During the Nineteenth Century (Risse, 1973) The Early Chemical and Pharmaceutical History of Calomel (Urdang, 1948)	Role of proto-pharmacist (physician-apothecary) Review of key botanical drugs Dr. Rush's Thunderbolts Allopaths vs sectarians; what are medical sects and major figures Surgeon General Hammond and the Calomel Crisis	Discussion Board: Case Study Presentation I
6	3.3 , 3.4 , 4.1 , 4.2	Role of pharmacist: formulator, retailer Divergence from heroic medicine	Francis Peyre Porcher: Botanist, Physician, Pharmacist, and Scientist (Gregg, 2018); Drug Hunters Chapter 3	Pain, Pus, Poison: Episode 1 (Pain) Francis Perye Porcher and the poppy Ether: development of anesthesia	Discussion board: Cultural Analysis II



		Use of botanicals; key figures: Porcher, Hahnemann			
		Role of ether in surgery			
7	3.1 , 3.2	Drug Discovery shifting from plant extraction to chemical synthesis. Botanicals: Blackberry balsam; Key Drugs: Opium, (Pre-cursor to) Aspirin The Civil War's impact on medicine and pharmacy	Domestic Medicine Chests: Microcosms of 18th and 19th Century Medical Practice (Crellin, 1979) Opium Slavery: Civil War Veterans and Opiate Addiction (Jones, 2020) On the antiseptic principle in the practice of surgery (Lister, 1867) Drug Hunters Chapter 4	Drug discovery before the FDA American Civil War and the first opioid epidemic <u>Opiate Addiction in the Civil War's Aftermath Virginia Museum of History & Culture</u> Review of botanicals and pharmaceuticals of the era Description of surgery prior to anesthesia and antiseptic	Final Project Checkpoint 2 – Annotated bibliography Hypothesis Assignment 3
8	1.1 , 2.1 , 3.1 , 3.2 , 3.4	Role of Pharmacist During and Post Civil War: compounder , retailer; Formation of APhA in 1852 - William Proctor Jr End of nostrums	Old fashioned medicine still in use, (Weber, 2020) The Historical Development of an Ethic for American Pharmacy (Beurki, 199) Professionalism and the Nineteenth-Century American Pharmacist (Higby, 1986)	Proctor and pharmacy being its own discipline Nostrums Leeches in Medicine (Interview with Ben Lopez) Interview with Dr. Greg Higby	Hypothesis Assignment 4 Midterm Term Assignment



			Design of American Pharmacies (Helfand, 1994)		
9	1.1 , 2.1 , 3.1 , 3.2 , 3.4 , 4.1	Drug Discovery: Targeted therapies; Creation of FDA and initial regulation; Germ Theory and key influential figures; Key Drugs: Aspirin, Digitalis, Salvarsan, Elixir Sulfanilamide	Uneasy bedfellows: Science and Politics in the Refutation of Koch's Bacterial Theory of Cholera (2000) Elixirs, Diluents, and the Passage of the 1938 Federal Food, Drug, and Cosmetic Act (Wax, 1995) Drug Hunters: Chapters 5 and 6	Pain, Pus, Poison: Episode 2 (Pus) Koch, Pasteur, and Lister Erich and his dye discovery Why drugs had to be regulated (pulling arsenic from hardware store and apothecary)	Discussion: Case Study Presentation II
10	1.1, 2.1, 3.1, 3.4, 4.1	Role of Pharmacist: Reduction of traditional compounding and dispensing; increase in retail (e.g., soda fountains and commercial goods); Formation of American Society of	<u>Patents in Medicine</u> (Smithsonian, n.d.) Towards a Greater Professional Standing: Evolution of Pharmacy Practice and Education, 1920 - 2020 (Urick and Meggs, 2019) American Hospital Pharmacy from the colonial period to	The changing role of a Pharmacist The National Association of Boards of Pharmacy and education Hospital Pharmacy and the rise of clinical pharmacy	Hypothesis Assignment 5



