



# CURRICULAR MAP



## 1<sup>ST</sup> PROFESSIONAL YEAR COURSES

<b>A. Pharmaceutical Care Abilities</b>														
Outcomes	PCE-1	PCE-2	PAPHYS	MICRO	PHYCHM	P-ASSESS	IPPE-1	IPPE-2	CAL-1	CAL-2	DI	I-PDA	OPEN	OPEN
<b>1. Pharmaceutical Care Plan Development</b> – The student shall develop pharmaceutical care plans that maximize the patient’s response to drug therapy and prevent or resolve drug-related problems in order to ensure positive outcomes. The student shall appropriately document the implementation of and assess the outcomes related to the care plan. The care plan should identify and prioritize patient’s problems, delineate monitoring parameters, and include educational information (e.g. nutrition, lifestyle) intended to promote general health and prevent or minimize disease progression.														
<b>1a.</b> Develop a traditional pharmacist-patient relationship			1A				2ABE	2ABE						
<b>1b.</b> Determine the pharmacist’s role in the patient’s care			1A				2ABE	2ABE				1A		
<b>1c.</b> Identify and prioritize patient problems	1AFH	1AFH	1A		1AGH									
<b>1d.</b> Collect and interpret relevant data (drug information/literature)			1A								1AGH			
<b>1e.</b> Develop an individualized plan for each problem, employing <b>pharmacogenomic</b> and social/behavioral principles			1A		1A						1AGH	1A		
<b>1f.</b> Identify pharmacotherapeutic outcomes and endpoints			1A	1A	1A	1AGH					1AH	1ADF G		
<b>1g.</b> Develop and execute a monitoring plan			1A	1A	1A	1AGH			1ADF	1ADF	1AH	1A		
<b>1h.</b> Correctly identify, satisfactorily solve, and effectively prevent the drug-related problems from the <u>eight</u> categories which most commonly occur and are most likely to cause the greatest harm	1ADFH	1ADFH			1A	1AGH			1ADF	1ADF	1AGH			
<b>2. Patient Evaluation</b> – The student shall conduct patient assessments and contribute to the database of information about a patient by: (1) performing a medication history and reviewing patient systems and charts; (2) recommending and interpreting laboratory tests; (3) assessing medical, physical, psychosocial, behavioral, and economic status; and (4) identifying drug-related dilemmas.														
<b>2a.</b> Evaluate the basic components of a patient’s chart			1A			2AFGH					1AH			
<b>2b.</b> Evaluate and document patient vital signs or laboratory values			1A			2AFG					1AGH	1A		
<b>2c.</b> Evaluate patient information to determine the safety and effectiveness of pharmacotherapy			1A			2AFG					1AGH	1A		

**KEY**

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**A**=Lecture, **B**=Group Writing Assignment, **C**=Group Presentation, **D**=Class Reading Assignment

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2d. Identify and/or use instruments and techniques related to patient assessment and diagnosis						3AFGH					1AGH			
2e. Identify and define the terminology, signs, and symptoms associated with disease and medical conditions	1AD	1AD	1A	1A		3AFGH					1AGH	1A		
2f. Identify drug and non-drug methods of preventing and treating diseases and medical conditions	1ADH	1ADH				2AFG					1AGH			
2g. Identify patient factors, biosocial factors, and concurrent therapy that are relevant to the maintenance of wellness and the prevention or treatment of a disease or medical condition			1A	1A		2AFG					1AGH			
<b>3. Pharmacotherapy Evaluation and Decisions</b> – The student shall assess and monitor the patients’ drug therapy, including consideration of economic status, pathophysiology and the chemical, pharmaceutical, pharmacokinetic, pharmacological and pharmacogenomic characteristics of the administered therapy. The student shall make pharmacotherapy decisions and support those decisions based upon evidence in primary, secondary or tertiary literature and knowledge of biomedical, pharmaceutical, administrative and clinical sciences. The student shall recommend patient use of prescription and non-prescription medications, as well as non-drug therapy, when appropriate.														
3a. Identify drug products by their generic, trade, and/or common name											1AH			
3b. Identify the postulated sites and mechanisms of action of pharmacotherapeutic agents			1A	1A	1A						1AH			
3c. Evaluate drug therapy for the presence of pharmacotherapeutic duplications and interactions					1A						1AH			
3d. Identify, describe the mechanism of, and remedy adverse reactions and iatrogenic or drug-induced illness					1A						1AH			
3e. Identify indications, contraindications, warnings, and precautions associated with a drug product’s active and inactive ingredients	1ADH	1ADH			1A						1AH			
3f. Identify physiochemical properties of drug substances that affect their solubility, pharmacokinetics, pharmacologic actions, and stability	1ADH	1ADH			1A						1AH			
3g. Interpret and apply pharmacokinetic principles to calculate and determine appropriate drug dosage regimens			1A		1A				1ADF	1ADF	1AH	1A		
3h. Interpret and apply biopharmaceutic principles and the pharmaceutical characteristics of drug dosage forms and delivery systems, to assure bioavailability and enhance patient compliance	1A	1A			1A						1AH			
3i. Prevent, recognize, and remedy noncompliance and drug misuse or abuse											1AH			
3j. Perform a pharmacoeconomic analysis through employing the resources of health care, relevant primary literature, and economic models											1AH			

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<b>4. Medication Preparation, Distribution, and Administration</b> – The student shall compound and/or dispense drug products consistent with patient needs and in congruence with federal and state laws. The student shall demonstrate the ability to accurately interpret a prescription, select the appropriate dosage form and route of administration, and appropriately package and label the medication. The student shall demonstrate the ability to counsel patients regarding the administration of medications, when appropriate.														
<b>4a.</b> Accurately interpret a prescription														
4a1. Demonstrate knowledge of the components of a prescription	1AD	1AD												
4a2. Calculate the quantity of medication to be compounded or dispensed; reduce and enlarge formulation quantities and calculate the quantity or ingredient needed to compound the amount of preparation									1ADF	1ADF				
4a3. Calculate nutritional needs and caloric content of nutrient sources									1ADF	1ADF	1AH			
4a4. Calculate the rate of drug administration									1ADF	1ADF	1AH			
4a5. Calculate or convert drug concentrations, ratio strengths, and/or extent of ionization									1ADF	1ADF				
4a6. Locate any drug interactions which may be imbedded in a series of prescriptions or in the patient's profile														
4a7. Identify applicable state and federal laws											1AH			
4a8. Document relevant information in the appropriate database														
<b>4b.</b> Select and dispense the medication														
4b1. Determine whether a particular drug dosage form is commercially available, and whether it is available on a nonprescription basis	1A	1A									1AH			
4b2. Identify commercially available drug products by their characteristic physical attributes	1AD	1AD									1AH			
4b3. Interpret and apply pharmacokinetic parameters and quality assurance data to determine equivalence among manufactured drug products, and identify products for which documented evidence of inequivalence exists	1A	1A												
4b4. Identify the appropriate packaging, storage, handling, and disposal of medications	1AH	1AH									1AH			
4b5. Attach appropriate warning labels	1AH	1AH									1AH			
4b6. Identify and describe the use of equipment and apparatus required to administer medications	1AH	1AH												

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Outcomes	PCE-1	PCE-2	PAPHYS	MICRO	PHYCHM	P-ASSESS	IPPE-1	IPPE-2	CAL-1	CAL-2	DI	I-PDA	OPEN	OPEN
4b7. Identify and describe techniques and procedures related to drug preparation, compounding, and quality assurance	1AH	1AH									1AH			
4b8. Identify and use equipment necessary to prepare and extemporaneously compound medications	1AH	1AH												
4b9. Identify the important physiochemical properties of a preparation's active and inactive ingredients; describe the mechanism of, and the characteristic evidence of incompatibility or degradation; and identify methods for achieving stabilization of the preparation	1AH	1AH									1AH			
4b10. Information included on the label shall be correct	1AH	1AH									1AH			
<b>5. Health Systems Management</b> – The student shall plan, organize, direct and manage human, physical, medical, informational, and technological resources within various pharmacy settings in congruence with federal and state laws. The student shall perform basic management processes, evaluating acquisition, inventory control, medication use and distribution systems, while documenting and maintaining quality and economic stability.														
5a. Describe the appropriate utilization of management principles and use of healthcare resources in the American Health Care System														
5a1. Identify key features of private and public payers														
5a2. Describe objectives of health insurance and managed care systems														
5b. Manage Pharmacy Operations														
5b1. Evaluate a pharmacy for ownership or management using principles of financial management and business indicators														
5b2. Conduct a basic analysis to diagnose and resolve problems														
5b3. Establish a mission statement with component goals and actions														
5b4. Apply principles of business planning to develop a business plan that supports the implementation and provision of pharmaceutical care services, identifies and acquires necessary resources, and assures financial success of the practice														
5b5. Apply marketing principles to effectively market a pharmacy or pharmaceutical care service														
5b6. Identify the impact of government on pharmacy operations and understand the basic principles/strategies for negotiating contracts with payers														
5b7. Develop strategies for reimbursement of pharmacy services, such as medication therapy management														
5c. Manage Personnel														
5c1. Determine the organization structure of a pharmacy														

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5c2. Identify components of a job description														
5c3. Identify a staff of persons (professional, technical and supportive) capable of fulfilling the practice mission														
5c4. Interpret state and federal regulations that affect personnel policies														
5c5. Understand the role of staffing plans in maintaining workforce productivity														
5c6. Determine the process used to recruit, retain, and reward an individual														
5d. Optimize physical and technological resources required to fulfill the practice mission														
5d1. Evaluate a pharmacy layout														
5d2. Design/redesign a pharmacy to maintain efficiency and enhance patient-focused care														
5e. Manage medication distribution and control systems														
5e1. Utilize inventory control concepts to develop and implement an inventory control system														
5e2. Design, select, implement, and/or manage drug distribution systems for various practice														
5f. Manage medication use systems														
5f1. Participate in the pharmaceutical care system's process for reporting and managing medication errors and adverse drug reactions														
5f1. Identify and report medication errors and adverse drug reactions to appropriate individuals and organizations (including institutional and federal)														
5f2. Evaluate information obtained from adverse drug reaction and medication error reporting systems to identify preventable causes.														
5f3. Recommend and implement actions to minimize the occurrence of adverse drug reactions and medication errors.														
5g. Participate as part of a multidisciplinary team in the pharmaceutical care system's process for conducting medication use evaluations														
5g1. Develop appropriate criteria and outcome indicators												1AH		
5g2. Conduct medication use evaluations				1A	1A							1AH		
5h. Participate in the development and implementation of a formulary system														
5h1. Develop standards for drug product inclusion in the formulary												1AH		
5h2. Implement and manage the formulary system														
5i. Apply principles of outcomes research and quality assessment methods to the evaluation of pharmaceutical care														

