Institutional Learning Outcomes (ILOs)

for

College of Pharmacy

ILO 1: Critical thinking. Exercise reasoned judgment to assess technical information and make well-informed decisions using evidence-based approaches.

Indicator	Initial	Developing	Developed	Proficient
1.1. Demonstrates identification of the problem or issue	• Does not correctly identify the problem or issue being considered • Does not demonstrate understanding of factors that contribute to the current patient state	• Identifies the problem or issue but does not demonstrate awareness of all the factors associated with the problem or issues that impact decision making • Demonstrates understanding of some possible factors that contribute to the current patient state	• Correctly identifies the problem or issue being considered and demonstrates adequate awareness of the factors associated with this problem or issue that impact decision making. Articulates the importance of these factors • Demonstrates understanding of all possible factors that contribute to the current patient state	• Correctly identifies the problem or issue being considered and correctly identifies all of the primary factors associated with this problem or issue that impact decision making. Clearly articulates the importance of these factors • Demonstrates thorough understanding of all possible factors that contribute to the current patient state
1.2. Demonstrates identification of resources	• Does not identify appropriate resources. Includes extraneous information or inappropriate or insufficient resources • Does not conduct a search to answer a drug query	• Identifies a few, but not all, resources needed for decision making. • Conducts a search that is missing relevant sources and identifies insufficient information in order to answer a drug query	• Identifies most of the resources needed. • Conducts a search in reputable sources in selection of appropriate resources in order to answer a drug query	• Correctly identifies all appropriate resources. • Conducts a thorough search in reputable sources in selection of appropriate resources in order to answer a drug query
1.3. Demonstrates interpretation of data needed for critical thinking and decision making	• Does not demonstrate understanding of the content of materials reviewed. Makes inappropriate inferences. • Does not apply clinical data to disease state management • Does not demonstrate understanding of system- and human- associated causes of medication errors	• Demonstrates ability to interpret some information and data but not all. • Attempts to apply clinical data to disease state management but demonstrates gaps in the application • Minimally analyzes system- and human- associated causes of medication errors and does not identify strategies to reduce/ eliminate them	• Demonstrates ability to interpret most information and data. • Applies clinical data to disease state management • Analyzes system- and human- associated causes of medication errors and identifies strategies to reduce/ eliminate them	• Demonstrates ability to correctly interpret information and data needed for appropriate decision making. Demonstrates awareness of importance of these data in decision-making process. • Appropriately applies clinical data to disease state management • Thoroughly analyzes system- and human- associated causes of medication errors and employs strategies to reduce/ eliminate them

1.4. Demonstrates consideration and evaluation for possible solutions	• Does not evaluate possible alternatives or generates ideas that are illogical or extraneous to issue at hand • Does not apply medicinal chemistry concept • Does not apply knowledge of pharmaceutics and biopharmaceutic • Does not apply individual differences of pharmacogenetics to the practice of personalized medicine	• Does not fully or effectively evaluate alternative solutions that lead to a logical decision or course of action • Attempts to apply medicinal chemistry concepts (such as physiochemical properties, structure-activity relationships, and intermolecular drug-receptor interactions and metabolism to therapeutic decision-making) • Attempts to apply knowledge of pharmaceutics and biopharmaceutics, such as physical chemistry and dosage form, but does not evaluate the quality of sterile and nonsterile products • Demonstrates difficulty in applying individual differences of pharmacogenetics to the practice of personalized medicine	• Considers and evaluates possible solutions in a way that generally leads to a logical decision or course of action • Generally and appropriately applies medicinal chemistry concepts (such as physiochemical properties, structure-activity relationships, and intermolecular drug-receptor interactions and metabolism to therapeutic decision-making) • Applies knowledge of pharmaceutics and biopharmaceutics, such as physical chemistry and dosage form, in order to evaluate the quality of sterile and nonsterile products • Applies individual differences of pharmacogenetics to the practice of personalized medicine	• Effectively and thoroughly considers and evaluates possible solutions. Evaluation leads to sound, logical, and "best" decision or course of action • Consistently, appropriately and correctly applies medicinal chemistry concepts (such as physiochemical properties, structure-activity relationships, and intermolecular drug-receptor interactions and metabolism to therapeutic decision-making) • Consistently applies knowledge of pharmaceutics and biopharmaceutics, such as physical chemistry and dosage form, in order to evaluate the quality of sterile and nonsterile products • Appropriately applies individual differences of pharmacogenetics to the practice of personalized medicine
1.5. Demonstrates proposal or selection of appropriate solution	• Does not propose a solution or does not articulate decision • Does not demonstrate understanding for health disparities in the community and the need for a solution	• Proposes a decision with many apparent weaknesses (i.e., not feasible, lack of regard for consequences, lack of supporting evidence, illogical, irrelevant to issue at hand, etc.). • Somewhat analyzes health disparities in the community and proposes an undeveloped solution to address it	• Proposes a solution that does not contain apparent weaknesses that may or may not be the obvious clear choice. Solutions chosen demonstrate consideration of most of the strengths, weaknesses, feasibility, effects, consequences, relevance, etc. • Appropriately analyzes health disparities in the community and proposes a solution to address it	• Proposes a solution that is entirely appropriate to the situation at hand. Solutions chosen demonstrate consideration of all of the important and relevant strengths, weaknesses, feasibility, effects, consequences, etc. • Appropriately analyzes health disparities in the community and proposes an effective solution to address it

