ADVANCED PHARMACY PRACTICE EXPERIENCE (APPE)
GOALS, OBJECTIVES, AND ACTIVITIES

APPE Goal

The purpose of APPE rotations is to provide students with opportunities to apply their knowledge and develop the skills required of a practicing pharmacist. Students will apply what they have learned in the classroom and in the laboratory to real-world settings.

Students will have the opportunity to:
- Act as a problem solver and develop skills in clinical pharmacy (Problem Solver).
- Use the Pharmacist Patient Care Process to provide patient care services (Caregiver).
- Make decisions based on professional knowledge and judgment (Learner).
- Interact with diverse patient populations (Provider).
- Collaborate with interprofessional health care providers (Collaborator).

While every APPE experience is different, every student should have the opportunity to develop their communication skills and professional selves. The following learning objectives apply to all rotations.

APPE Learning Objectives (Communication and Professional Development)

At the end of the rotation, students should be able to:
- Effectively communicate with patients, health care providers and other key stakeholders (Communicator).
- Satisfactorily complete drug information projects for this rotation (Educator).
- Effectively educate a variety of audiences (Educator).
- Demonstrate self-awareness (Self-Aware)
- Maintain motivation, attention, and interest during rotation activities (Professional).
- Behave in an ethical manner as would be expected of a pharmacist (Professional).
- Demonstrate professionalism at all times (Professional).
- Be an effective (respectful and accountable) member of an interprofessional team (Collaborator).
- Demonstrate awareness and sensitivity towards individuals from diverse populations (Includer).
- Recognize social determinants of health and work to diminish disparities in access to health care (Promoter).
- Demonstrate effective leadership skills (Leader).

Students complete seven APPE rotations, including four required rotations (community practice, ambulatory care, general medicine, and hospital/health-systems) and three elective rotations.

For the elective rotations, students have many options including, but not limited to, administrative pharmacy, drug information, emergency medicine, geriatrics, hematology/oncology, managed care, pediatrics, research and more. With the diversity of elective rotations, preceptors are encouraged to tailor rotation objectives and tasks to their area of practice when developing their syllabi. Please contact our team for additional guidance if needed.

*Note: CAPE 2013 Expected Outcomes for a Graduate of the University of Arizona College of Pharmacy are briefly indicated in the parentheses and are listed entirely at the end of this document.

Community Practice APPE Rotations

Community Practice APPE rotations provide students an opportunity to gain experience in various aspects of community-based practice, including provision of products, clinical pharmacy services, and pharmacy management.

Community APPE Learning Objectives

At the end of the rotation, students should be able to:

- Evaluate new and refill prescription orders with respect to completeness, legal requirements, indication, dosing, route of administration, patient allergies, potential drug-drug and drug-nutrient interactions, and potential drug-disease interactions.
- Prepare prescriptions in a medication use system (e.g., procurement, storage, prescribing, transcription, dispensing, administration, monitoring, and documentation).
- Proactively assess and resolve issues related to medication safety.
- Conduct Comprehensive Medication Reviews (CMR) and provide Medication Therapy Management (MTM) services and document appropriately.
- Provide patient counseling and education (in compliance with OBRA-90).
- Determine patient level of health literacy by observation or interview, appropriately adjust counseling delivery, and communicate at all levels of health literacy.

Example Community APPE Student Activities

- Identify and resolve drug-related problems in a community setting.
- Provide patient counseling regarding prescription and non-prescription products.
- Provide patient education regarding medical devices (e.g., inhalers, glucometers, etc.).
- Provide patient education regarding disease prevention, management, and wellness.
- Administer immunizations and describe the Vaccine Information Statement (VIS), the Vaccine Adverse Events Reporting System (VAERS), and state vaccine registries.
- Effectively communicate medication problems and changes with prescribers and patients.
- Assess, advise, counsel, and refer patients to providers as needed regarding non-prescription or OTC products.
- Participate in topic discussions.
- Perform pharmaceutical calculations.
- Respond to drug information questions from providers, pharmacy staff and patients.
- Perform compounding as appropriate for site.
- Assist in adverse event reporting.
- Discuss and/or participate in discussions and assignments of human resources management, medication resources management and pharmacy data management systems, including pharmacy workload and financial performance.
- Describe protocol for procurement, storage and distribution of controlled substances.
- Perform health screenings.
- Participate in antibiotic or other medication call back programs.