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5i1. Use appropriate structure, process, and outcome measures to evaluate the quality of pharmaceutical care														
5i1. Apply elements of continuous quality improvement to pharmaceutical care														
5i1. Apply appropriate drug use management methods to evaluate the quality of pharmaceutical care											1AH			
5i1. Use appropriate critical pathways, clinical practice guidelines, and disease management protocols in the delivery of pharmaceutical care														
5i1. Document quality assurance activities according to the specifications of relevant accrediting and regulatory bodies														
5i1. Explain and demonstrate use of report cards in assessing the quality of health care														
5i1. Apply principles of pharmacoeconomics in making pharmaceutical care decisions											1AH			
5i1. Apply principles of humanistic outcomes in determining impact of pharmaceutical care services on patient's quality of life														
5j. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines														
5j1. Identify federal, state, and local statutes and regulations that affect pharmacy practice														
5j2. Apply principles of civil law to the practice of pharmacy														
5j3. Ensure that medication distribution systems (including Internet sources) provide timely and appropriate pharmacy services														
5j4. Identify ethical and moral decisions faced by pharmacists during the medication distribution process														
6. <i>Public Health</i> - The student shall actively participate in national, state, and/or local organizations, initiating and implementing change in pharmacy practice and health care delivery. The student shall participate in activities that emphasize disease prevention, health promotion, patient safety, and health literacy, with special effort directed toward indigent areas and in communities commonly affected by health disparities. The student shall understand the process involved in implementing public health policy.														
6a. Assure the availability of effective, quality health and disease prevention services.														
6a1. Assure access to rational, safe, and cost-effective drug therapy and pharmaceutical care.											1AH			
6a2. Define and assess the health status of individuals and populations, including determinants of health and illness, factors contributing to health promotion and disease prevention, factors influencing the use of health services, and epidemiology (e.g., incidence, prevalence) of diseases														

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6a3. Assess and monitor at-risk populations to identify and report health problems, and to prioritize interventions in collaboration with patients, other health professionals, members of the community, and policy makers.														
6a4. Select and implement strategies to prevent or detect disease in the target population.														
6a5. Identify methods to ensure that public health initiatives/programs continue to achieve stated goals														
6a6. Evaluate the outcomes of the program/intervention.														
6a7. Advocate for improved policies that increase access to health services and reduce health risks.														
6b. Develop strategic efforts to collaborate with policy makers, payers, members of the community, health providers and other stakeholders and decision-makers to promote public health and resolve public health problems														
6b1. Collaborate with pertinent local and state organizations, health care providers and policy makers responsible for the development of the public health initiatives and identify methods to stimulate their support.														
6b2. Synthesize a solution through an action plan in collaboration with community leaders and organizations, such as the following														
6b3. Tailor activities by identifying clinical characteristics of the pharmacy practice and community and learning about diseases associated with the service population and community														
6c. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.														
6c1. Describe local, state, federal and international regulations affecting public health policy development.														
6c2. Evaluate and resolve ethical dilemmas that arise in the development of public health policy or find a solution that is acceptable to all parties involved.														
6c3. Describe legal and ethical implications of intervention in life threatening situations such as poisoning or drug overdose.														
6c4. Demonstrate the ability to place health care and professional issues within appropriate historical, cultural, social, economic, scientific, political, and philosophical frameworks.														
6c5. Display a respect and sensitivity for patient and family attitudes, behaviors and lifestyles, paying particular attention to cultural, ethnic and socioeconomic influences and incorporate cultural preferences, spiritual and health beliefs and behaviors into the patient care plan.														
6c6. Incorporate the needs and perceptions of a culturally diverse society in public health policy.														

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6c7. Apply principles of <u>pharmacoeconomics</u> in public health policy development.														
6c8. Evaluate public health policy in terms of costs and effectiveness.														
6c9. Identify and collaborate with appropriate government agencies in the development of public health policy.														
6c10. Explain the role of professional organizations in the development of public health policy.														
6c11. Determine how professional standards and guidelines are incorporated into specific public health policies														
<b>6d.</b> Develop public health policy														
6d1. Actively participate in national and local pharmacy organizations														
6d2. Implement change in the realm of pharmacy practice and health-care delivery														
6d3. Emphasize patient safety, health literacy and disparities														
6d4. Apply population-specific data, quality assurance strategies, and research processes to develop public health policy														
6d5. Communicate and collaborate with prescribers, policy makers, members of the community and other involved health care providers and administrative and supportive personnel to develop public policy														
6d6. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines														
6d7. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may affect public health policy, to amend existing or develop additional policies														
6d8. Continuously acquire new information by employing life-long learning principles											1AH			
6d9. Display sensitivity to issues regarding cultural diversity														

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<b>B. General Abilities</b>														
<b>Outcomes</b>	<b>PCE-1</b>	<b>PCE-2</b>	<b>PATHO</b>	<b>MICRO</b>	<b>PHYCHEM</b>	<b>PASSESSMEN T</b>	<b>IPPE-1</b>	<b>IPPE-II</b>	<b>CAL1</b>	<b>CA21</b>	<b>DI</b>	<b>I-PDA</b>	<b>OPEN</b>	<b>OPEN</b>
<b>1. Critical Thinking Skills:</b> The student shall acquire, comprehend, apply, analyze, synthesize, and evaluate information. The student shall employ and integrate these skills to identify, resolve and prevent problems and make appropriate decisions and recommendations.														
<b>1a.</b> Acquire, evaluate, and make inferences from oral, written and visual aids	1FH	1FH	1AH	1AH	1AH	2AFGH			1ADF	1ADF	1AGH	1A		
<b>1b.</b> Acquire and evaluate relevant information, analyze arguments, synthesize facts, and information, and offer logical approaches, leading to an informed decision	1FH	1FH	1AH	1AH	1AH	2AFGH			1ADF	1ADF	1AGH	1A		
<b>1c.</b> Identify and solve problems reflectively by conceiving alternatives and evaluating competing views or courses of action	1FH	1FH	1AH	1AH	1AH	2AFGH			1ADF	1ADF	1AGH	1A		
<b>2. Communication</b> – The student shall read, write, speak, listen, and use multimedia technology to communicate effectively. The student shall counsel and educate patients, care givers, and other health care practitioners. The student shall also collaborate with other health care practitioners, patients, and family members to effectively develop interpersonal and interprofessional relationships.														
<b>2a.</b> Develop nonverbal, verbal, written and graphic communication skills to communicate effectively with patients, care-givers, or family			1A			2AFGH		3ABE			1AG	1A		
<b>2b.</b> Develop nonverbal, verbal, written and graphic communication skills to communicate effectively with health-care providers			1A			2AFGH		3ABE			1AG	1A		
<b>2c.</b> Apply communication skills in interpersonal relationships to improve the clinical, economical, and humanistic outcomes of patients			1A			2AFGH		3ABE			1AG	1A		
<b>2d.</b> Apply communication skills in interpersonal relationships t			1A			2AFGH					1AG	1A		
<b>3. Ethics</b> – The student shall practice pharmacy in a professional and ethical manner. The student shall identify, analyze, resolve and prevent ethical dilemmas within the context of their professional and personal judgment.														

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<b>4. Professionalism, Service, and Leadership</b> – The student shall dress professionally and demonstrate professional attitudes, behaviors, and skills. The student shall provide service to the profession and the community, with special effort directed toward indigent areas and in communities with health disparities. The student shall demonstrate leadership skills that will enable them to mentor other students and supervise pharmacy staff.														
<b>4a.</b> Display professional attitudes when engaging patients, health-care professionals, colleagues, and care-givers	1AH	1AH	1AH	1AH	1AH	1AH	3AH	3AH	1AH	1AH	1AG	1A		
<b>4b.</b> Dress professionally when engaging patients, health-care professionals, colleagues, and care givers	1AH	1AH	1AH	1AH	1AH	1AH	3AH	3AH	1AH	1AH	1A	1A		
<b>4c.</b> Communicate professionally when engaging patients, health-care professionals, colleagues, and care-givers	1AH	1AH	1AH	1AH	1AH	1AH	3AH	3AH	1AH	1AH	1AG	1A		
<b>5. Life-Long Learning</b> – The student shall maintain competence in a dynamic profession through self-initiated learning, employing the attitudes, skills and behaviors associated with life-long learning.														
<b>5a.</b> Participate in self-learning activities	1D	1D	1A	1A		1FGH	3ACDH	3ACDH	1DF	1DF	2G	1A		
<b>5b.</b> Participate in mentorship activities						1H	3H	3H				1A		
<b>6. Information Management</b> – The student shall interpret and evaluate data for feasibility, accuracy, and reliability of information.														
<b>6a.</b> Collect and interpret relevant data (drug information/literature)			1A			1FG					1AH	1A		
<b>6b.</b> Interpret drug, disease, and patient information to determine if and how a patient’s undesirable signs and symptoms are caused directly by a drug which the patient is taking or has recently taken			1A	1A							1AH	1A		
<b>6c.</b> Interpret drug, disease, and patient information to determine if and how a patient’s undesirable signs and symptoms could be more appropriately treated with drug therapy or by halting drug therapy			1A								1AH	1A		
<b>6d.</b> Determine if the patient has an unrecognized disease which requires treatment			1A	1A		1AFGH					1AH	1A		
<b>6e.</b> Determine if the patient is experiencing side effects which require additional drug therapy			1A								1AGH	1A		
<b>6f.</b> Determine whether patient requires preventive drug therapy			1A	1A							1AGH	1A		
<b>6g.</b> Determine whether the patient requires additional drug therapy to augment or potentiate primary drug therapy			1A	1A							1AGH	1A		

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<b>7. Cultural Competence</b> – The student shall demonstrate comprehension of and sensitivity to issues regarding cultural diversity, employing appropriate attitudes, behaviors, and skills.														
<b>7a.</b> Display sensitivity to issues regarding beliefs, values, traditions and practices of a culture						1A		2A				1A		
<b>7b.</b> Demonstrate sensitivity toward cultural attitudes regarding seeking help from health care providers						1A		2A				1A		
<b>7c.</b> Identify culturally-defined, health-related needs of individuals, families and communities						1A		2A			1A H	1A		

## 2<sup>ND</sup> PROFESSIONAL YEAR COURSES

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<b>1. Pharmaceutical Care Plan Development</b> – The student shall develop pharmaceutical care plans that maximize the patient’s response to drug therapy and prevent or resolve drug-related problems in order to ensure positive outcomes. The student shall appropriately document the implementation of and assess the outcomes related to the care plan. The care plan should identify and prioritize patient’s problems, delineate monitoring parameters, and include educational information (e.g. nutrition, lifestyle) intended to promote general health and prevent or minimize disease progression.														
<b>1a.</b> Develop a traditional pharmacist-patient relationship	2A	2A	2A	2A			3AH	3H						
<b>1b.</b> Determine the pharmacist’s role in the patient’s care	2A	2A	2A	2A			3AH	3H						
<b>1c.</b> Identify and prioritize patient problems	2AFH	2AFH	2AFH	2AFH				3AH						
<b>1d.</b> Collect and interpret relevant data (drug information/literature)	2H	2H	2H	2H	1A			3AH				2DF		
<b>1e.</b> Develop an individualized plan for each problem, employing <b>pharmacogenomic</b> and social/behavioral principles														
<b>1f.</b> Identify pharmacotherapeutic outcomes and endpoints	2AF	2AF	2AF	2AF				3AH				2ADF		
<b>1g.</b> Develop and execute a monitoring plan					1AH			3AH						