		Hospital Pharmacists (1942) - Harvey A.K. Whitney Patents as legal entities for drugs	1930s (Higby, 1994)		
11	3.1, 3.2, 3.4, 4.1, 4.2	Drug Discovery: Targeted Therapies Continued; Key Drugs: Sulfa Drugs, Penicillin; Mustard Gas and Cancer	Pneumonia before antibiotics Therapeutic evolution and evaluation in twentieth-century America. Author, Scott H. Podolsky The Discovery of Penicillin—New Insights After More Than 75 Years of Clinical Use (Gaynes) New light on the history of Penicillin (Hare, 1982) A History of Cancer Chemotherapy (DeVita & Chu, 2008) Drug Hunters: Chapter 7 & 8	Pain, Pus, Poison Episode 3 (Poison) Examining the impact of civil war, contaminants in drugs, post-germ theory Sulfa drugs and Penicillin—impact of lack of new antibiotic development Cancer and chemotherapy The Death of Cancer	Hypothesis Assignment 6
12	3.1, 3.2, 3.4, 4.1, 4.2	Role of Pharmacist: reduce retail, dispensing increased (due to explosion of	American Hospital Pharmacy: A Bicentennial perspective (Berman, 1976)	Pharmacists in World War II Innovations in Pharmacy Services Field of pharmacy evolution in light of WWII	Hypothesis Assignment 7



		new drugs), but of pre-made drugs; evolution of pharmacies for patient care; new innovations in clinical pharmacy services; regulations (Pharmacists and WWII: FDR signed Durham-Reynolds Bill establishing Pharmacy Corps of Army)	Selections from Pharmacy in World War II (Worthen)		
13	3.1, 3.2, 3.4, 4.1, 4.2	Drug Discovery: Age of Genetics; Key Drugs: Human Insulin (recombinant DNA technology), Methotrexate, Interferon; Statins Evolution of Policy Making in the US	Drug Hunters Chapters 9, 10, & 11 Pills, Policy Making and Perceptions: Inside the FDA During the "Reagan Revolution," 1981-1982 Statins: A personal story (Chapter 9, Ten Drugs)	Commercialization of Pharmacy Pill poppers: Miracles, mysteries, and misfires of prescription drugs. (2009). In <i>Films On Demand</i> . Films Media Group. https://fod.infobase.com/PortalPlaylists.aspx?wID=97401&xtid=41707 Changes in drug technologies and regulations Beta blockers Bayh-Dole Act and Hatch-Waxman Act	Final Project Checkpoint 3 – Rough Draft



14	3.1, 3.2, 3.4, 4.1, 4.2	Modern therapies for Cancer and Heart Disease Opioid Crisis Modern Day Role of Pharmacist: Non-dispensing services like vaccinations and medication adherence (Post-Pharmaceutical Care)	Selections from The Emperor of all maladies: a biography of cancer (Mukherjee, 2010) – Part 5: “A Distorted Version of our Normal Selves” pp. 335-392 A Dream Deferred (Hepler, 2010)	Examination of modern therapies for cancer and heart disease Role of pharmacists in fighting the opioid crisis Interview with Michael Murphy about the evolving role of Pharmacists as health care providers	Hypothesis Assignment 8
15	3.1, 3.2, 3.4, 4.1, 4.2	Holistic impact of evolution of drug discovery and pharmacy profession on society Resurgence of botanicals via complementary and alternative medicine Pharmacy, Drug Discovery and the Environment	Harvard Newsletter: Drugs in the water Pharmaceuticals and the environment (Bartolo, Azzopardi, and Serracino-Inglott, 2021) Drug Hunters Chapters 12 & Conclusion	Interview with Dr. Kinghorn on the state of pharmacognosy and the approach to drug hunting Pharmaceuticals and the environment Bioprospecting: Technologies and Ethics through Western Indigenous Perspectives	Discussion: Post-course reflection Final Project – Final Paper Due



GE Theme course submission worksheet: Traditions, Cultures, & Transformations

Overview

Courses in the GE Themes aim to provide students with **opportunities to explore big picture ideas and problems within the specific practice and expertise of a discipline or department**. Although many Theme courses serve within disciplinary majors or minors, by requesting inclusion in the General Education, programs are committing to **the incorporation of the goals of the focal theme and the success and participation of students from outside of their program**.

