

Course Syllabus

Topic Name.....
Instructor.....Department.....
Course Name.....Course Code.....
Academic Year.....Semester.....Date Taught.....
Teaching Hours Lecture.....Practical.....
Revision Number.....Date of Revision.....

Behavioral Objectives

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Content (List of key topics in sequence)

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Learning Experience Activities (Multiple options can be selected)

- ☐ Lecture
- ☐ Laboratory Demonstration
- ☐ Laboratory Practice
- ☐ Field Trip
- ☐ Research and Report Presentation
- ☐ Field Experience (e.g., Hospital, Pharmaceutical Factory, Pharmacy)
- ☐ Discussion, Seminar
- ☐ Self-Study from Assigned Learning Materials
- ☐ Others (Please specify).....
- ☐ Student-Centered Learning

Additional Teaching Methods and/or Brief Outline of Steps

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Learning Materials and References

- ☐ Teaching Documents/Lecture Notes
- ☐ Laboratory Manual
- ☐ Case Study
- ☐ Computer-Assisted Instruction (CAI) Program
- ☐ Slides/Video
- ☐ Textbooks/Primary Documents/Other Academic Documents
- ☐ Chemicals and Scientific Instruments
- ☐ Patients
- ☐ Product Samples/Herbs/Others
- ☐ Transparencies/Overhead Projector

List of Learning Materials and References

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Assessment (Methods/Indicators/Criteria)

- ☐ Final or Midterm Examination
- ☐ Report Submission
- ☐ Quizzes

Brief Description of Assessment Methods, Indicators, and Criteria

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Explanation for the Preparation of the Course Syllabus

The purpose of preparing this course syllabus is to enable all instructors to review and prepare the content and teaching methods, leading to effective and sustainable teaching and learning. It also facilitates the transfer of teaching approaches and methods to new or replacement instructors and ensures quality standards in instructional management. The Faculty of Pharmacy, Mahidol University, intends for each department to develop a course syllabus for every topic.

Methods for Preparing the Course Syllabus

1. The department selects courses for which a syllabus will be prepared for every topic in that course.
2. The course director convenes a meeting of instructors teaching the same course to develop the course syllabus using the form provided by the Faculty.
 - 2.1 In the section on "Behavioral Objectives," specify the objectives that emphasize the "actions" that Pharm.D. students can perform after completing the topic. These actions may include explaining, presenting, applying, and performing.
 - 2.2 In the section on "Content," present a list of key content topics in sequence. The level of detail depends on the individual instructor, but it should align with the behavioral objectives.
 - 2.3 In the section on "Learning Experience Activities," specify the methods used and provide additional explanations and/or a brief outline of the steps. If using student-centered learning, please check the designated box.
3. To assess competencies according to the Pharmacy Council's standards, specify the criteria that Pharm.D. students are expected to achieve upon completion of the course. Consider the alignment with the content and learning experience activities. For details under each criterion of the Pharmacy Council, refer to the documents "Standards for Pharmaceutical Care Practice B.E. 2554 (2011)" and "Standards for Pharmaceutical Industry Practice B.E. 2557 (2014)" and the book "Handbook of Professional Competency Skills for Pharmacists (2019)," which can be downloaded from the Pharmacy Council's website.

Upon completion of the course, students will have the following competencies according to the professional standards as the following table:

Knowledge	Skills
<p><input type="checkbox"/> Possess knowledge of drug manufacturing and quality assurance processes, including:</p> <ol style="list-style-type: none"> 1. Pharmaceutical calculations: calculating substance quantities in formulations, substance quantities from analysis, and statistical data analysis and interpretation. 2. General knowledge of chemicals and particles/their application in drug manufacturing and quality assurance processes. 3. Knowledge of various drug dosage forms: physicochemical principles, types, benefits, and appropriate selection of pharmaceutical excipients. 	<p><input type="checkbox"/> Possess skills in drug manufacturing and quality assurance processes, including:</p> <ol style="list-style-type: none"> 1. Identifying drug types/dosage forms from external characteristics. 2. Inspecting characteristics of deteriorated or expired drugs. 3. Checking expiration dates or predicting expiration dates from the manufacturing date and determining the end-of-use date. 4. Providing guidance on the use and storage of certain important drugs. 5. Selecting appropriate packaging for drug 6. Communicating to explain the importance of drug product forms and drug manufacturing processes to efficacy and action.
<p><input type="checkbox"/> Able to assess community health problems and drug needs, and select, procure, and provide quality drugs/drug products to service recipients appropriately, by explaining:</p> <ol style="list-style-type: none"> 1. Principles of drug system management, including drug selection, procurement, distribution, and use at the community and national levels. 2. Principles of assessing community drug needs: principles and concepts of consumer behavior, principles of public health administration and the Thai public health system, such as the National Public Health Development Plan, the National Essential Medicines List, and Pharmacoeconomics and pharmacoepidemiology. 3. Principles of drug procurement: inventory management, the role of pharmacists in various legislations, the definition of drugs, drug categories, the importance of drug expiration dates, warnings, and package inserts. 	<p><input type="checkbox"/> Able to assess community health problems and drug needs, and select, procure, and provide quality drugs/drug products to service recipients appropriately.</p> <ol style="list-style-type: none"> 1. Selecting quality drug products by considering quality assurance documents from the source of manufacture. 2. Selecting quality drug products by considering product standard specifications.

