COURSE SYLLABUS

Degree Program: Bachelor of Science in Pharmacy (BSP)

Program Learning Outcomes:
PLO 1: Practice pharmacy in a professional, legal and ethical manner with commitment for continuing professional development
PLO 2: Work effectively with inter- and multi-professional teams in various settings to manage medicines-related issues of individuals, communities and health facilities
PLO 3: Communicate medicines information effectively to patients, carers, healthcare providers, community members and other stakeholders
PLO 4: Produce quality pharmaceutical products to achieve optimum health outcomes for patients and communities
PLO 5: Disseminate research findings to improve medication use, pharmacy education and pharmacy service delivery

A. Course Catalogue Description

Course Title: Evidence-based Medicine and Drug Information

Course Number: CLIN PHARM 172	**Credit Units: 3 units (1 unit lecture, 2 units laboratory)**	**Number of Hours: 1 hour lecture + 3 hours laboratory per week**	**Year Level offered: 3rd Year**	**Semester Offered: 1st Semester**

Meeting Type/Instructional Format: Face-to-face lectures and laboratory sessions using ARAL LMS for materials and submissions

Course Description:
This is a course that will focus on the methods to gather, appraise, and use drug & health-related information from various sources. With pharmacists known as drug information experts, it is our duty to retrieve, evaluate, and utilize appropriate drug information to help achieve the optimum patient outcomes. As we are living in the age of information and technology where drug information can be easily accessed by anyone, it is important that

pharmacy students are trained in determining which information sources contain high-quality information amidst the abundance of poor-quality information (read: FAKE NEWS). The knowledge and skills that you will gain for the retrieval of health and drug information will help you make evidence-based pharmaceutical decisions and interventions in the future. Our goal at the end of this course is that all Clin Pharm 172 students can confidently retrieve and evaluate quality health and drug information and interpret it for use in service of our patients, whether this be at the individual or population level.

Prerequisites: Pharmaceutical Statistics (Pharm 195), Pharmacology for Pharmacy 2 (Pharm 126)

Corequisites: None

Course Stipulation (if any)

Course Goals:	To enable students to effectively retrieve, evaluate, and interpret quality health and drug information for patient care at both individual and population levels

B. Relationship of Course Learning Outcomes to Program Learning Outcomes		**Program Learning Outcomes**				
Course Learning Outcomes		**PLO1**	**PLO2**	**PLO3**	**PLO4**	**PLO5**
CLO1:	Retrieve successfully information for different drug and health information needs	I	I	I	I	I
CLO2:	Evaluate the quality of information obtained from various sources based on a set of criteria	I	I	I	I	I
CLO3:	Utilize quality drug and health information in managing drug therapy problems, health education, and research	R	R	R	R	R

I – Introduced D- Demonstrated R- Reinforced

C. Course Content	
Topics (Lecture and Laboratory)	**Number of Hours**
I. Introduction to Available Resources in the University	2 hours

II. Selected Evidence-based Healthcare Resources A. Internet Resources B. Alternative Sources of Information	7 hours
III. Levels of Evidence A. Tertiary Reference B. Secondary Reference C. Primary Reference	7 hours
IV. Study Designs A. Case-control B. Cohort C. Cross-sectional survey D. Randomized Control Trial E. Qualitative Studies F. Systematic Review and Meta-analysis	21 hours
V. Critical Appraisal A. Therapy Articles B. Article on Diagnostic Validation C. Systematic Review & Meta-Analysis D. Article on Harm E. Article on Prognosis F. Clinical Practice Guideline G. Economic Evaluation	28 hours
VI. Literature Search	7 hours
VII. Systematic Approach to Responding to Drug Information Requests A. Systematic Approach B. Telepharmacy Service	14 hours
VIII. Drug Information Dissemination A. Information, Education, and Communication (IEC) Materials	14 hours