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Outcomes	PDA-1	PDA-2	ASL-1	ASL-2	BIO-PH	P-KIN	IPPE-3	IPPE-4	HC-B	PP-EPI	MAN	SC	IPH	OPEN
<b>1h.</b> Correctly identify, satisfactorily solve, and effectively prevent the drug-related problems from the <u>eight</u> categories which most commonly occur and are most likely to cause the greatest harm	2AF	2AF	2AF	2AF	1AD			3AH						
<b>2. Patient Evaluation</b> – The student shall conduct patient assessments and contribute to the database of information about a patient by: (1) performing a medication history and reviewing patient systems and charts; (2) recommending and interpreting laboratory tests; (3) assessing medical, physical, psychosocial, behavioral, and economic status; and (4) identifying drug-related dilemmas.														
<b>2a.</b> Evaluate the basic components of a patient’s chart								3AH						
<b>2b.</b> Evaluate and document patient vital signs or laboratory values	2AF	2AF	2AF	2AF				3AH						
<b>2c.</b> Evaluate patient information to determine the safety and effectiveness of pharmacotherapy	2AF	2AF	2AF	2AF				3AH						
<b>2d.</b> Identify and/or use instruments and techniques related to patient assessment and diagnosis								3AH						
<b>2e.</b> Identify and define the terminology, signs, and symptoms associated with disease and medical conditions	2A	2A	2A	2A				3AH						
<b>2f.</b> Identify drug and non-drug methods of preventing and treating diseases and medical conditions	2A	2A	2A	2A				3AH						
<b>2g.</b> Identify patient factors, biosocial factors, and concurrent therapy that are relevant to the maintenance of wellness and the prevention or treatment of a disease or medical condition	2A	2A	2A	2A				3AH						
<b>3. Pharmacotherapy Evaluation and Decisions</b> – The student shall assess and monitor the patients’ drug therapy, including consideration of economic status, pathophysiology and the chemical, pharmaceutical, pharmacokinetic, pharmacological and pharmacogenomic characteristics of the administered therapy. The student shall make pharmacotherapy decisions and support those decisions based upon evidence in primary, secondary or tertiary literature and knowledge of biomedical, pharmaceutical, administrative and clinical sciences. The student shall recommend patient use of prescription and non-prescription medications, as well as non-drug therapy, when appropriate.														
<b>3a.</b> Identify drug products by their generic, trade, and/or common name	1A	1A	1A	1A			3H	3H				2AFG		
<b>3b.</b> Identify the postulated sites and mechanisms of action of pharmacotherapeutic agents	3A	3A	3A	3A			3H	3H				2FG		
<b>3c.</b> Evaluate drug therapy for the presence of pharmacotherapeutic duplications and interactions							3H	3H						

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<b>3d.</b> Identify, describe the mechanism of, and remedy adverse reactions and iatrogenic or drug-induced illness								3H				2FG		
<b>3e.</b> Identify indications, contraindications, warnings, and precautions associated with a drug product's active and inactive ingredients	2A	2A	2A	2A				3H						
<b>3f.</b> Identify physiochemical properties of drug substances that affect their solubility, pharmacokinetics, pharmacologic actions, and stability	2A	2A	2A	2A	1ADH									
<b>3g.</b> Interpret and apply pharmacokinetic principles to calculate and determine appropriate drug dosage regimens					2ADH			3H						
<b>3h.</b> Interpret and apply biopharmaceutic principles and the pharmaceutical characteristics of drug dosage forms and delivery systems, to assure bioavailability and enhance patient compliance					2AD			3H						
<b>3i.</b> Prevent, recognize, and remedy noncompliance and drug misuse or abuse								3H						
<b>3j.</b> Perform a pharmaco-economic analysis through employing the resources of health care, relevant primary literature, and economic models														
<b>4. Medication Preparation, Distribution, and Administration</b> – The student shall compound and/or dispense drug products consistent with patient needs and in congruence with federal and state laws. The student shall demonstrate the ability to accurately interpret a prescription, select the appropriate dosage form and route of administration, and appropriately package and label the medication. The student shall demonstrate the ability to counsel patients regarding the administration of medications, when appropriate.														
<b>4a.</b> Accurately interpret a prescription														
<b>4a1.</b> Demonstrate knowledge of the components of a prescription								3H						
<b>4a2.</b> Calculate the quantity of medication to be compounded or dispensed; reduce and enlarge formulation quantities and calculate the quantity or ingredient needed to compound the amount of preparation								3H						
<b>4a3.</b> Calculate nutritional needs and caloric content of nutrient sources								3H						
<b>4a4.</b> Calculate the rate of drug administration								3H						
<b>4a5.</b> Calculate or convert drug concentrations, ratio strengths, and/or extent of ionization								3H						
<b>4a6.</b> Locate any drug interactions which may be imbedded in a series of prescriptions or in the patient's profile								3H						
<b>4a7.</b> Identify applicable state and federal laws								3H						
<b>4a8.</b> Document relevant information in the appropriate database								3H						

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<b>4b.</b> Select and dispense the medication							3AH							
4b1. Determine whether a particular drug dosage form is commercially available, and whether it is available on a nonprescription basis							3AH							
4b2. Identify commercially available drug products by their characteristic physical attributes							3AH							
4b3. Interpret and apply pharmacokinetic parameters and quality assurance data to determine equivalence among manufactured drug products, and identify products for which documented evidence of inequivalence exists							3AH							
4b4. Identify the appropriate packaging, storage, handling, and disposal of medications							3AH							
4b5. Attach appropriate warning labels							3AH							
4b6. Identify and describe the use of equipment and apparatus required to administer medications							3AH							
4b7. Identify and describe techniques and procedures related to drug preparation, compounding, and quality assurance							3AH							
4b8. Identify and use equipment necessary to prepare and extemporaneously compound medications							3AH							
4b9. Identify the important physiochemical properties of a preparation's active and inactive ingredients; describe the mechanism of, and the characteristic evidence of incompatibility or degradation; and identify methods for achieving stabilization of the preparation							3AH							
4b10. Information included on the label shall be correct							3AH							
<b>5. Health Systems Management</b> – The student shall plan, organize, direct and manage human, physical, medical, informational, and technological resources within various pharmacy settings in congruence with federal and state laws. The student shall perform basic management processes, evaluating acquisition, inventory control, medication use and distribution systems, while documenting and maintaining quality and economic stability.														
<b>5a.</b> Describe the appropriate utilization of management principles and use of healthcare resources in the American Health Care System														
5a1. Identify key features of private and public payers											2ADFH			
5a2. Describe objectives of health insurance and managed care systems											2ADFH			
<b>5b.</b> Manage Pharmacy Operations														
5b1. Evaluate a pharmacy for ownership or management using principles of financial management and business indicators											3ADFH			
5b2. Conduct a basic analysis to diagnose and resolve problems											3ADFH			

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Outcomes	PDA-1	PDA-2	ASL-1	ASL-2	BIO-PH	P-KIN	IPPE-3	IPPE-4	HC-B	PP-EPI	MAN	SC	IPH	OPEN
5b3. Establish a mission statement with component goals and actions											3ADFH			
5b4. Apply principles of business planning to develop a business plan that supports the implementation and provision of pharmaceutical care services, identifies and acquires necessary resources, and assures financial success of the practice											3ADFH			
5b5. Apply marketing principles to effectively market a pharmacy or pharmaceutical care service											3ADFH			
5b6. Identify the impact of government on pharmacy operations and understand the basic principles/strategies for negotiating contracts with payers											3ADFH			
5b7. Develop strategies for reimbursement of pharmacy services, such as medication therapy management											3ADFH			
<b>5c.</b> Manage Personnel														
5c1. Determine the organization structure of a pharmacy											2ADFH			
5c2. Identify components of a job description											2ADFH			
5c3. Identify a staff of persons (professional, technical and supportive) capable of fulfilling the practice mission											2ADFH			
5c4. Interpret state and federal regulations that affect personnel policies											2ADFH			
5c5. Understand the role of staffing plans in maintaining workforce productivity											2ADFH			
5c6. Determine the process used to recruit, retain, and reward an individual											2ADFH			
<b>5d.</b> Optimize physical and technological resources required to fulfill the practice mission														
5d1. Evaluate a pharmacy layout											2AH			
5d2. Design/redesign a pharmacy to maintain efficiency and enhance patient-focused care											2AH			
<b>5e.</b> Manage medication distribution and control systems														
5e1. Utilize inventory control concepts to develop and implement an inventory control system											3AH			
5e2. Design, select, implement, and/or manage drug distribution systems for various practice											3AH			
<b>5f.</b> Manage medication use systems														
5f1. Participate in the pharmaceutical care system's process for reporting and managing medication errors and adverse drug reactions														
5f1. Identify and report medication errors and adverse drug reactions to appropriate individuals and organizations (including institutional and federal)														

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Outcomes	PDA-1	PDA-2	ASL-1	ASL-2	BIO-PH	P-KIN	IPPE-3	IPPE-4	HC-B	PP-EPI	MAN	SC	IPH	OPEN
5f2. Evaluate information obtained from adverse drug reaction and medication error reporting systems to identify preventable causes.														
5f3. Recommend and implement actions to minimize the occurrence of adverse drug reactions and medication errors.														
5g. Participate as part of a multidisciplinary team in the pharmaceutical care system's process for conducting medication use evaluations														
5g1. Develop appropriate criteria and outcome indicators														
5g2. Conduct medication use evaluations														
5h. Participate in the development and implementation of a formulary system														
5h1. Develop standards for drug product inclusion in the formulary										2ADFH	2AH			
5h2. Implement and manage the formulary system										2ADFH	2AH			
5i. Apply principles of outcomes research and quality assessment methods to the evaluation of pharmaceutical care														
5i1. Use appropriate structure, process, and outcome measures to evaluate the quality of pharmaceutical care										2ADFH				
5i1. Apply elements of continuous quality improvement to pharmaceutical care										2ADFH				
5i1. Apply appropriate drug use management methods to evaluate the quality of pharmaceutical care										2ADFH				
5i1. Use appropriate critical pathways, clinical practice guidelines, and disease management protocols in the delivery of pharmaceutical care										2ADFH				
5i1. Document quality assurance activities according to the specifications of relevant accrediting and regulatory bodies										2ADFH				
5i1. Explain and demonstrate use of report cards in assessing the quality of health care										2ADFH				
5i1. Apply principles of pharmacoeconomics in making pharmaceutical care decisions										2ADFH				
5i1. Apply principles of humanistic outcomes in determining impact of pharmaceutical care services on patient's quality of life										2ADFH				
5j. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines														
5j1. Identify federal, state, and local statutes and regulations that affect pharmacy practice														
5j2. Apply principles of civil law to the practice of pharmacy														
5j3. Ensure that medication distribution systems (including Internet sources) provide timely and appropriate pharmacy services														
5j4. Identify ethical and moral decisions faced by pharmacists during the medication distribution process														