1.6. Demonstrates presentation of rationale for decision or course of action	• Does not adequately provide rationale for selected alternative or decision • Does not defend a decision or course of action	• Provides rationale for selected alternative or decision but does not build a solid position with supporting evidence • Attempts to defend decision or course of action	• Provides rationale for selected alternative or decision which includes some solid supporting evidence • Defends decision or course of action	• Provides rationale for selected alternative or decision and builds a solid position with appropriate and relevant supporting evidence • Effectively defends decision or course of action

ILO 2: **Written communication**. Demonstrate the ability to write coherent, supported, and logically structured prose.

Indicators	Initial	Developing	Developed	Proficient
2.1. Demonstrates purpose and audience awareness	• Does not demonstrate attention to purpose, context, and audience for which it is intended (i.e., patients and other healthcare professionals)	• Demonstrates ability to craft a message that is somewhat appropriate to the purpose, context, and audience for which it is intended (i.e., patients and other healthcare professionals)	• Demonstrates ability to craft a message that is appropriate to the purpose, context, and audience for which it is intended (i.e., patients and other healthcare professionals)	• Demonstrates ability to craft a message that is entirely appropriate to the purpose, context, and audience for which it is intended (i.e., patients and other healthcare professionals)
2.2. Demonstrates logical analysis and clarity of thought	• Does not demonstrate clear thinking • Writing is confusing or disjointed; does not analyze the subject under discussion (e.g., SOAP notes are incomplete and only somewhat contain subjective and objective data)	• Demonstrates lapses in clarity and focus; writing is not always related or well connected • Writing lacks sufficient depth; does not sufficiently explain ideas or analyze subject under discussion (e.g., SOAP notes contain subjective and objective data but is not sufficient for developing a patient assessment plan)	• Demonstrates general clarity of thought; ideas are related and generally well connected • Writing reflects analysis to explore contentions (e.g., SOAP notes contain subjective and objective data to develop a patient assessment plan)	• Demonstrates clear and focused thinking; ideas are logically related and connected • Writing reflects thorough analysis of the subject under discussion (e.g., SOAP notes contain pertinent subjective and objective data to develop a cohesive patient assessment plan)
2.3. Demonstrates support for and development of ideas	• Does not explain or develop ideas (e.g., does not include a plan in SOAP notes; does not present a decision with supporting evidence)	• Demonstrates minimal support for ideas by providing examples, but examples are not relevant or appropriate in advancing the purpose of the writing (e.g., demonstrates difficulty in using evidence-based medicine to formulate a patient-specific plan in SOAP notes; utilizes little evidence and demonstrates difficulty in supporting a decision)	• Writing contains examples that generally support the idea they are trying to advance, yet these examples are not impactful or specific (e.g., uses evidence-based medicine to formulate a patient-specific plan in SOAP notes; utilizes evidence to support a decision)	• Supports ideas with relevant, clear, impactful examples; fully explains thinking; fully supports and advances the purpose of the writing (e.g., uses evidence-based medicine to formulate an appropriate patient-specific plan in SOAP notes; utilizes relevant evidence to support a decision)