B. Patient Education
C. Academic Detailing
D. Research Misconduct and Scientific Integrity

D. Course Coverage

Week	Learning Outcomes	LLOs with CLOs	Course Topics	Essential or Key Questions	Teaching and Learning Activities	Assessment Methods and Tools	Core Readings/Learning Resources
1	Learning Outcomes	CLO1	Course Orientation I. Introduction to Available Resources in the University	Essential or Key Questions	Lecture/Laboratory Activity/Worksheet/ Reporting	Recitation/ Laboratory Activity Output/ Worksheet Output/ Presentation	UP College of Pharmacy Library
2	1. Identify available evidence-based healthcare resources 2. Evaluate the quality of selected evidence-based healthcare resources 3. Develop clinical questions using the PICO format 4. Utilize evidence-based healthcare resources to answer clinical questions	CLO1, CLO2, CLO3	II. Selected Evidence-based Healthcare Resources	1. What is the importance of evidence-based medicine? 2. What are the key considerations when executing each step of EBM? 3. When will you use information from the Internet and alternative sources of information? 4. How do you evaluate these resources?	Lecture/Laboratory Activity/Worksheet/ Reporting	Recitation/ Laboratory Activity Output/ Worksheet Output/ Presentation	Dans, A. L., Dans, L. F., & Silvestre, M. A. A. (Eds.). (2016). Painless evidence-based medicine. 2nd edition. John Wiley & Sons. Pattani, R., & Straus, S. E. (2017). What is EBM. BMJ Best Practice. https://bestpractice.bmj.com/info/toolkit/learn-ebm/what-is-ebm/ Straus, S. E., Glasziou, P., Richardson, W. S., & Haynes, R. B. (2019). Evidence-based

							medicine: How to practice and teach EBM (5th ed). Elsevier Limited. Heneghan, C. & Badenoch D. (2006). Evidence-based Medicine Toolkit (2nd ed). Blackwell Publishing.
3	1. Describe the main features and differences of tertiary, secondary, and primacy references 2. Evaluate tertiary, secondary, and primary references 3. Utilize different levels of evidence in drug information retrieval 4. Apply methods in basic literature searching	CLO1, CLO2	III. Levels of Evidence	1. How will you evaluate a quality article in terms of the journal, its title, authors, abstract, and introduction? 2. What are the important components of each element of a research article for it to qualify as complete and relevant in evaluating a research article? 3. Which reporting guidelines are applicable to the journal article you are reviewing?	Lecture/Laboratory Activity/Worksheet/ Reporting	Recitation/ Laboratory Activity Output/ Worksheet Output/ Presentation	Wasserman, D., Hoven, C. W., Wasserman, C., Wall, M., Eisenberg, R., Hadlaczky, G., ... & Carli, V. (2015). School-based suicide prevention programmes: The SEYLE cluster-randomised, controlled trial. The Lancet, 385(9977), 1536-1544.

4-6	1. Differentiate study designs based on its application in a research 2. Determine the study design used in a research article 3. Evaluate the appropriateness of the study design used in a research article	CLO2	IV. Study Designs	1.	Lecture/Laboratory Activity/Worksheet/ Reporting	Recitation/ Laboratory Activity Output/ Worksheet Output/ Presentation	Greenhalgh, H. (2019). How to Read a Paper: The Basics of Evidence-based Medicine and Healthcare (6th ed.). John Wiley & Sons, Ltd. Murad, M. H., Asi, N., Alsawas, M., & Alahdab, F. (2016). New evidence pyramid. BMJ Evidence-Based Medicine, 21(4), 125-127. Greenhalgh, H. (2019). How to read a paper: The basics of evidence-based medicine and healthcare (6th ed.). John Wiley & Sons, Ltd.
7-10	1. Understand the different critical appraisal approaches for therapy articles, diagnosis articles, and systematic reviews. 2. Appraise a therapy article, diagnosis article, and systematic review and apply the results to an individual patient.	CLO2	V. Critical Appraisal	1. Was the study design appropriate for evaluating treatment/interventions? 2. Has the randomization been effective?	Lecture/Laboratory Activity/Worksheet/ Reporting	Recitation/ Laboratory Activity Output/ Worksheet Output/ Presentation	Xyrichis, A., Iliopoulou, K., Mackintosh, N. J., Bench, S., Terblanche, M., Philippou, J., & Sandall, J. (2021). Healthcare stakeholders' perceptions and experiences of factors affecting the