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Outcomes	PDA-1	PDA-2	ASL-1	ASL-2	BIO-PH	P-KIN	IPPE-3	IPPE-4	HC-B	PP-EPI	MAN	SC	IPH	OPEN
<b>6. Public Health</b> - The student shall actively participate in national, state, and/or local organizations, initiating and implementing change in pharmacy practice and health care delivery. The student shall participate in activities that emphasize disease prevention, health promotion, patient safety, and health literacy, with special effort directed toward indigent areas and in communities commonly affected by health disparities. The student shall understand the process involved in implementing public health policy.														
<b>6a.</b> Assure the availability of effective, quality health and disease prevention services.														
<b>6a1.</b> Assure access to rational, safe, and cost-effective drug therapy and pharmaceutical care.									2ADFH	2ADFH			2ADFH	
<b>6a2.</b> Define and assess the health status of individuals and populations, including determinants of health and illness, factors contributing to health promotion and disease prevention, factors influencing the use of health services, and epidemiology (e.g., incidence, prevalence) of diseases									2ADFH	2ADFH			2ADFH	
<b>6a3.</b> Assess and monitor at-risk populations to identify and report health problems, and to prioritize interventions in collaboration with patients, other health professionals, members of the community, and policy makers.									2ADFH	2ADFH			2ADFH	2ADFH
<b>6a4.</b> Select and implement strategies to prevent or detect disease in the target population.									2ADFH				2ADFH	
<b>6a5.</b> Identify methods to ensure that public health initiatives/programs continue to achieve stated goals									2ADFH				2ADFH	
<b>6a6.</b> Evaluate the outcomes of the program/intervention.									2ADFH				2ADFH	
<b>6a7.</b> Advocate for improved policies that increase access to health services and reduce health risks.									2ADFH				2ADFH	
<b>6b.</b> Develop strategic efforts to collaborate with policy makers, payers, members of the community, health providers and other stakeholders and decision-makers to promote public health and resolve public health problems														
<b>6b1.</b> Collaborate with pertinent local and state organizations, health care providers and policy makers responsible for the development of the public health initiatives and identify methods to stimulate their support.									2ADFH				2ADFH	
<b>6b2.</b> Synthesize a solution through an action plan in collaboration with community leaders and organizations, such as the following									2ADFH				2ADFH	
<b>6b3.</b> Tailor activities by identifying clinical characteristics of the pharmacy practice and community and learning about diseases associated with the service population and community									2ADFH				2ADFH	

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Outcomes	PDA-1	PDA-2	ASL-1	ASL-2	BIO-PH	P-KIN	IPPE-3	IPPE-4	HC-B	PP-EPI	MAN	SC	IPH	OPEN
<b>6c.</b> Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.														
6c1. Describe local, state, federal and international regulations affecting public health policy development.									2ADFH					
6c2. Evaluate and resolve ethical dilemmas that arise in the development of public health policy or find a solution that is acceptable to all parties involved.									2ADFH					
6c3. Describe legal and ethical implications of intervention in life threatening situations such as poisoning or drug overdose.									2ADFH					
6c4. Demonstrate the ability to place health care and professional issues within appropriate historical, cultural, social, economic, scientific, political, and philosophical frameworks.									2ADFH					
6c5. Display a respect and sensitivity for patient and family attitudes, behaviors and lifestyles, paying particular attention to cultural, ethnic and socioeconomic influences and incorporate cultural preferences, spiritual and health beliefs and behaviors into the patient care plan.									2ADFH					
6c6. Incorporate the needs and perceptions of a culturally diverse society in public health policy.									2ADFH					
6c7. Apply principles of pharmacoeconomics in public health policy development.									2ADFH					
6c8. Evaluate public health policy in terms of costs and effectiveness.									2ADFH					
6c9. Identify and collaborate with appropriate government agencies in the development of public health policy.									2ADFH					
6c10. Explain the role of professional organizations in the development of public health policy.									2ADFH					
6c11. Determine how professional standards and guidelines are incorporated into specific public health policies									2ADFH					
<b>6d.</b> Develop public health policy														
6d1. Actively participate in national and local pharmacy organizations									2ADFH				2AH	
6d2. Implement change in the realm of pharmacy practice and health-care delivery									2ADFH				2ADFH	
6d3. Emphasize patient safety, health literacy and disparities									2ADFH				2ADFH	
6d4. Apply population-specific data, quality assurance strategies, and research processes to develop public health policy									2ADFH				2ADFH	
6d5. Communicate and collaborate with prescribers, policy makers, members of the community and other involved health care providers and administrative and supportive personnel to develop public policy									2ADFH				2ADFH	
6d6. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines									2ADFH				2ADFH	

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6d7. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may affect public health policy, to amend existing or develop additional policies									2ADFH				2ADFH	
6d8. Continuously acquire new information by employing life-long learning principles									2ADFH				2ADFH	
6d9. Display sensitivity to issues regarding cultural diversity									2ADFH				2ADFH	
<b>B. General Abilities</b>														
Outcomes	PDA-1	PDA-2	ASL-1	ASL-2	BIO-PH	P-KIN	IPPE-3	IPPE-4	HC-B	PP-EPI	MAN	SC	IPH	OPEN
<b>1. Critical Thinking Skills:</b> The student shall acquire, comprehend, apply, analyze, synthesize, and evaluate information. The student shall employ and integrate these skills to identify, resolve and prevent problems and make appropriate decisions and recommendations.														
<b>1a.</b> Acquire, evaluate, and make inferences from oral, written and visual aids	2AFH	2AFH	2AFH	2AFH	1AD		3H	3H	3H	3AH	3FH	2AFG	2AFG	
<b>1b.</b> Acquire and evaluate relevant information, analyze arguments, synthesize facts, and information, and offer logical approaches, leading to an informed decision	2AFH	2AFH	2AFH	2AFH	1AD		3H	3H	3H	3AH	3FH	2AFG	2AFG	
<b>1c.</b> Identify and solve problems reflectively by conceiving alternatives and evaluating competing views or courses of action	2AFH	2AFH	2AFH	2AFH	1AD		3H	3H	3H	3AH	3FH	2AFG	2AFG	
<b>2. Communication</b> – The student shall read, write, speak, listen, and use multimedia technology to communicate effectively. The student shall counsel and educate patients, care givers, and other health care practitioners. The student shall also collaborate with other health care practitioners, patients, and family members to effectively develop interpersonal and interprofessional relationships.														
<b>2a.</b> Develop nonverbal, verbal, written and graphic communication skills to communicate effectively with patients, care-givers, or family	2AFH	2AFH	2AFH	2AFH			3H	3H	3H	3H	3H	1A	3H	
<b>2b.</b> Develop nonverbal, verbal, written and graphic communication skills to communicate effectively with health-care providers	2AFH	2AFH	2AFH	2AFH			3H	3H	3H	3H	3H	1A	3H	
<b>2c.</b> Apply communication skills in interpersonal relationships to improve the clinical, economical, and humanistic outcomes of patients	2AFH	2AFH	2AFH	2AFH			3H	3H	3H	3H	3H	1A	3H	

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<b>2d.</b> Apply communication skills in interpersonal relationships t	2AFH	2AFH	2AFH	2AFH			3H	3H	3H	3H	3H	1A	3H	
<b>3.</b> <i>Ethics</i> – The student shall practice pharmacy in a professional and ethical manner. The student shall identify, analyze, resolve and prevent ethical dilemmas within the context of their professional and personal judgment.														
<b>4.</b> <i>Professionalism, Service, and Leadership</i> – The student shall dress professionally and demonstrate professional attitudes, behaviors, and skills. The student shall provide service to the profession and the community, with special effort directed toward indigent areas and in communities with health disparities. The student shall demonstrate leadership skills that will enable them to mentor other students and supervise pharmacy staff.														
<b>4a.</b> Display professional attitudes when engaging patients, health-care professionals, colleagues, and care-givers	2A	2A	2A	2A	1H		3H	3H	3H	3H	3H	1H	3H	
<b>4b.</b> Dress professionally when engaging patients, health-care professionals, colleagues, and care givers	2A	2A	2A	2A	1H		3H	3H	3H	3H	3H	1H	3H	
<b>4c.</b> Communicate professionally when engaging patients, health-care professionals, colleagues, and care-givers	2A	2A	2A	2A	1H		3H	3H	3H	3H	3H	1H	3H	
<b>5.</b> <i>Life-Long Learning</i> – The student shall maintain competence in a dynamic profession through self-initiated learning, employing the attitudes, skills and behaviors associated with life-long learning.														
<b>5a.</b> Participate in self-learning activities	2A	2A	2A	2A			3H	3H	3H		3AFH		2H	
<b>5b.</b> Participate in mentorship activities	2H	2H	2H	2H			3H	3H	3H		3AFH		2H	
<b>6.</b> <i>Information Management</i> – The student shall interpret and evaluate data for feasibility, accuracy, and reliability of information.														
<b>6a.</b> Collect and interpret relevant data (drug information/literature)							3H	3H	3H	3D	3D	1FH	2FGH	
<b>6b.</b> Interpret drug, disease, and patient information to determine if and how a patient’s undesirable signs and symptoms are caused directly by a drug which the patient is taking or has recently taken							3H	3H	3H	3D	3D	1FH	2FGH	
<b>6c.</b> Interpret drug, disease, and patient information to determine if and how a patient’s undesirable signs and symptoms could be more appropriately treated with drug therapy or by halting drug therapy							3H	3H	3H	3D	3D	1FH	2FGH	
<b>6d.</b> Determine if the patient has an unrecognized disease which requires treatment							3H	3H	3H	3D	3D	1FH	2FGH	
<b>6e.</b> Determine if the patient is experiencing side effects which require additional drug therapy							3H	3H	3H	3D	3D	1FH	2FGH	

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6f. Determine whether patient requires preventive drug therapy							3H	3H	3H	3D	3D	1FH	2FGH	
6g. Determine whether the patient requires additional drug therapy to augment or potentiate primary drug therapy							3H	3H	3H	3D	3D	1FH	2FGH	
7. <i>Cultural Competence</i> – The student shall demonstrate comprehension of and sensitivity to issues regarding cultural diversity, employing appropriate attitudes, behaviors, and skills.														
7a. Display sensitivity to issues regarding beliefs, values, traditions and practices of a culture							3AH	3H	3H	3A	3A	1AH	2FGH	
7b. Demonstrate sensitivity toward cultural attitudes regarding seeking help from health care providers							3AH	3H	3H	3A	3A	1AH	2GFH	
7c. Identify culturally-defined, health-related needs of individuals, families and communities							3AH	3H	3H	3A	3A	1AH	2FGH	

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## 3<sup>RD</sup> PROFESSIONAL YEAR COURSES

<b>A. Pharmaceutical Care Abilities</b>														
Outcomes	MTM-1	MTM-2	ASL-3	ASL-4	IPPE-5	IPPE-6	LAW	A-IM	COUNS	EBM	DISP-COMP	OPEN	OPEN	OPEN
<p><b>1. Pharmaceutical Care Plan Development</b> – The student shall develop pharmaceutical care plans that maximize the patient’s response to drug therapy and prevent or resolve drug-related problems in order to ensure positive outcomes. The student shall appropriately document the implementation of and assess the outcomes related to the care plan. The care plan should identify and prioritize patient’s problems, delineate monitoring parameters, and include educational information (e.g. nutrition, lifestyle) intended to promote general health and prevent or minimize disease progression.</p>														
<b>1a.</b> Develop a traditional pharmacist-patient relationship	2A	2A	2A	2A	3H				3AH		3E			
<b>1b.</b> Determine the pharmacist’s role in the patient’s care	3ACDFH	3ACDFH	3ACDFH	3ACDFH	3H			2AF	3AH	2ACD	2AEF			
<b>1c.</b> Identify and prioritize patient problems	3ACDFH	3ACDFH	3ACDFH	3ACDFH	3H			2F	2H	1ACD	2EF			
<b>1d.</b> Collect and interpret relevant data (drug information/literature)	3CDF	3CDF	3CDF	3CDF	3H			2H	2H	3ACD	3CD			
<b>1e.</b> Develop an individualized plan for each problem, employing <b>pharmacogenomic</b> and social/behavioral principles	2A	2A	2A	2A										
<b>1f.</b> Identify pharmacotherapeutic outcomes and endpoints	3ADF	3ADF	3ADF	3ADF	3H					2ACD	2FG			
<b>1g.</b> Develop and execute a monitoring plan	3AF	3AF	3AF	3AF	3H					2ACD	2F			
<b>1h.</b> Correctly identify, satisfactorily solve, and effectively prevent the drug-related problems from the <u>eight</u> categories which most commonly occur and are most likely to cause the greatest harm	3AF	3AF	3AF	3AF	3H			2FH	2H	1CD	1F			
<p><b>2. Patient Evaluation</b> – The student shall conduct patient assessments and contribute to the database of information about a patient by: (1) performing a medication history and reviewing patient systems and charts; (2) recommending and interpreting laboratory tests; (3) assessing medical, physical, psychosocial, behavioral, and economic status; and (4) identifying drug-related dilemmas.</p>														
<b>2a.</b> Evaluate the basic components of a patient’s chart	2A	2A	2A	2A	3H									
<b>2b.</b> Evaluate and document patient vital signs or laboratory values	3AF	3AF	3AF	3AF	3H									
<b>2c.</b> Evaluate patient information to determine the safety and effectiveness of pharmacotherapy	3ACDFH	3ACDFH	3ACDFH	3ACDFH	3H									