Knowledge	Skills
<p>4. The importance and application of knowledge in pharmaceutical chemistry, pharmacology, and pharmaceuticals in drug selection.</p> <p>5. The importance of packaging and storage for product selection and drug distribution.</p>	
<p><input type="checkbox"/> Able to prepare drug products in dosage forms appropriate to the needs of individual recipients, by:</p> <ol style="list-style-type: none"> 1. Explaining the meaning of Latin abbreviations used in prescriptions. 2. Performing relevant pharmaceutical calculations. 3. Explaining fundamental pharmaceutical techniques important in preparing drug products and being able to prepare drugs according to prescribed formulas using correct techniques. 4. Being able to prepare various drug dosage forms, including diluting drug forms to the specified strength for individual patients/pediatric patients, using various principles. <ol style="list-style-type: none"> 4.1 Specifying drug preparation formulas, types, benefits, and the importance of key ingredients. 4.2 Techniques and procedures for preparing formulations. 4.3 Desirable characteristics of formulations. 4.4 Evaluating important properties of formulations. 4.5 Packaging and storing formulations. 	<p><input type="checkbox"/> Possess skills in preparing drug products in dosage forms appropriate to the needs of individual recipients.</p> <ol style="list-style-type: none"> 1. Being able to prepare drugs according to prescribed formulas using correct techniques. <ol style="list-style-type: none"> 1.1 Weighing techniques 1.2 Measuring techniques 1.3 Techniques for particle size reduction and mixing 1.4 Filtration techniques 1.5 Fusion techniques 2. Performing aliquot techniques for prepared drugs for individual patients. 3. Techniques for mixing liquid medications to achieve specified concentrations or proportions. 4. Techniques for diluting drugs to specified strengths, such as alcohol and disinfectants. 5. Techniques for preparing vehicles with viscosity, such as mucilage, magmas, and gels, by dissolving or dispersing viscous polymers in water or suitable solvents. 6. Techniques for preparing or compounding drugs using aseptic techniques.
<p><input type="checkbox"/> Able to perform preliminary health assessments to provide appropriate self-care recommendations to service recipients, including referrals when necessary, by:</p>	<p><input type="checkbox"/> Possess skills in performing preliminary health assessments to provide appropriate self-care recommendations to service recipients, including referrals when necessary.</p>

Knowledge	Skills
<ol style="list-style-type: none"> 1. Explaining the basics of service recipients' health problems, in terms of the nature of the problems and major causes: common illnesses/diseases in primary health care, drug-related problems, and other common community health problems, such as nutritional problems. 2. Explaining the principles of communication and fostering a positive image of the pharmacy profession. 3. Demonstrating the principles of holistic health and drug-related problem assessment, considering information from interviews, relevant information from service recipient history, and recording assessment data for service recipient records and accurate interprofessional referrals. 4. Promoting health, preventing and resolving problems by providing effective counseling or referring to appropriate levels of health service. 	<ol style="list-style-type: none"> 1. Communicating through interviewing to gather information purposefully and appropriately, asking questions to obtain the following information: service recipients' health concerns and environmental factors that may contribute to health problems. 2. Providing accurate and quality health care recommendations to service recipients. <ol style="list-style-type: none"> 2.1 Providing advice on hygiene, nutrition, and exercise, including other options for promoting and preventing diseases and relieving non-drug-treatable symptoms. 2.2 Explaining the causes and methods of referral or treatment at different levels: conditions requiring medication or conditions requiring a physician.
<p><input type="checkbox"/> Able to develop a medication plan appropriate for individual service recipients and manage medication use for maximum effectiveness, emphasizing the promotion of service recipient cooperation, by:</p> <ol style="list-style-type: none"> 1. Applying pharmaceutical knowledge to select each drug appropriately and rationally for individual service recipients in various conditions or diseases. 2. Making decisions to use/dispense drugs correctly within legal limits. 3. Developing a medication plan appropriate for service recipients that promotes adherence. 4. Explaining the principles of good dispensing practice. 	<p><input type="checkbox"/> Possess skills in developing a medication plan appropriate for individual service recipients and managing medication use for maximum effectiveness, emphasizing the promotion of service recipient cooperation.</p> <ol style="list-style-type: none"> 1. Being able to practice according to the principles of good dispensing practice. 2. Gathering information to dispense medication for symptoms in non-serious illnesses and to refer cases that should be treated by a physician promptly. 3. Counseling patients on medication use. 4. Counseling on the use of medications with special techniques or characteristics.

Knowledge	Skills
	<p>5. Skills in answering questions about Drug Identification, specifically for drugs on the National List of Essential Medicines with clear and common external characteristics.</p> <p>6. Explaining drug use according to the Pharmacy Act, specifically for important and commonly used drugs.</p>
<input type="checkbox"/> Able to monitor, prevent, and resolve drug-related problems in service recipients and the community, and report to relevant parties systematically.	<input type="checkbox"/> Possess skills in monitoring, preventing, and resolving drug-related problems in service recipients and the community, and reporting to relevant parties systematically. <p>1. Being able to communicate with patients about the treatment evaluation plan and monitoring adverse drug reactions for patient self-monitoring.</p> <p>2. Being able to communicate with medical personnel about drug-related problems encountered during treatment and provide recommendations for solutions.</p>
<input type="checkbox"/> Able to provide accurate, up-to-date, and reliable information on drugs and other health products to service recipients, the community, and public health personnel (see details in the skills handbook).	<input type="checkbox"/> Possess skills in providing accurate, up-to-date, and reliable information on drugs and other health products to service recipients, the community, and public health personnel (see details in the skills handbook).
<input type="checkbox"/> Possess knowledge of the laws and ethics related to the pharmacy profession and be able to apply this knowledge to protect consumer health (see details in the skills handbook).	<input type="checkbox"/> Possess knowledge of the laws and ethics related to the pharmacy profession and be able to apply this knowledge to protect consumer health (see details in the skills handbook).