	Initial	Developing	Developed	Proficient
2.4. Demonstrates organization	• Does not demonstrate organization or may be simplistically formulaic, random, confusing, or almost entirely absent (e.g., SOAP notes are not clearly presented)	• Demonstrates reasonably clear, if somewhat inconsistent and/or formulaic, organization and development to support ideas (e.g., SOAP notes convey relevant information, but its organization can be improved for clarity)	• Often demonstrates clear and coherent organization. May demonstrate lapses in focus to support contentions (e.g., SOAP notes convey relevant information that is generally organized)	• Demonstrates ability to craft a message that is clear, focused, coherent, and organized (e.g., SOAP notes convey focused, concise, and relevant information that creates a logical flow of organization)
2.5. Demonstrates appropriate use of sources and evidence	• Demonstrates an attempt to use sources to support ideas (e.g., utilizes some but not all reputable sources and databases, such as PubMed, Ovid, and EMBASE, to conduct literature searches and to cite information)	• Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre (e.g., utilizes reputable sources and databases, such as PubMed, Ovid, and EMBASE, to conduct literature searches and to cite information)	• Consistently demonstrates use of credible, relevant sources to support ideas that are situated within the discipline and genre (e.g., utilizes reputable sources and databases, such as PubMed, Ovid, and EMBASE, to conduct literature searches and to cite information)	• Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre (e.g., utilizes reputable sources and databases, such as PubMed, Ovid, and EMBASE, to conduct appropriate literature searches and cite information)
2.6. Demonstrates use of language, syntax, and mechanics reflective of Standard Written English (SWE)	• Demonstrates use of language that impedes meaning because of excessive or severe errors in usage • Demonstrates writing at the grade level inappropriate to the audience	• Demonstrates use of language that generally conveys meaning to readers with clarity, although writing may include some errors • Demonstrates writing at a grade level that is sometimes, but not consistently, appropriate to the audience	• Demonstrates use of straightforward language that generally conveys meaning to readers; writing contains very few errors • Demonstrates writing at a grade level that is generally appropriate to the audience	• Uses language effectively and skillfully to communicate meaning to readers with clarity and fluency, and writing is virtually error free • Demonstrates writing at a grade level that is consistently appropriate to the audience

ILO 3: **Oral communication**. Demonstrates oral communication skills.

Indicators	Initial	Developing	Developed	Proficient
3.1. Demonstrates purpose and audience awareness	• Does not demonstrate attention to purpose, context, and audience and to the specifics of the assigned tasks(s)	• Demonstrates minimal awareness of purpose, context, and audience and to the assigned tasks(s) (e.g., begins to show awareness of audience's perceptions and assumptions)	• Demonstrates ability to craft a message that shows some degree of consideration of purpose, context, and audience and a relatively clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context)	• Demonstrates ability to craft a message that is appropriate to the purpose, context, and audience for which it is intended (i.e., patients and other healthcare professionals)