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# CURRICULAR MAP

Outcomes	MTM-1	MTM-2	ASL-3	ASL-4	IPPE-5	IPPE-6	LAW	A-IM	COUNS	EBM	DISP-COMP	OPEN	OPEN	OPEN
<b>2d.</b> Identify and/or use instruments and techniques related to patient assessment and diagnosis	2A	2A	2A	2A	3H									
<b>2e.</b> Identify and define the terminology, signs, and symptoms associated with disease and medical conditions	3ADF	3ADF	3ADF	3ADF	3H									
<b>2f.</b> Identify drug and non-drug methods of preventing and treating diseases and medical conditions	3ADF	3ADF	3ADF	3ADF	3H									
<b>2g.</b> Identify patient factors, biosocial factors, and concurrent therapy that are relevant to the maintenance of wellness and the prevention or treatment of a disease or medical condition	3ACF	3ACF	3ACF	3ACF	3H									
<b>3. Pharmacotherapy Evaluation and Decisions</b> – The student shall assess and monitor the patients’ drug therapy, including consideration of economic status, pathophysiology and the chemical, pharmaceutical, pharmacokinetic, pharmacological and pharmacogenomic characteristics of the administered therapy. The student shall make pharmacotherapy decisions and support those decisions based upon evidence in primary, secondary or tertiary literature and knowledge of biomedical, pharmaceutical, administrative and clinical sciences. The student shall recommend patient use of prescription and non-prescription medications, as well as non-drug therapy, when appropriate.														
<b>3a.</b> Identify drug products by their generic, trade, and/or common name	3AF	3AF	3AF	3AF	3H			2F	2H	2CD	3FH			
<b>3b.</b> Identify the postulated sites and mechanisms of action of pharmacotherapeutic agents	3A	3A	3A	3A	3H			2F		1ACD	3H			
<b>3c.</b> Evaluate drug therapy for the presence of pharmacotherapeutic duplications and interactions	3AF	3AF	3AF	3AF	3H			2F		2ACD	3AFH			
<b>3d.</b> Identify, describe the mechanism of, and remedy adverse reactions and iatrogenic or drug-induced illness	3AF	3AF	3AF	3AF	3H									
<b>3e.</b> Identify indications, contraindications, warnings, and precautions associated with a drug product’s active and inactive ingredients	3AF	3AF	3AF	3AF	3H			2F	2H		3FH			
<b>3f.</b> Identify physiochemical properties of drug substances that affect their solubility, pharmacokinetics, pharmacologic actions, and stability	3AF	3AF	3AF	3AF										
<b>3g.</b> Interpret and apply pharmacokinetic principles to calculate and determine appropriate drug dosage regimens	2F	2F	2F	2F	3H					2ACD				
<b>3h.</b> Interpret and apply biopharmaceutic principles and the pharmaceutical characteristics of drug dosage forms and delivery systems, to assure bioavailability and enhance patient compliance	2F	2F	2F	2F	3H					2ACD				
<b>3i.</b> Prevent, recognize, and remedy noncompliance and drug misuse or abuse	3A	3A	3A	3A	3H				2H					
<b>3j.</b> Perform a pharmacoeconomic analysis through employing the resources of health care, relevant primary literature, and economic models														

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Outcomes	MTM-1	MTM-2	ASL-3	ASL-4	IPPE-5	IPPE-6	LAW	A-IM	COUNS	EBM	DISP-COMP	OPEN	OPEN	OPEN
<b>4. Medication Preparation, Distribution, and Administration</b> – The student shall compound and/or dispense drug products consistent with patient needs and in congruence with federal and state laws. The student shall demonstrate the ability to accurately interpret a prescription, select the appropriate dosage form and route of administration, and appropriately package and label the medication. The student shall demonstrate the ability to counsel patients regarding the administration of medications, when appropriate.														
<b>4a.</b> Accurately interpret a prescription														
4a1. Demonstrate knowledge of the components of a prescription											3AH			
4a2. Calculate the quantity of medication to be compounded or dispensed; reduce and enlarge formulation quantities and calculate the quantity or ingredient needed to compound the amount of preparation											3AFH			
4a3. Calculate nutritional needs and caloric content of nutrient sources														
4a4. Calculate the rate of drug administration														
4a5. Calculate or convert drug concentrations, ratio strengths, and/or extent of ionization														
4a6. Locate any drug interactions which may be imbedded in a series of prescriptions or in the patient's profile											3AFH			
4a7. Identify applicable state and federal laws							3ACFG				2AC			
4a8. Document relevant information in the appropriate database														
<b>4b.</b> Select and dispense the medication														
4b1. Determine whether a particular drug dosage form is commercially available, and whether it is available on a nonprescription basis											3AFH			
4b2. Identify commercially available drug products by their characteristic physical attributes														
4b3. Interpret and apply pharmacokinetic parameters and quality assurance data to determine equivalence among manufactured drug products, and identify products for which documented evidence of inequivalence exists														
4b4. Identify the appropriate packaging, storage, handling, and disposal of medications							3ACFG				2A			
4b5. Attach appropriate warning labels											3H			
4b6. Identify and describe the use of equipment and apparatus required to administer medications														
4b7. Identify and describe techniques and procedures related to drug preparation, compounding, and quality assurance											2AH			

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Outcomes	MTM-1	MTM-2	ASL-3	ASL-4	IPPE-5	IPPE-6	LAW	A-IM	COUNS	EBM	DISP-COMP	OPEN	OPEN	OPEN
4b8. Identify and use equipment necessary to prepare and extemporaneously compound medications														
4b9. Identify the important physiochemical properties of a preparation's active and inactive ingredients; describe the mechanism of, and the characteristic evidence of incompatibility or degradation; and identify methods for achieving stabilization of the preparation														
4b10. Information included on the label shall be correct											3H			
<b>5. Health Systems Management</b> – The student shall plan, organize, direct and manage human, physical, medical, informational, and technological resources within various pharmacy settings in congruence with federal and state laws. The student shall perform basic management processes, evaluating acquisition, inventory control, medication use and distribution systems, while documenting and maintaining quality and economic stability.														
<b>5a.</b> Describe the appropriate utilization of management principles and use of healthcare resources in the American Health Care System														
5a1. Identify key features of private and public payers														
5a2. Describe objectives of health insurance and managed care systems														
<b>5b.</b> Manage Pharmacy Operations														
5b1. Evaluate a pharmacy for ownership or management using principles of financial management and business indicators														
5b2. Conduct a basic analysis to diagnose and resolve problems														
5b3. Establish a mission statement with component goals and actions														
5b4. Apply principles of business planning to develop a business plan that supports the implementation and provision of pharmaceutical care services, identifies and acquires necessary resources, and assures financial success of the practice														
5b5. Apply marketing principles to effectively market a pharmacy or pharmaceutical care service														
5b6. Identify the impact of government on pharmacy operations and understand the basic principles/strategies for negotiating contracts with payers														
5b7. Develop strategies for reimbursement of pharmacy services, such as medication therapy management														
<b>5c.</b> Manage Personnel														
5c1. Determine the organization structure of a pharmacy														
5c2. Identify components of a job description														

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Outcomes	MTM-1	MTM-2	ASL-3	ASL-4	IPPE-5	IPPE-6	LAW	A-IM	COUNS	EBM	DISP-COMP	OPEN	OPEN	OPEN
5c3. Identify a staff of persons (professional, technical and supportive) capable of fulfilling the practice mission														
5c4. Interpret state and federal regulations that affect personnel policies														
5c5. Understand the role of staffing plans in maintaining workforce productivity														
5c6. Determine the process used to recruit, retain, and reward an individual														
5d. Optimize physical and technological resources required to fulfill the practice mission														
5d1. Evaluate a pharmacy layout														
5d2. Design/redesign a pharmacy to maintain efficiency and enhance patient-focused care														
5e. Manage medication distribution and control systems														
5e1. Utilize inventory control concepts to develop and implement an inventory control system														
5e2. Design, select, implement, and/or manage drug distribution systems for various practice														
5f. Manage medication use systems														
5f1. Participate in the pharmaceutical care system's process for reporting and managing medication errors and adverse drug reactions														
5f1. Identify and report medication errors and adverse drug reactions to appropriate individuals and organizations (including institutional and federal)														
5f2. Evaluate information obtained from adverse drug reaction and medication error reporting systems to identify preventable causes.														
5f3. Recommend and implement actions to minimize the occurrence of adverse drug reactions and medication errors.														
5g. Participate as part of a multidisciplinary team in the pharmaceutical care system's process for conducting medication use evaluations														
5g1. Develop appropriate criteria and outcome indicators														
5g2. Conduct medication use evaluations														
5h. Participate in the development and implementation of a formulary system														
5h1. Develop standards for drug product inclusion in the formulary														
5h2. Implement and manage the formulary system														
5i. Apply principles of outcomes research and quality assessment methods to the evaluation of pharmaceutical care														

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Outcomes	MTM-1	MTM-2	ASL-3	ASL-4	IPPE-5	IPPE-6	LAW	A-IM	COUNS	EBM	DISP-COMP	OPEN	OPEN	OPEN
5i1. Use appropriate structure, process, and outcome measures to evaluate the quality of pharmaceutical care														
5i1. Apply elements of continuous quality improvement to pharmaceutical care														
5i1. Apply appropriate drug use management methods to evaluate the quality of pharmaceutical care														
5i1. Use appropriate critical pathways, clinical practice guidelines, and disease management protocols in the delivery of pharmaceutical care														
5i1. Document quality assurance activities according to the specifications of relevant accrediting and regulatory bodies														
5i1. Explain and demonstrate use of report cards in assessing the quality of health care														
5i1. Apply principles of pharmacoeconomics in making pharmaceutical care decisions														
5i1. Apply principles of humanistic outcomes in determining impact of pharmaceutical care services on patient's quality of life														
5j. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines														
5j1. Identify federal, state, and local statutes and regulations that affect pharmacy practice							3ACFG							
5j2. Apply principles of civil law to the practice of pharmacy							3ACFG							
5j3. Ensure that medication distribution systems (including Internet sources) provide timely and appropriate pharmacy services							2ACFG							
5j4. Identify ethical and moral decisions faced by pharmacists during the medication distribution process							3ACFG							
6. <i>Public Health</i> - The student shall actively participate in national, state, and/or local organizations, initiating and implementing change in pharmacy practice and health care delivery. The student shall participate in activities that emphasize disease prevention, health promotion, patient safety, and health literacy, with special effort directed toward indigent areas and in communities commonly affected by health disparities. The student shall understand the process involved in implementing public health policy.														
6a. Assure the availability of effective, quality health and disease prevention services.														
6a1. Assure access to rational, safe, and cost-effective drug therapy and pharmaceutical care.														