Each category of the GE has specific learning goals and Expected Learning Outcomes (ELOs) that connect to the big picture goals of the program. **ELOs describe the knowledge or skills students should have by the end of the course**. Courses in the GE Themes **must meet the ELOs common for all GE Themes and those specific to the Theme**, in addition to **any ELOs the instructor has developed specific to that course**. All courses in the GE must indicate that they are part of the GE and include the Goals and ELOs of their GE category on their syllabus.

The **prompts in this form** elicit information about how this course meets the expectations of the GE Themes. The form will be reviewed by a group of content experts (the Theme Advisory) and by a group of curriculum experts (the Theme Panel), with the latter having responsibility for **the ELOs and Goals common to all themes** (those things that make a course appropriate for the GE Themes) and the former having responsibility for **the ELOs and Goals specific to the topic of this Theme**.

Briefly describe how this course connects to or exemplifies the concept of this Theme (Traditions, Cultures, & Transformations)

In a sentence or two, explain **how this class “fits” within the focal Theme**. This will help reviewers understand the intended frame of reference for the course-specific activities described below.

(enter text here)

The course examines different viewpoints and approaches to medicine and pharmacy through different societal and institutional viewpoints (e.g., eclectics versus allopathic). Additionally, the course examines the rise of pharmacy through the power-authority complex to examine the major drivers of change for society and culture **(e.g., big pharma lobbying for statins as preventative medicine for heart attacks, corruption in cancer treatments)**. Finally, the course will cover major paradigm shifts in approaches in the field of pharmacy and medicine (as pharmacy emerges out of medicine). Course readings will center on changes in historical, epidemiology, and cultural factors as they relate to the rise of pharmacy/pharmaceutical sciences.

Connect this course to the Goals and ELOs shared by *all* Themes

Below are **the Goals and ELOs common to all Themes**. In the accompanying table, for each ELO, describe the activities (discussions, readings, lectures, assignments) that provide opportunities for students to achieve those outcomes. The answer should be concise and use language accessible to colleagues outside of the submitting department or discipline. The specifics of the activities matter—listing “readings” without a reference to the topic of those readings will not allow the reviewers to understand how the ELO will be met. However, the panel evaluating the fit of the course to the Theme will review this form in conjunction with the syllabus, so if readings, lecture/discussion topics, or other specifics are provided on the syllabus, it is not necessary to reiterate them within this form. The ELOs are expected to vary in their “coverage” in terms of number of activities or emphasis within the course. Examples from successful courses are shared on the next page.

Goal 1: Successful students will **analyze an important topic or idea at a more advanced and in-depth level than the foundations**. In this context, “advanced” refers to courses that are e.g., synthetic, rely on research or cutting-edge findings, or deeply engage with the subject matter, among other possibilities.

Goal 2: Successful students will **integrate approaches to the theme by making connections to out-of- classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future**.

	Course activities and assignments to meet these ELOs
ELO 1.1 Engage in critical and logical thinking.	This course will build skills needed to engage in critical and logical thinking via the examination of specific instances of authority, medical paradigm shifts practice, and in cultural perceptions of pharmacognosy and pharmacy as modern pharmaceutics evolved out of botanic medicine. Students will engage with the material through developing critically considered questions, class discussions that dissect those questions, and a multiply step assignment that culminate in an argumentative research paper.
ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or ideas within this theme.	The course assignments require students to engage with scholarly materials so that they develop a broad understanding about the evolution of drugs from botanicals to pharmaceuticals. The final argumentative research paper requires students to intersect course materials with additional scholarly sources about a topic of their choosing that concerns one of the course’s key topics.
ELO 2.1 Identify, describe, and synthesize approaches or experiences.	Students engage in advanced exploration of each module topic through a combination of lectures, readings, and discussions. <u>Lecture</u> Course materials come from a variety of sources to help students understand the professional maturation of pharmacy as it intersected with medicine, authority and structure.