	3. Understand the purpose of critical appraisal of various study designs to perform evidence-based medicine. 4. Appraise an article on harm/etiology, prognosis studies, and/or clinical practice guidelines using appropriate criteria to assess the quality of evidence.			3. Were individuals followed up adequately and completely? 4. How was the loss to follow up handled? 5. Was comparability preserved and bias avoided throughout and at the end of study? 6. Is the patient grossly different from the population that was studied? 7. Are there specific social, cultural, racial, regional, or religious preferences and values to be addressed for the patient? 8. Do risks outweigh the benefits of applying the result of the study to the patient?			implementation of critical care telemedicine (CCT): qualitative evidence synthesis. Cochrane Database of Systematic Reviews, 2021(2). doi:10.1002/14651858.cd012876 Drummond, M., Sculpher, M., Claxton, K., Stoddart, G., & Torrance, G. (2015). Methods for the Economic Evaluation of Health Care Programmes (4th Ed). Oxford University Press. Hallas, D., Spratling, R., Fletcher, J. (2021). Methodological Analysis: Randomized Controlled Trials for Pfizer and Moderna COVID-19 Vaccines. Journal of Pediatric Health Care. 35(4): 443-448. https://doi.org/10.1016/j.pedhc.2021.04.001

				9. Is this particular treatment feasible in your setting? 10. What is the aim of this appraisal? 11. What was the objective of the study? 12. What are the main findings of the study? 13. How up-to-date is the study used?			
11		CLO1	VI. Literature Search		Lecture/Laboratory Activity/Worksheet/ Reporting	Recitation/ Laboratory Activity Output/ Worksheet Output/ Presentation	
12-13	1. Define the term drug information and relate it to the term medication information. 2. Identify medication information functions performed by individual pharmacists. 3. Perform the modified systematic approach to answering a drug information request.	CLO1, CLO2, CLO3	VII. Systematic Approach to Responding to Drug Information Requests		Lecture/Laboratory Activity/Worksheet/ Reporting/ Telepharmacy Service	Recitation/ Laboratory Activity Output/ Worksheet Output/ Presentation/ Telepharmacy Service/ Telepharmacy Written Report	Ghaibi, S., Ipema, H., Gabay, M. (2015). ASHP Guidelines on the Pharmacist's Role in Providing Drug Information. Am J Health-Syst Pharm. 72:573-7. Anderson, P., McGuinnes, S. & Bourne, P. (2010).

							Pharmacy Informatics. CRC Press Taylor and Francis Group.
14-15	1. Describe information dissemination and making use of information, education, and communication materials as a dissemination platform. 2. Implement an information dissemination plan. 3. Create a visual abstract as a type of drug information dissemination medium.	CLO3	VIII. Drug Information Dissemination		Lecture/Laboratory Activity/Worksheet/ Reporting	Recitation/ Laboratory Activity Output/ Worksheet Output/ Presentation/ Group Project	Hoffberg, A. S., Huggins, J., Cobb, A., Forster, J. E., & Bahraini, N. (2020). Beyond journals-visual abstracts promote wider suicide prevention research dissemination and engagement: A randomized crossover trial. Frontiers in Research Metrics and Analytics, 5, 564193. https://doi.org/10.3389/frma.2020.564193 King, V. J., Stevens, A., Nussbaumer-Streit, B., Kamel, C., & Garritty, C. (2022). Paper 2: Performing rapid reviews. Systematic Reviews, 11(1), 151.

E. Course Requirements	
1	Summative Assessment
2	Quizzes
3	Laboratory Activities/Worksheets
4	Laboratory Reporting

5	Class Participation

F. Assessment Plan (formative and summative evaluation)

COURSE ASSESSMENT PLAN			
Assessment Component	**Course Learning Outcomes**		
	CLO1	CLO2	CLO3
Written Exam 1 (20%)	MCQ 1-10	Essay Q 1-3	Essay Q 4
Written Exam 2 (20%)			Matching type 1-15
Group Project (5%)		Rubric	
Case Discussion (5%)			Rubric
Practical Exam (10%)	Rating Scale	Rating Scale	
Lab exercises (25%)	Rubric		Rating Scale
Final Examination (15%)	Essay Q 5-7	Essay Q 3-4	Essay Q 1-2

FORMATIVE ASSESSMENT METHODS

1. Quizzes
2. Class Participation
3. Laboratory Reporting
4. Laboratory Activities/ Worksheets

Summative = assessment of learning ***Formative = assessment for learning***

G. References	
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2	
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H. List of Faculty	
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2	Maria Patricia S. Ugalde, RPh Instructor 1 Department of Clinical, Social and Administrative Pharmacy Email: msugalde@up.edu.ph