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Outcomes	MTM-1	MTM-2	ASL-3	ASL-4	IPPE-5	IPPE-6	LAW	A-IM	COUNS	EBM	DISP-COMP	OPEN	OPEN	OPEN
6a2. Define and assess the health status of individuals and populations, including determinants of health and illness, factors contributing to health promotion and disease prevention, factors influencing the use of health services, and epidemiology (e.g., incidence, prevalence) of diseases														
6a3. Assess and monitor at-risk populations to identify and report health problems, and to prioritize interventions in collaboration with patients, other health professionals, members of the community, and policy makers.														
6a4. Select and implement strategies to prevent or detect disease in the target population.										1AC				
6a5. Identify methods to ensure that public health initiatives/programs continue to achieve stated goals														
6a6. Evaluate the outcomes of the program/intervention.										1AC				
6a7. Advocate for improved policies that increase access to health services and reduce health risks.														
6b. Develop strategic efforts to collaborate with policy makers, payers, members of the community, health providers and other stakeholders and decision-makers to promote public health and resolve public health problems														
6b1. Collaborate with pertinent local and state organizations, health care providers and policy makers responsible for the development of the public health initiatives and identify methods to stimulate their support.														
6b2. Synthesize a solution through an action plan in collaboration with community leaders and organizations, such as the following														
6b3. Tailor activities by identifying clinical characteristics of the pharmacy practice and community and learning about diseases associated with the service population and community														
6c. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.														
6c1. Describe local, state, federal and international regulations affecting public health policy development.							3ACFG							
6c2. Evaluate and resolve ethical dilemmas that arise in the development of public health policy or find a solution that is acceptable to all parties involved.							3ACFG							
6c3. Describe legal and ethical implications of intervention in life threatening situations such as poisoning or drug overdose.							3ACFG							
6c4. Demonstrate the ability to place health care and professional issues within appropriate historical, cultural, social, economic, scientific, political, and philosophical frameworks.							3ACFG							

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Outcomes	MTM-1	MTM-2	ASL-3	ASL-4	IPPE-5	IPPE-6	LAW	A-IM	COUNS	EBM	DISP-COMP	OPEN	OPEN	OPEN
6c5. Display a respect and sensitivity for patient and family attitudes, behaviors and lifestyles, paying particular attention to cultural, ethnic and socioeconomic influences and incorporate cultural preferences, spiritual and health beliefs and behaviors into the patient care plan.														
6c6. Incorporate the needs and perceptions of a culturally diverse society in public health policy.														
6c7. Apply principles of <u>pharmacoeconomics</u> in public health policy development.										1AC				
6c8. Evaluate public health policy in terms of costs and effectiveness.														
6c9. Identify and collaborate with appropriate government agencies in the development of public health policy.														
6c10. Explain the role of professional organizations in the development of public health policy.														
6c11. Determine how professional standards and guidelines are incorporated into specific public health policies										1AC				
<b>6d.</b> Develop public health policy														
6d1. Actively participate in national and local pharmacy organizations														
6d2. Implement change in the realm of pharmacy practice and health-care delivery														
6d3. Emphasize patient safety, health literacy and disparities										1AC				
6d4. Apply population-specific data, quality assurance strategies, and research processes to develop public health policy										1AC				
6d5. Communicate and collaborate with prescribers, policy makers, members of the community and other involved health care providers and administrative and supportive personnel to develop public policy														
6d6. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines														
6d7. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may affect public health policy, to amend existing or develop additional policies														
6d8. Continuously acquire new information by employing life-long learning principles										1AC				
6d9. Display sensitivity to issues regarding cultural diversity										1AC				

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# CURRICULAR MAP

<b>B. General Abilities</b>														
<b>Outcomes</b>	<b>MTM-1</b>	<b>MTM-2</b>	<b>ASL-3</b>	<b>ASL-4</b>	<b>IPPE-4</b>	<b>IPPE-5</b>	<b>LAW</b>	<b>A IM</b>	<b>COUNS</b>	<b>EBM</b>	<b>DISP</b>	<b>OPEN</b>	<b>OPEN</b>	<b>OPEN</b>
<b>1. Critical Thinking Skills:</b> The student shall acquire, comprehend, apply, analyze, synthesize, and evaluate information. The student shall employ and integrate these skills to identify, resolve and prevent problems and make appropriate decisions and recommendations.														
<b>1a.</b> Acquire, evaluate, and make inferences from oral, written and visual aids	3ACDFH	3ACDFH	3ACDFH	3ACDFH		3H	2CFG	2F	3H	3CD	3H			
<b>1b.</b> Acquire and evaluate relevant information, analyze arguments, synthesize facts, and information, and offer logical approaches, leading to an informed decision	3ACDFH	3ACDFH	3ACDFH	3ACDFH		3H	2CFG	2F	3H	3CD	3H			
<b>1c.</b> Identify and solve problems reflectively by conceiving alternatives and evaluating competing views or courses of action	3ACDFH	3ACDFH	3ACDFH	3ACDFH		3H	2CFG	2AF	3H	3CD	3H			
<b>2. Communication</b> – The student shall read, write, speak, listen, and use multimedia technology to communicate effectively. The student shall counsel and educate patients, care givers, and other health care practitioners. The student shall also collaborate with other health care practitioners, patients, and family members to effectively develop interpersonal and interprofessional relationships.														
<b>2a.</b> Develop nonverbal, verbal, written and graphic communication skills to communicate effectively with patients, care-givers, or family	3CH	3CH	3CH	3CH		3H	2AC	1A	3AH	3C	3AH			
<b>2b.</b> Develop nonverbal, verbal, written and graphic communication skills to communicate effectively with health-care providers	3CH	3CH	3CH	3CH		3H	2AC	1A	3AH	3C	3AH			
<b>2c.</b> Apply communication skills in interpersonal relationships to improve the clinical, economical, and humanistic outcomes of patients	3CH	3CH	3CH	3CH		3H	2AC	1A	3AH	3C	3AH			
<b>2d.</b> Apply communication skills in interpersonal relationships t	3CH	3CH	3CH	3CH		3H	2AC	1A	3AH	3C	3AH			
<b>3. Ethics</b> – The student shall practice pharmacy in a professional and ethical manner. The student shall identify, analyze, resolve and prevent ethical dilemmas within the context of their professional and personal judgment.														
<b>4. Professionalism, Service, and Leadership</b> – The student shall dress professionally and demonstrate professional attitudes, behaviors, and skills. The student shall provide service to the profession and the community, with special effort directed toward indigent areas and in communities with health disparities. The student shall demonstrate leadership skills that will enable them to mentor other students and supervise pharmacy staff.														
<b>4a.</b> Display professional attitudes when engaging patients, health-care professionals, colleagues, and care-givers	3H	3H	3H	3H		3H	3H	3H	3H	3H	3H			

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Outcomes	MTM-1	MTM-2	ASL-3	ASL-4	IPPE-4	IPPE-5	LAW	A IM	COUNS	EBM	DISP	OPEN	OPEN	OPEN
<b>4b.</b> Dress professionally when engaging patients, health-care professionals, colleagues, and care givers	3H	3H	3H	3H		3H	3CH	3H	3H	3H	3H			
<b>4c.</b> Communicate professionally when engaging patients, health-care professionals, colleagues, and care-givers	3H	3H	3H	3H		3H	3CH	3H	3H	3H	3H			
<b>5.</b> <i>Life-Long Learning</i> – The student shall maintain competence in a dynamic profession through self-initiated learning, employing the attitudes, skills and behaviors associated with life-long learning.														
<b>5a.</b> Participate in self-learning activities						2H	2CFG	2F	2H	2C	2CD			
<b>5b.</b> Participate in mentorship activities						3H					2F			
<b>6.</b> <i>Information Management</i> – The student shall interpret and evaluate data for feasibility, accuracy, and reliability of information.														
<b>6a.</b> Collect and interpret relevant data (drug information/literature)	3BCF	3BCF	3BCF	3BCF		3H	2CF	2FH		2AC	2CD			
<b>6b.</b> Interpret drug, disease, and patient information to determine if and how a patient’s undesirable signs and symptoms are caused directly by a drug which the patient is taking or has recently taken	3BCF	3BCF	3BCF	3BCF		3H		2F		2AC				
<b>6c.</b> Interpret drug, disease, and patient information to determine if and how a patient’s undesirable signs and symptoms could be more appropriately treated with drug therapy or by halting drug therapy	3BCF	3BCF	3BCF	3BCF		3H		2F		2AC				
<b>6d.</b> Determine if the patient has an unrecognized disease which requires treatment	3BCF	3BCF	3BCF	3BCF		3H		2F		2AC				
<b>6e.</b> Determine if the patient is experiencing side effects which require additional drug therapy	3BCF	3BCF	3BCF	3BCF		3H		2F		2AC				
<b>6f.</b> Determine whether patient requires preventive drug therapy	3BCF	3BCF	3BCF	3BCF		3H		2F		2AC				
<b>6g.</b> Determine whether the patient requires additional drug therapy to augment or potentiate primary drug therapy	3BCF	3BCF	3BCF	3BCF		3H		2F		2AC				
<b>7.</b> <i>Cultural Competence</i> – The student shall demonstrate comprehension of and sensitivity to issues regarding cultural diversity, employing appropriate attitudes, behaviors, and skills.														
<b>7a.</b> Display sensitivity to issues regarding beliefs, values, traditions and practices of a culture						3H	2ACFG		2AH		2AH			
<b>7b.</b> Demonstrate sensitivity toward cultural attitudes regarding seeking help from health care providers						3H	2ACFG				2A			
<b>7c.</b> Identify culturally-defined, health-related needs of individuals, families and communities						3H	2ACFG		2AH					

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## 3<sup>RD</sup> PROFESSIONAL YEAR ELECTIVES & 4<sup>TH</sup> PROFESSIONAL YEAR EXPERIENCES