3.2. Demonstrates appropriate content and development of ideas	• Provides no discernable claim or viewpoint • Makes irrelevant, tangential statements • Provides no evidence for support of topics	• Although a viewpoint or claim is provided by the student, it is only based on popular opinion with no supporting evidence • If the student does provide evidence it is primarily inaccurate or irrelevant	• Provides a claim or viewpoint with reference to supporting evidence • Expresses some logical, original ideas	• Provides a clear claim or viewpoint with an explanation of the appropriate and valid evidence used in support • Delivers oral context (e.g., presentation, argument, and explanation) based on logical arguments
3.3. Demonstrates effective use of language in his/ her communication	• Uses inappropriate, offensive language • Demonstrates unprofessional attitudes or behaviors	• Demonstrates inaccurate use of professional language or jargon • Utilizes technical language that is incomprehensible to the patients to interact with them • Utilizes pharmaotherapy care plan terminology with healthcare professionals)	• Demonstrates appropriate use of professional language and minimal jargon • Utilizes layperson language to interact with patients • Utilizes pharmaotherapy care plan terminology with healthcare professionals)	• Demonstrates use of appropriate, professional language • Utilizes layperson language to interact with patients • Utilizes pharmaotherapy care plan terminology with healthcare professionals
3.4. Demonstrates appropriate active listening techniques when addressing questions (e.g., checking for understanding, responding to nonverbal communication cues)	• Does not acknowledge other viewpoints • Demonstrates no ability answer questions	• Demonstrates a clear attempt to avoid recognition of other viewpoints • Answers that are provided to questions are simplistic and lack intellectual depth	• Recognizes other viewpoints, but may not demonstrate a respect for those opinions • Adequately answers questions	• Listens to questions with a consideration of alternative viewpoints • Answers questions thoughtfully referencing evidence • If unable to answer a question, defers to the need for more information clarifying point of confusion or lack of knowledge • Utilizes patient teach back method to assess the patient's understanding • Ensures follow-through of pharmacotherapeutic recommendations

Indicators	Initial	Developing	Developed	Proficient
3.5. Demonstrates appropriate delivery when communicating materials to an audience (if applicable)	• Vocal delivery is too soft or too fast. • Long, unintended silences and/or speech disruptions frequently distract audience • Speaker is not engaging	• Vocal delivery is audible. • Speech rate or volume disruptions occasionally distract from comprehension • Speaker is not engaging	• Vocal delivery is varied and dynamic. • Speech rate, volume, and tone enhance listener interest and facilitate understanding • Generally engages audience	• Vocal delivery is varied and dynamic. • Speech rate, volume, and tone enhance listener interest and facilitate understanding • Thoroughly engages audience • Utilize technology-based communication tools if necessary to effectively convey healthcare information and/ or patient empowerment
3.6. Demonstrates nonverbal delivery techniques when communicating materials to an audience (if applicable)	• Eye contact, body language, and facial expressions are inappropriate and significantly distracting.	• Eye contact, body language, and facial expressions neither enhance nor hinder effectiveness significantly.	• Some but not all of the following apply: Eye contact, body language, and facial expressions enhance presentation.	• Most or all of the following apply: Eye contact, body language, and facial expressions enhance the presentation. • Demonstrates verbal and nonverbal communication strategies to promote effective interpersonal dialogue and understanding to advance patient-specific care, education, advocacy, and/ or interprofessional collaboration goals

ILO 4: **Professionalism**. Interact with respect, empathy, diplomacy, and cultural competence.

Indicators	Initial	Developing	Developed	Proficient
4.1. Demonstrates ability to communicate and interact with patients and the community	• Does not demonstrate ability to communicate and interact at a level that generally conveys respect or concern for patients and the community	• Demonstrates ability to interact at a minimal level of respect; demonstrates little concern for patients and the community through use of some appropriate communication, but student does not employ follow-up questions for clarification, when necessary, and student provides inappropriate detail in responses	• Demonstrates ability to communicate appropriately and interact that is characteristic of a basic level of respect; demonstrates concern for patients and the community is apparent through use of appropriate communication, where student uses some clear, but not necessarily relevant or detailed, follow-up questions and responses	• Demonstrates ability to communicate and interact professionally by showing empathy, respect, and concern for patients and the community • Consistently provides clear, relevant, and detailed responses