Ambulatory Care APPE Rotations

Ambulatory Care APPE rotations provide students an opportunity to practice in an outpatient setting, often with other health care professionals, to optimize medication therapy outcomes, to provide chronic disease management, and to provide preventative care.

Ambulatory Care APPE Learning Objectives

At the end of the rotation, students should be able to:

- Proactively assess and resolve issues related to medication safety.
- Conduct Comprehensive Medication Reviews (CMR) and provide Medication Therapy Management (MTM) services and document appropriately.
- Provide patient education and promote health among populations served.
- Monitor patients to assess outcomes of therapeutic recommendations over time.
- Assess a patient's health literacy and modify communication strategies to meet the patient's needs.
- Complete physical assessments.
- Communicate appropriate recommendations or referrals to other health professionals.
- Describe personalized medicine and apply an individual patient's genetic profile to the selection and modification of a medication regimen.

Example Ambulatory Care APPE Student Activities

- Identify and resolve ambulatory patient drug-related problems.
- Counsel patients regarding medications and disease states.
- Provide patient education regarding medical devices (e.g. inhaler, glucometer) as applicable.
- Complete point-of-care/telephone consultations and/or interviews with patients.
- Provide medication intervention recommendations to prescribers.
- Participate in topic discussions.
- Assist in adverse event reporting.
- Perform medication therapy management or other disease state management services (with or without insurance billing and reimbursement).
- Provide wellness education.
- Administer immunizations and describe the Vaccine Information Statement (VIS), the Vaccine Adverse Events Reporting System (VAERS), and state vaccine registries.
- Provide pharmacotherapy information to nurses, physicians, and other health care professionals.
- Provide medication education to patients and caregivers.
- Discuss and/or participate in the creation of a business plan to support a patient care service, including the determination of need, feasibility, resources and/or sources of funding.
- Discuss and/or participate in the design, development, marketing and/or reimbursement process for new patient services.
- Discuss and/or participate in the formulary process or perform prospective and retrospective financial and clinical outcomes analyses to support formulary recommendations.
- Discuss and/or participate in therapeutic protocol development.
- Discuss and/or participate in the inventory management of medication samples.

General Medicine APPE Rotations

General Medicine APPE rotations provide students an opportunity to practice in an inpatient setting, often with other health care professionals, to optimize medication therapy outcomes in acutely ill patients.

General Medicine APPE Learning Objectives

At the end of the rotation, students should be able to:

- Evaluate patient-specific factors to ensure safe and effective drug therapy.
- Collect and assess medication information in the electronic medical record to create a care plan.
- Communicate care plan to the prescriber, patient, or other healthcare professionals.
- Ensure appropriate implementation of care plan.
- Discuss and/or participate in therapeutic protocol development.

General Medicine APPE Student Activities

- Identify and resolve inpatient drug-related concerns.
- Provide medication intervention recommendations to prescribers.
- Monitor patients through their hospital stay.
- Complete medication profile reviews and medication reconciliation.
- Participate in topic discussions.
- Participate in interdisciplinary meetings (e.g. P & T, medication safety).
- Respond to drug information questions.
- Assist in adverse event reporting.
- Perform pharmaceutical calculations.
- Perform high-risk medication dosing (e.g., oncology, pediatric, etc.).
- Provide pharmacotherapy information to nurses, physicians and other health care professionals.
- Provide medication education to patients and caregivers.
- Provide pharmacokinetics consults.
- Provide pharmacy consultations (e.g. IV to PO, renal dosing).
- Participate in rounds with an interdisciplinary team.

Hospital/Health-System APPE Rotations

Hospital/Health-Systems APPE rotations provide students an opportunity to practice in an inpatient setting, focusing on a wide range of aspects of inpatient pharmacy, including, but not limited to, provision of products to patients and other hospitals/clinics, medication safety and quality, clinical pharmacy services, and pharmacy management.