<b>A. Pharmaceutical Care Abilities</b>														
Outcomes	AMB-1	AMB-2	GM-1	GM-2	C- PHARM	H- PHARM	PSYCH	ACUTE PEDS	S-RM- 1,2,3	GEREN	AMB PEDS	CARDIO	ALT M	ONC
<p><b>1. Pharmaceutical Care Plan Development</b> – The student shall develop pharmaceutical care plans that maximize the patient’s response to drug therapy and prevent or resolve drug-related problems in order to ensure positive outcomes. The student shall appropriately document the implementation of and assess the outcomes related to the care plan. The care plan should identify and prioritize patient’s problems, delineate monitoring parameters, and include educational information (e.g. nutrition, lifestyle) intended to promote general health and prevent or minimize disease progression.</p>														
<b>1a.</b> Develop a traditional pharmacist-patient relationship	3A-H	3A-H	3A-H	3A-H	3H	3H		1A			1A	1A	1A	1A
<b>1b.</b> Determine the pharmacist’s role in the patient’s care	3A-H	3A-H	3A-H	3A-H	3H	3H		2AC			2AC	1A	2AC	2AFG
<b>1c.</b> Identify and prioritize patient problems	3A-H	3A-H	3A-H	3A-H	3H	3H		2AC		1A	2AC	1AB	2ACF	2AFG
<b>1d.</b> Collect and interpret relevant data (drug information/literature)	3A-H	3A-H	3A-H	3A-H				1C	3A-H		1C	1AD	1FG	2AFG
<b>1e.</b> Develop an individualized plan for each problem, employing <b>pharmacogenomic</b> and social/behavioral principles	3A-H	3A-H	3A-H	3A-H										
<b>1f.</b> Identify pharmacotherapeutic outcomes and endpoints	3A-H	3A-H	3A-H	3A-H				3CE	3A-H	1A	3CE	1AD	1FG	
<b>1g.</b> Develop and execute a monitoring plan	3A-H	3A-H	3A-H	3A-H				3CE	3A-H	1A	3CE	1AD	1AFG	
<b>1h.</b> Correctly identify, satisfactorily solve, and effectively prevent the drug-related problems from the <u>eight</u> categories which most commonly occur and are most likely to cause the greatest harm	3A-H	3A-H	3A-H	3A-H				3CE	3A-H		3CE	1A		2AFG
<p><b>2. Patient Evaluation</b> – The student shall conduct patient assessments and contribute to the database of information about a patient by: (1) performing a medication history and reviewing patient systems and charts; (2) recommending and interpreting laboratory tests; (3) assessing medical, physical, psychosocial, behavioral, and economic status; and (4) identifying drug-related dilemmas.</p>														
<b>2a.</b> Evaluate the basic components of a patient’s chart	3A-H	3A-H	3A-H	3A-H					3A-H					
<b>2b.</b> Evaluate and document patient vital signs or laboratory values	3A-H	3A-H	3A-H	3A-H					3A-H	1A			1A	
<b>2c.</b> Evaluate patient information to determine the safety and effectiveness of pharmacotherapy	3A-H	3A-H	3A-H	3A-H					3A-H	1A		1A	2AFG	
<b>2d.</b> Identify and/or use instruments and techniques related to patient assessment and diagnosis	3A-H	3A-H	3A-H	3A-H					3A-H			1AD	1A	

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# CURRICULAR MAP

Outcomes	AMB-1	AMB-2	GM-1	GM-2	C-PHARM	H-PHARM	PSYCH	PEDS	S-RM-1,2,3	GEREN	PEDS	CARDIO	ALT M	ONC
<b>2e.</b> Identify and define the terminology, signs, and symptoms associated with disease and medical conditions	3A-H	3A-H	3A-H	3A-H					3A-H	1A			2AF	
<b>2f.</b> Identify drug and non-drug methods of preventing and treating diseases and medical conditions	3A-H	3A-H	3A-H	3A-H					3A-H			1A	2ADF	
<b>2g.</b> Identify patient factors, biosocial factors, and concurrent therapy that are relevant to the maintenance of wellness and the prevention or treatment of a disease or medical condition	3A-H	3A-H	3A-H	3A-H					3A-H			1A	2ADF	
<b>3. Pharmacotherapy Evaluation and Decisions</b> – The student shall assess and monitor the patients’ drug therapy, including consideration of economic status, pathophysiology and the chemical, pharmaceutical, pharmacokinetic, pharmacological and pharmacogenomic characteristics of the administered therapy. The student shall make pharmacotherapy decisions and support those decisions based upon evidence in primary, secondary or tertiary literature and knowledge of biomedical, pharmaceutical, administrative and clinical sciences. The student shall recommend patient use of prescription and non-prescription medications, as well as non-drug therapy, when appropriate.														
<b>3a.</b> Identify drug products by their generic, trade, and/or common name	3A-H	3A-H	3A-H	3A-H				3ACE	3A-H		3ACE	3AB	2ADF	2AFG
<b>3b.</b> Identify the postulated sites and mechanisms of action of pharmacotherapeutic agents	3A-H	3A-H	3A-H	3A-H				3CE	3A-H		3CE	3ABD	2DF	2AFG
<b>3c.</b> Evaluate drug therapy for the presence of pharmacotherapeutic duplications and interactions	3A-H	3A-H	3A-H	3A-H				3CE	3A-H		3CE	3AG	3FGH	2AFG
<b>3d.</b> Identify, describe the mechanism of, and remedy adverse reactions and iatrogenic or drug-induced illness	3A-H	3A-H	3A-H	3A-H				1A	3A-H		1A	1A	2AFG	
<b>3e.</b> Identify indications, contraindications, warnings, and precautions associated with a drug product’s active and inactive ingredients	3A-H	3A-H	3A-H	3A-H				3ACE	3A-H		3ACE	3AB	3FG	2AFG
<b>3f.</b> Identify physiochemical properties of drug substances that affect their solubility, pharmacokinetics, pharmacologic actions, and stability	3A-H	3A-H	3A-H	3A-H					3A-H			1A	2AFG	
<b>3g.</b> Interpret and apply pharmacokinetic principles to calculate and determine appropriate drug dosage regimens	3A-H	3A-H	3A-H	3A-H				3CDE	3A-H	1A	3CDE	1A	1FG	
<b>3h.</b> Interpret and apply biopharmaceutic principles and the pharmaceutical characteristics of drug dosage forms and delivery systems, to assure bioavailability and enhance patient compliance	3A-H	3A-H	3A-H	3A-H					3A-H			1A	1DFGH	
<b>3i.</b> Prevent, recognize, and remedy noncompliance and drug misuse or abuse	3A-H	3A-H	3A-H	3A-H					3A-H			3ADH	2AFG	
<b>3j.</b> Perform a pharmacoeconomic analysis through employing the resources of health care, relevant primary literature, and economic models	3A-H	3A-H	3A-H	3A-H					3A-H			1A		

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<b>4. Medication Preparation, Distribution, and Administration</b> – The student shall compound and/or dispense drug products consistent with patient needs and in congruence with federal and state laws. The student shall demonstrate the ability to accurately interpret a prescription, select the appropriate dosage form and route of administration, and appropriately package and label the medication. The student shall demonstrate the ability to counsel patients regarding the administration of medications, when appropriate.														
<b>4a.</b> Accurately interpret a prescription					3H	3H								
4a1. Demonstrate knowledge of the components of a prescription					3H	3H								
4a2. Calculate the quantity of medication to be compounded or dispensed; reduce and enlarge formulation quantities and calculate the quantity or ingredient needed to compound the amount of preparation					3H	3H								
4a3. Calculate nutritional needs and caloric content of nutrient sources						3H								
4a4. Calculate the rate of drug administration					3H	3H								
4a5. Calculate or convert drug concentrations, ratio strengths, and/or extent of ionization						3H								
4a6. Locate any drug interactions which may be imbedded in a series of prescriptions or in the patient's profile					3AH	3AH								
4a7. Identify applicable state and federal laws					3AH	3AH								
4a8. Document relevant information in the appropriate database					3H	3H								
<b>4b.</b> Select and dispense the medication														
4b1. Determine whether a particular drug dosage form is commercially available, and whether it is available on a nonprescription basis					3H	3H								
4b2. Identify commercially available drug products by their characteristic physical attributes					3H	3H								
4b3. Interpret and apply pharmacokinetic parameters and quality assurance data to determine equivalence among manufactured drug products, and identify products for which documented evidence of inequivalence exists						3H								
4b4. Identify the appropriate packaging, storage, handling, and disposal of medications					3H	3H								
4b5. Attach appropriate warning labels					3H	3H								
4b6. Identify and describe the use of equipment and apparatus required to administer medications					3H	3H								
4b7. Identify and describe techniques and procedures related to drug preparation, compounding, and quality assurance					3H	3H								

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Outcomes	AMB-1	AMB-2	GM-1	GM-2	C- PHARM	H- PHARM	PSYCH	PEDS	S- RM- 1,2,3	GEREN	PEDS	CARDIO	ALT M	ONC
4b8. Identify and use equipment necessary to prepare and extemporaneously compound medications					3H	3H								
4b9. Identify the important physiochemical properties of a preparation's active and inactive ingredients; describe the mechanism of, and the characteristic evidence of incompatibility or degradation; and identify methods for achieving stabilization of the preparation														
4b10. Information included on the label shall be correct					3AH	3AH								
<b>5. Health Systems Management</b> – The student shall plan, organize, direct and manage human, physical, medical, informational, and technological resources within various pharmacy settings in congruence with federal and state laws. The student shall perform basic management processes, evaluating acquisition, inventory control, medication use and distribution systems, while documenting and maintaining quality and economic stability.														
<b>5a.</b> Describe the appropriate utilization of management principles and use of healthcare resources in the American Health Care System					3H	3H								
5a1. Identify key features of private and public payers					3H	3H								
5a2. Describe objectives of health insurance and managed care systems					3H	3H								
<b>5b.</b> Manage Pharmacy Operations														
5b1. Evaluate a pharmacy for ownership or management using principles of financial management and business indicators														
5b2. Conduct a basic analysis to diagnose and resolve problems					3H	3H								
5b3. Establish a mission statement with component goals and actions														
5b4. Apply principles of business planning to develop a business plan that supports the implementation and provision of pharmaceutical care services, identifies and acquires necessary resources, and assures financial success of the practice														
5b5. Apply marketing principles to effectively market a pharmacy or pharmaceutical care service														
5b6. Identify the impact of government on pharmacy operations and understand the basic principles/strategies for negotiating contracts with payers														
5b7. Develop strategies for reimbursement of pharmacy services, such as medication therapy management														
<b>5c.</b> Manage Personnel														
5c1. Determine the organization structure of a pharmacy														
5c2. Identify components of a job description														

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Outcomes	AMB-1	AMB-2	GM-1	GM-2	C-PHARM	H-PHARM	PSYCH	PEDS	S-RM-1,2,3	GEREN	PEDS	CARDIO	ALTM	ONC
5c3. Identify a staff of persons (professional, technical and supportive) capable of fulfilling the practice mission														
5c4. Interpret state and federal regulations that affect personnel policies														
5c5. Understand the role of staffing plans in maintaining workforce productivity														
5c6. Determine the process used to recruit, retain, and reward an individual														
5d. Optimize physical and technological resources required to fulfill the practice mission														
5d1. Evaluate a pharmacy layout														
5d2. Design/redesign a pharmacy to maintain efficiency and enhance patient-focused care														
5e. Manage medication distribution and control systems														
5e1. Utilize inventory control concepts to develop and implement an inventory control system					3H	3H								
5e2. Design, select, implement, and/or manage drug distribution systems for various practice					3H	3H								
5f. Manage medication use systems														
5f1. Participate in the pharmaceutical care system's process for reporting and managing medication errors and adverse drug reactions														
5f1. Identify and report medication errors and adverse drug reactions to appropriate individuals and organizations (including institutional and federal)														
5f2. Evaluate information obtained from adverse drug reaction and medication error reporting systems to identify preventable causes.														
5f3. Recommend and implement actions to minimize the occurrence of adverse drug reactions and medication errors.														
5g. Participate as part of a multidisciplinary team in the pharmaceutical care system's process for conducting medication use evaluations														
5g1. Develop appropriate criteria and outcome indicators														
5g2. Conduct medication use evaluations														
5h. Participate in the development and implementation of a formulary system														
5h1. Develop standards for drug product inclusion in the formulary									3AH					
5h2. Implement and manage the formulary system									3AH					
5i. Apply principles of outcomes research and quality assessment methods to the evaluation of pharmaceutical care														