4.2. Demonstrates professional attitudes and behaviors	• Does not generally demonstrate professional attitudes and behaviors (e.g., service orientation, concern for welfare of humanity, commitment to the highest level of patient care, respect for and protection of health information, continuous learning, adherence to ethical and legal standards, patient advocacy)	• Demonstrates some attitudes and behaviors that may be characteristic of professional ones, but demonstration of these are inconsistent and may impede on the quality of work completed (e.g., service orientation, concern for welfare of humanity, commitment to the highest level of patient care, respect for and protection of health information, continuous learning, adherence to ethical and legal standards, patient advocacy)	• Demonstrates professional attitudes and behaviors that generally aid in the completion of work (e.g., service orientation, concern for welfare of humanity, commitment to the highest level of patient care, respect for and protection of health information, continuous learning, adherence to ethical and legal standards, patient advocacy)	• Consistently demonstrates professional attitudes and behaviors (e.g., service orientation, concern for welfare of humanity, commitment to the highest level of patient care, respect for and protection of health information, continuous learning, adherence to ethical and legal standards, patient advocacy)
4.3. Demonstrates personal responsibility and accountability	• Does not demonstrate personal accountability for work completed	• Demonstrates minimal personal accountability for work completed but generally attempts to involve others or hold others accountable for the completion of the student's work	• Demonstrates personal accountability for the work completed but does not necessarily respond appropriately to changing circumstances	• Consistently demonstrates personal accountability and responsibility for the work products, projects, and commitments (e.g., respect for and protection of health information, adherence to ethical and legal standards) • Consistently and appropriately applies pharmacy laws and regulatory guidelines to practice pharmacy
4.4. Demonstrates respectful and sensitive behaviors to the cultural and linguistic needs of diverse patients	• Does not demonstrate an awareness of customs, beliefs, or perspectives in diverse patients • Does not demonstrate awareness of cultural and linguistic needs of patients in order to communicate health information	• Demonstrates a minimal level of awareness of customs, beliefs, or perspectives in diverse patients • Demonstrates minimal awareness of cultural and linguistic needs of patients; either does not or only attempt to adapt behaviors, but does so ineffectively, to communicate health information	• Demonstrates awareness of customs and beliefs, but may not clarify with patients about personal perspectives • Demonstrates awareness of the cultural and linguistic needs of diverse patients, and adapt behaviors to communicate health information, but communication may not be effective	• Demonstrates awareness of customs, beliefs, or perspectives in diverse patients; asks appropriate questions to clarify perspectives and perceptions of diverse patients • Demonstrates full awareness of and responsiveness to cultural and linguistic needs of diverse patients by adapting behaviors appropriately in order to effectively communicate health information

4.5. Demonstrates professional demeanor	• Appears inattentive and impatient by using incoherent, crude, and offensive speech and/or constantly interrupting • Uses inappropriate body language that can include inappropriate or offensive expressions and gestures • Dresses in attire that is inappropriate and may be offensive	• Appears unfocused and distracted by using decipherable speech which does not impede understanding but does not create professional interactions • Uses acceptable body language that is not offensive but does not create a professional demeanor • Dresses in attire that is not offensive but is not tidy or suitable for the environment	• Appears composed and focused by using fluent speech to create professional interactions • Uses appropriate body language that demonstrates a degree of attentiveness • Dresses in attire that is professional and is tidy	• Appears engaged and patient by using articulate, tactful, and diplomatic speech • Uses professional body language consistently that creates a situation conducive to positive interactions • Dresses in attire that is professional, tidy, and well-suited to the environment and situation

ILO 5: **Quantitative reasoning**. Demonstrate ability to use mathematics and statistics in problem solving.

Indicators	Initial	Developing	Developed	Proficient
5.1. Demonstrates ability to perform calculations and apply mathematical principles to solve problems	• Does not demonstrate ability to apply mathematical principles	• Demonstrates ability to perform basic calculations but does not know how to apply mathematical principles to solve problems	• Demonstrates ability to perform most calculations accurately and to apply mathematical principles to solve problems	• Consistently demonstrates ability to perform calculations accurately and to appropriately apply mathematical principles to solve problems (e.g., use mathematical formulas to perform pharmacy calculations, use statistical principles to evaluate literature) • Applies mathematical skills to accurately prepare prescriptions that are therapeutically sound and safe for patient use • Designs patient-specific nutritional and drug dosing delivery/requirements