	Each of the modules contains lectures that discuss the medicalization of American medicine and pharmacy emerged out of the cultural and social reflections of the nineteenth century. Additionally, each module will incorporate films or a guest lecture to increase student perspective and broaden their understanding about the impact power and authority have on the profession of pharmacy. <u>Reading</u> All materials are available on Carmen Canvas at no cost to the students. I utilize OSU Libraries access to MUSE (John Hopkins University), University Scholarship Online, Hathi Trust, and similar databases of primary and secondary resources. Additionally, I have resources published by the National Library of Medicine, and other significant medical organizations. <u>Discussions</u> • Students will participate in weekly synchronous Zoom discussions that focus on specific module topics. Weekly discussions are meant to help students use information critically and analytically and discuss controversial topics in a productive and respectful manner. • Discussions include posting a discussion question or a response to a posed discussion question that critically engages the week's material and provokes conversation during the class Zoom session.
ELO 2.2 Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.	<u>Final Project</u> There are 3 checkpoint assignments: 1. Students will submit a selected topic and thesis statement for the first checkpoint. 2. An annotated bibliography of sources, correctly formatted in APA citation formatting for the second checkpoint. 3. A rough draft of the paper for the third checkpoint. In 2500-words to 3000-words students analyze an aspect of the impact of the struggle for authority impacted the field of pharmacy. The final project is a cumulative response paper, which must discuss the construction of the field of pharmacy as it intersects as it intersected with medicine, authority and structure. Students must use at least 4-different materials (two of which need to be reading materials, while the other two may be films, or PowerPoint lectures) from this course and, 3-primary sources, which students independently research, and two outside secondary sources that connect the course material with the primary sources.

Example responses for proposals within "Citizenship" (from Sociology 3200, Comm 2850, French 2803):

ELO 1.1 Engage in critical and logical thinking.	This course will build skills needed to engage in critical and logical thinking about immigration and immigration related policy through: Weekly reading response papers which require the students to synthesize and critically evaluate cutting-edge scholarship on immigration; Engagement in class-based discussion and debates on immigration-related topics using evidence-based logical reasoning to evaluate policy positions; Completion of an assignment which build skills in analyzing empirical data on immigration (Assignment #1)
ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or ideas within this theme.	Completion 3 assignments which build skills in connecting individual experiences with broader population-based patterns (Assignments #1, #2, #3) Completion of 3 quizzes in which students demonstrate comprehension of the course readings and materials.
ELO 2.1 Identify, describe, and synthesize approaches or experiences.	Students engage in advanced exploration of each module topic through a combination of lectures, readings, and discussions. <u>Lecture</u> Course materials come from a variety of sources to help students engage in the relationship between media and citizenship at an advanced level. Each of the 12 modules has 3-4 lectures that contain information from both peer-reviewed and popular sources. Additionally, each module has at least one guest lecture from an expert in that topic to increase students' access to people with expertise in a variety of areas. <u>Reading</u> The textbook for this course provides background information on each topic and corresponds to the lectures. Students also take some control over their own learning by choosing at least one peer-reviewed article and at least one newspaper article from outside the class materials to read and include in their weekly discussion posts. <u>Discussions</u> Students do weekly discussions and are given flexibility in their topic choices in order to allow them to take some control over their education. They are also asked to provide information from sources they've found outside the lecture materials. In this way, they are able to explore areas of particular interest to them and practice the skills they will need to gather information about current events, analyze this information, and communicate it with others. Activity Example: Civility impacts citizenship behaviors in many ways. Students are asked to choose a TED talk from a provided list (or choose another speech of their interest) and summarize and evaluate what it says about the relationship between civility and citizenship. Examples of Ted Talks on the list include Steven Petrow on the difference between being polite and being civil, Chimamanda Ngozi Adichie's talk on how a single story can perpetuate stereotypes, and Claire Wardle's talk on how diversity can enhance citizenship.

ELO 2.2 Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.	Students will conduct research on a specific event or site in Paris not already discussed in depth in class. Students will submit a 300-word abstract of their topic and a bibliography of at least five reputable academic and mainstream sources. At the end of the semester they will submit a 5-page research paper and present their findings in a 10-minute oral and visual presentation in a small-group setting in Zoom. Some examples of events and sites: The Paris Commune, an 1871 socialist uprising violently squelched by conservative forces
	Jazz-Age Montmartre, where a small community of African-Americans—including actress and singer Josephine Baker, who was just inducted into the French Pantheon—settled and worked after World War I. The Vélodrome d'hiver Roundup, 16-17 July 1942, when 13,000 Jews were rounded up by Paris police before being sent to concentration camps The Marais, a vibrant Paris neighborhood inhabited over the centuries by aristocrats, then Jews, then the LGBTQ+ community, among other groups.