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Outcomes	AMB-1	AMB-2	GM-1	GM-2	C- PHARM	H- PHARM	PSYCH	PEDS	S-RM- 1,2,3	GEREN	PEDS	CARDIO	ALT M	ONC
5i1. Use appropriate structure, process, and outcome measures to evaluate the quality of pharmaceutical care									3A-H					
5i1. Apply elements of continuous quality improvement to pharmaceutical care														
5i1. Apply appropriate drug use management methods to evaluate the quality of pharmaceutical care														
5i1. Use appropriate critical pathways, clinical practice guidelines, and disease management protocols in the delivery of pharmaceutical care														
5i1. Document quality assurance activities according to the specifications of relevant accrediting and regulatory bodies														
5i1. Explain and demonstrate use of report cards in assessing the quality of health care														
5i1. Apply principles of pharmacoeconomics in making pharmaceutical care decisions														
5i1. Apply principles of humanistic outcomes in determining impact of pharmaceutical care services on patient's quality of life														
5j. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines														
5j1. Identify federal, state, and local statutes and regulations that affect pharmacy practice					3H	3H			3A-H					
5j2. Apply principles of civil law to the practice of pharmacy					3H	3H			3A-H					
5j3. Ensure that medication distribution systems (including Internet sources) provide timely and appropriate pharmacy services									3A-H					
5j4. Identify ethical and moral decisions faced by pharmacists during the medication distribution process					3H	3H			3A-H					
6. <i>Public Health</i> - The student shall actively participate in national, state, and/or local organizations, initiating and implementing change in pharmacy practice and health care delivery. The student shall participate in activities that emphasize disease prevention, health promotion, patient safety, and health literacy, with special effort directed toward indigent areas and in communities commonly affected by health disparities. The student shall understand the process involved in implementing public health policy.														
6a. Assure the availability of effective, quality health and disease prevention services.														
6a1. Assure access to rational, safe, and cost-effective drug therapy and pharmaceutical care.														

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6a2. Define and assess the health status of individuals and populations, including determinants of health and illness, factors contributing to health promotion and disease prevention, factors influencing the use of health services, and epidemiology (e.g., incidence, prevalence) of diseases									3A-H					
6a3. Assess and monitor at-risk populations to identify and report health problems, and to prioritize interventions in collaboration with patients, other health professionals, members of the community, and policy makers.									3A-H					
6a4. Select and implement strategies to prevent or detect disease in the target population.									3A-H					
6a5. Identify methods to ensure that public health initiatives/programs continue to achieve stated goals									3A-H					
6a6. Evaluate the outcomes of the program/intervention.														
6a7. Advocate for improved policies that increase access to health services and reduce health risks.														
6b. Develop strategic efforts to collaborate with policy makers, payers, members of the community, health providers and other stakeholders and decision-makers to promote public health and resolve public health problems														
6b1. Collaborate with pertinent local and state organizations, health care providers and policy makers responsible for the development of the public health initiatives and identify methods to stimulate their support.														
6b2. Synthesize a solution through an action plan in collaboration with community leaders and organizations, such as the following														
6b3. Tailor activities by identifying clinical characteristics of the pharmacy practice and community and learning about diseases associated with the service population and community														
6c. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.														
6c1. Describe local, state, federal and international regulations affecting public health policy development.									3A-H					
6c2. Evaluate and resolve ethical dilemmas that arise in the development of public health policy or find a solution that is acceptable to all parties involved.									3A-H					
6c3. Describe legal and ethical implications of intervention in life threatening situations such as poisoning or drug overdose.									3A-H					
6c4. Demonstrate the ability to place health care and professional issues within appropriate historical, cultural, social, economic, scientific, political, and philosophical frameworks.									3A-H					

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6c5. Display a respect and sensitivity for patient and family attitudes, behaviors and lifestyles, paying particular attention to cultural, ethnic and socioeconomic influences and incorporate cultural preferences, spiritual and health beliefs and behaviors into the patient care plan.									3A-H					
6c6. Incorporate the needs and perceptions of a culturally diverse society in public health policy.									3A-H					
6c7. Apply principles of pharmacoeconomics in public health policy development.														
6c8. Evaluate public health policy in terms of costs and effectiveness.														
6c9. Identify and collaborate with appropriate government agencies in the development of public health policy.														
6c10. Explain the role of professional organizations in the development of public health policy.														
6c11. Determine how professional standards and guidelines are incorporated into specific public health policies														
6d. Develop public health policy														
6d1. Actively participate in national and local pharmacy organizations									3EH					
6d2. Implement change in the realm of pharmacy practice and health-care delivery									3A-H					
6d3. Emphasize patient safety, health literacy and disparities									3A-H					
6d4. Apply population-specific data, quality assurance strategies, and research processes to develop public health policy														
6d5. Communicate and collaborate with prescribers, policy makers, members of the community and other involved health care providers and administrative and supportive personnel to develop public policy														
6d6. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines									3A-H					
6d7. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may affect public health policy, to amend existing or develop additional policies									3A-H					
6d8. Continuously acquire new information by employing life-long learning principles									3A-H					
6d9. Display sensitivity to issues regarding cultural diversity									3A-H					

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<b>B. General Abilities</b>														
<b>Outcomes</b>	<b>AMB-1</b>	<b>AMB-2</b>	<b>GM-1</b>	<b>GM-2</b>	<b>C- PHARM</b>	<b>H- PHARM</b>	<b>PSYCH</b>	<b>PEDS</b>	<b>S-RM- 1,2,3</b>	<b>GEREN</b>	<b>PEDS</b>	<b>CARDIO</b>	<b>ALT M</b>	<b>ONC</b>
<b>1. Critical Thinking Skills:</b> The student shall acquire, comprehend, apply, analyze, synthesize, and evaluate information. The student shall employ and integrate these skills to identify, resolve and prevent problems and make appropriate decisions and recommendations.														
<b>1a.</b> Acquire, evaluate, and make inferences from oral, written and visual aids	3A-H	3A-H	3A-H	3A-H	3H	3H		1ACD	3A-H	1A	1ACD	1AD	2AFG	2AFG
<b>1b.</b> Acquire and evaluate relevant information, analyze arguments, synthesize facts, and information, and offer logical approaches, leading to an informed decision	3A-H	3A-H	3A-H	3A-H	3H	3H		1ACD	3A-H	1A	1ACD	1AD	2AFG	2AFG
<b>1c.</b> Identify and solve problems reflectively by conceiving alternatives and evaluating competing views or courses of action	3A-H	3A-H	3A-H	3A-H	3H	3H		1ACD	3A-H	1A	1ACD	1AD	2AFG	2AFG
<b>2. Communication</b> – The student shall read, write, speak, listen, and use multimedia technology to communicate effectively. The student shall counsel and educate patients, care givers, and other health care practitioners. The student shall also collaborate with other health care practitioners, patients, and family members to effectively develop interpersonal and interprofessional relationships.														
<b>2a.</b> Develop nonverbal, verbal, written and graphic communication skills to communicate effectively with patients, care-givers, or family	3A-H	3A-H	3A-H	3A-H	3H	3H		1ACD	3A-H	1A	1ACD	1AD	2ADF	2AFG
<b>2b.</b> Develop nonverbal, verbal, written and graphic communication skills to communicate effectively with health-care providers	3A-H	3A-H	3A-H	3A-H	3H	3H		1ACD	3A-H	1A	1ACD	1AD	2ADF	2AFG
<b>2c.</b> Apply communication skills in interpersonal relationships to improve the clinical, economical, and humanistic outcomes of patients	3A-H	3A-H	3A-H	3A-H	3H	3H		1ACD	3A-H	1A	1ACD	1AD	1A	2AFG
<b>2d.</b> Apply communication skills in interpersonal relationships t	3A-H	3A-H	3A-H	3A-H	3H	3H		1ACD	3A-H	1A	1ACD	1AD	1A	2AFG
<b>3. Ethics</b> – The student shall practice pharmacy in a professional and ethical manner. The student shall identify, analyze, resolve and prevent ethical dilemmas within the context of their professional and personal judgment.														
<b>4. Professionalism, Service, and Leadership</b> – The student shall dress professionally and demonstrate professional attitudes, behaviors, and skills. The student shall provide service to the profession and the community, with special effort directed toward indigent areas and in communities with health disparities. The student shall demonstrate leadership skills that will enable them to mentor other students and supervise pharmacy staff.														
<b>4a.</b> Display professional attitudes when engaging patients, health-care professionals, colleagues, and care-givers	3A-H	3A-H	3A-H	3A-H	3H	3H		1A	3CEH	1A	1A	1A	1A	1A

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<b>4b.</b> Dress professionally when engaging patients, health-care professionals, colleagues, and care givers	3A-H	3A-H	3A-H	3A-H	3H	3H		1A	3CEH	1A	1A	1A	1A	1A
<b>4c.</b> Communicate professionally when engaging patients, health-care professionals, colleagues, and care-givers	3A-H	3A-H	3A-H	3A-H	3H	3H		1A	3CEH	1A	1A	1A	1A	1A
<b>5.</b> <i>Life-Long Learning</i> – The student shall maintain competence in a dynamic profession through self-initiated learning, employing the attitudes, skills and behaviors associated with life-long learning.														
<b>5a.</b> Participate in self-learning activities	3A-H	3A-H	3A-H	3A-H	3A-H	3A-H			3A-H			1D	2DFG	
<b>5b.</b> Participate in mentorship activities	3CE	3CE	3CE	3CE	3H	3H			3A-H					
<b>6.</b> <i>Information Management</i> – The student shall interpret and evaluate data for feasibility, accuracy, and reliability of information.														
<b>6a.</b> Collect and interpret relevant data (drug information/literature)	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H			3D	3DFG	
<b>6b.</b> Interpret drug, disease, and patient information to determine if and how a patient’s undesirable signs and symptoms are caused directly by a drug which the patient is taking or has recently taken	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H			1D	2FG	
<b>6c.</b> Interpret drug, disease, and patient information to determine if and how a patient’s undesirable signs and symptoms could be more appropriately treated with drug therapy or by halting drug therapy	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H			1D	2FG	
<b>6d.</b> Determine if the patient has an unrecognized disease which requires treatment	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H			1A	2FG	
<b>6e.</b> Determine if the patient is experiencing side effects which require additional drug therapy	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H			1AD	2FG	
<b>6f.</b> Determine whether patient requires preventive drug therapy	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H			1AD	2FG	
<b>6g.</b> Determine whether the patient requires additional drug therapy to augment or potentiate primary drug therapy	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H					
<b>7.</b> <i>Cultural Competence</i> – The student shall demonstrate comprehension of and sensitivity to issues regarding cultural diversity, employing appropriate attitudes, behaviors, and skills.														
<b>7a.</b> Display sensitivity to issues regarding beliefs, values, traditions and practices of a culture	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H		1A	1A	1A	
<b>7b.</b> Demonstrate sensitivity toward cultural attitudes regarding seeking help from health care providers	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H		1A	1A	1A	
<b>7c.</b> Identify culturally-defined, health-related needs of individuals, families and communities	3A-H	3A-H	3A-H	3A-H	3H	3H			3A-H		1A	1A	1A	

**KEY**

**1**=Introductory Concepts **2**= Intermediate Concepts **3**= Advanced Concepts

**A**=Lecture, **B**=Group Writing Assignment, **C**=Group Presentation, **D**=Class Reading Assignment

**E**=Oral Individual Presentation, **F**=Cases, **G**=Problem Based Case, **H**=Other