5.2. Demonstrates understanding of experimental designs and methodology	• Displays difficulty with completing a basic biological or chemical experiment or procedure	• Completes basic biological and chemical experiments	• Completes basic biological and chemical experiments • Develops acceptable strategies address gaps in knowledge	• Designs innovative strategies to address gaps in knowledge • Proposes appropriate and innovative experiments designed to address the hypothesis • Evaluate research, method, and protocol design that is required to conduct valid and reliable studies to test hypotheses or answer research questions
5.3. Demonstrates logical and appropriate interpretation of data	• Demonstrates a limited ability to interpret basic scientific data or complete mathematical or statistical calculations	• Demonstrates attempts to interpret basic scientific data • Demonstrates the ability to complete simple mathematical and statistical analyses	• Demonstrates the ability to interpret basic scientific data • Demonstrates use of appropriate math and statistics to analyze data	• Demonstrates interpretation of data in the context of current scientific knowledge using appropriate mathematics and statistical analyses (e.g., apply statistical analysis appropriately to evaluate a study) • Apply principles of pharmacokinetics, such as drug delivery, disposition, therapeutic effectiveness, and beneficial or adverse interactions, to determine the rate of drug movement
5.4. Demonstrates logical thought patterns in generating conclusions	• Does not generate conclusions based on current scientific data and statistics	• Generates conclusions that may be based on current scientific data and mathematics and are largely flawed and contain gaps in logic that either do not or only minimally address the hypothesis	• Generates conclusions, using scientific and mathematical data, that appropriately, but may not necessarily entirely, address the proposed hypothesis; may minimally relate conclusions to the greater body of scientific knowledge	• Generates conclusions, using appropriate scientific and mathematical data, that accurately address the proposed hypothesis; relates conclusions logically to the greater body of scientific knowledge (e.g., generate conclusions and apply them to a specific patient population) • Apply principles of pharmacology and/ or toxicology, including pharmacoydnamics and mechanisms of theraptuetric and adverse drug actions and interactions to therapeutic

| | | | | • Apply economic principles and theories to the provision of cost effective pharmacy products and services that optimize patient care outcomes |
| | | | | |

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• decision making

ILO 6: **Information literacy**. Identify and search relevant libraries of information and databases; synthesize information obtained from primary literature using properly referenced citations.

Indicators	Initial	Developing	Developed	Proficient
6.1. Demonstrates appropriate search and acquisition of resources	• Does not identify external resources to support topic	• Identifies resources that may not be sufficient in quality and/or quantity	• Identifies a number of resources that are generally appropriate • Often solicits guidance and help from faculty and library learning resources personnel when needed	• Identifies a variety of relevant sources that are sufficient in quality and quantity • Regularly seeks guidance and help from faculty mentors and library learning resources personnel when necessary (e.g., conduct thorough research using key word searches in reputable databases)
6.2. Demonstrates appropriate evaluation of references	• Shows no discretion in use of resources, if used	• Evaluates references based only on association with topic	• Evaluates references based on currency and relevancy but may lack emphasis on quality of publication	• Critically evaluates references based on currency, relevancy, quality of peer review • Demonstrates the ability to assess divergence of opinions where facts are uncertain • Appropriately evaluate the validity and reliability of the conclusions of published research studies
6.3. Demonstrates appropriate incorporation of references	• Does not incorporate references but, if included, are irrelevant and do not support an argument	• Incorporates references that are largely irrelevant to clearly support claims, ideas, or viewpoints	• Incorporates relevant references that generally support claims, ideas, or viewpoints that build some argument	• Incorporates relevant references that appropriately support claims, ideas, or viewpoints that build a coherent argument (e.g., response to a drug information question, assessment of a SOAP note, disease state management, oral presentation of references) • Analyze and apply health

				sciences literature to answer specific patient care and/ or drug-related questions and provide evidence-based therapeutic recommendations to healthcare providers or, when appropriate, the public
6.4. Demonstrates appropriate citation of references	• Does not use citations	• Demonstrates use of citations, but may lack a complete reference list • Citations are erroneous or not formatted correctly	• Demonstrates use of appropriate citations in context • Usually uses correct citation format • May demonstrate typographical errors	• Demonstrates use of properly cited references in context to specific ideas • Uses correct citation format • Includes all necessary information in reference list (e.g., appropriately provide references using standard citation conventions)