Goals and ELOs unique to Traditions, Cultures, & Transformations

Below are **the Goals and ELOs specific to this Theme**. As above, in the accompanying Table, for each ELO, describe **the activities** (discussions, readings, lectures, assignments) **that provide opportunities for students to achieve those outcomes**. The answer should be concise and use language accessible to colleagues outside of the submitting department or discipline. The ELOs are expected to vary in their “coverage” in terms of number of activities or emphasis within the course. Examples from successful courses are shared on the next page.

GOAL 3: Successful students will engage in **a systematic assessment of how cultures and sub-cultures develop and interact, historically or in contemporary society**.

GOAL 4: Successful students will engage in **a systematic assessment of differences among societies, institutions, and individuals’ experience within traditions and cultures**.

	Course activities and assignments to meet these ELOs
ELO 3.1 Describe the influence of an aspect of culture (religious belief, gender roles, institutional organization, technology, epistemology, philosophy, scientific discovery, etc.) on at least one historical or contemporary issue .	War is catapults medicine forward. General George Washington required his troops be vaccinated against smallpox, which helped legitimate the practice for the American people. The American Civil War impacted medicine in multiple ways, including igniting the divergence of medicine and pharmacy, and transitioning medicinals from botanics to pharmaceuticals. Module 7 focuses on an immature medical system coping with the American Civil War’s devastating injuries and illnesses, and how the crisis propelled pharmacy into a separate discipline from medicine. Students will learn about the nineteenth century physician Francis Peyre Porcher. He is a representative example because his career spanned from 1847 to 1893, which coincides with the divergence of pharmacy from medicine. Furthermore, he was a physician during the war, and he wrote a renowned botanic compendium.

ELO 3.2 Analyze the impact of a “big” idea or technological advancement in creating a major and long-lasting change in a specific culture.	In Module 8, students will learn about the discovery of germ theory and the prominent scientists and physicians who discovered the cause of many deadly diseases. While Lister, Koch, and Pasteur were not pharmacists, they did help launch the field of pharmacy into the next level of development. With the discovery of the cause, germs, microbes, fungi, and parasites, the cure could be discovered or developed. Thus, the field of pharmacy expanded with evolution of antitoxins, vaccines, sulpha drugs, antibiotics, and antifungals. Students will learn about Lister, Pasteur, Koch, and the preventatives and curatives developed as a result of their discoveries.
ELO 3.3 Examine the interactions among dominant and sub-cultures.	In Module 1, Students will learn about the authority-power construct and its impact on the evolution of botanicals to pharmaceuticals.
ELO 3.4 Explore changes and continuities over time within a culture or society.	In Module 10 and 11, students will learn how cancer and chemotherapy solidified pharmaceuticals as a therapeutic practice of chemicals rather than botanicals. Students will examine how pharmacy evolves in response to cancer care.
ELO 4.1 Recognize and explain differences, similarities, and disparities among institutions, organizations, cultures, societies, and/or individuals.	In Module 5, students will learn about the medicalization of American medicine and pharmacy emerged out of the cultural and social reflections of the nineteenth century. The struggle for authority in nineteenth-century American medicine was not limited to unbiased scientific research, methodology, or strict evidence-based medicine. The acquisition of legitimacy and authority during the professionalization process of nineteenth-century health care by allopathic physicians, sacrificed sectarianism at the altar of professionalism, so that the allopathic physicians could gain authority over medicine and pharmacy.
ELO 4.2 Explain ways in which categories such as race, ethnicity, and gender and perceptions of difference, impact individual outcomes and broader societal issues	In module 14, students will consider the impact of boom of pharmaceutical development in the 1980s-'90s due to regulation repeals in the Reagan administration. Furthermore, the materials will examine the value of pharmaceutical development and therapeutic benefits. The module will conclude with conversations about the pharmaceutical industry's ethics and the resulting impact on trust and mistrust among various social and cultural groups. For example, the mistrust of pharmaceuticals by minority groups based on past unethical clinical trials. The discrimination and hostility against the Gay community which delayed the development and then the exorbitant costs of antiviral drugs to treat HIV/AIDS.