Hospital/Health-Systems APPE Learning Objectives

At the end of the rotation, students should be able to:

- Describe the medication use process in health systems, including how pharmacy impacts the safety of storage, prescribing, transcription, dispensing, administration and monitoring steps.
- Describe the basic drug procurement process including drug selection, inventory management, backorders, recalls, drug waste, handling of drug shortages, and their relationship to safe, effective patient care.
- Describe commonly used automated systems related to medication use (such as automated dispensing cabinets, computerized prescriber order entry systems, bar code medication administration systems, programmable infusion devices, and robotics), understanding their appropriate and safe use as well as unintended consequences.
- Prepare medication orders in a typical medication use system (i.e., procurement, storage, prescribing, transcription, dispensing, administration, monitoring, and documentation).
- Demonstrate aseptic technique and describe processes and facilities needed to provide sterile compounded parenteral solutions, including the basic requirements of United States Pharmacopeia (USP) 797/800.
- Discuss and/or participate in management activities (i.e. clinical services, patient care operations, department technology, formulary development and management, pharmacy & therapeutics committee meetings, medication safety, financial & clinical outcomes).
- Discuss and/or participate in the pharmacy's quality and safety programs.
- Discuss and/or participate in the use of investigational drug products as appropriate for site.
- Discuss and/or perform prospective and retrospective financial and clinical outcomes analyses to support formulary recommendations and therapeutic protocol development.

Hospital/Health-Systems APPE Student Activities

- Perform sterile and non-sterile compounding as appropriate for site.
- Participate in and assess the medication distribution process.
- Plan for and/or participate in interdisciplinary meetings (e.g. P & T, medication safety).
- Complete patient chart reviews.
- Research investigational drugs.
- Perform inventory review.
- Assist with formulary development/management.
- Provide education to nurses, physicians and other health care professionals.
- Complete drug monographs and therapeutic class reviews.
- Contribute to medication use evaluations.
- Discuss and/or participate in the creation of a business plan to support a patient care service, contributing to the determination of need, feasibility, resources and/or sources of funding.
- Discuss and/or participate in the design, development, marketing and/or reimbursement process for new patient services.
- Discuss and/or participate in discussions and assignments of human resources management, medication resources management and pharmacy data management systems, including pharmacy workload and financial performance.

The Advanced Pharmacy Practice Experiences *as a whole* should address the following Expected Outcomes of Graduates of the Doctor of Pharmacy Program

1 – Foundational Knowledge	1.1. **Learner (Learner)** Develop, integrate, and apply knowledge from the foundational sciences (i.e., pharmaceutical, social/behavioral/administrative, and clinical sciences) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and patient centered care.	**1.1.1.** Develop and demonstrate depth and breadth of knowledge in pharmaceutical, social/behavioral/administrative, and clinical sciences.
		1.1.2. Articulate how knowledge in foundational sciences is integral to clinical reasoning; evaluation of future advances in medicine; supporting health and wellness initiatives; and delivery of contemporary pharmacy services.
		1.1.3. Integrate knowledge from foundational sciences to explain how specific drugs or drug classes work and evaluate their potential value in individuals and populations.
		1.1.4. Apply knowledge in foundational sciences to solve therapeutic problems and advance patient-centered care.
		1.1.5. Critically analyze scientific literature related to drugs and disease to enhance clinical decision-making.
		1.1.6. Identify and critically analyze emerging theories, information, and technologies that may impact patient-centered and population-based care.
2 – Essentials for Practice and Care	2.1. **Patient-Centered Care (Caregiver)** Provide patient-centered care as the medication expert (collect and interpret evidence, prioritize, formulate assessments and recommendations, implement, monitor, and adjust plans, and document activities).	**2.1.1.** Collect subjective and objective evidence related to patient, medications, allergies/adverse reactions, and disease, by performing patient assessment (including physical assessment) from chart/electronic health records, pharmacist records and patient/family interviews.
		2.1.2. Interpret evidence and patient data.
		2.1.3. Prioritize patient needs.
		2.1.4. Formulate evidence-based care plans, assessments, and recommendations.
		2.1.5. Implement patient care plans.
		2.1.6. Monitor the patient and adjust care plan as needed.
		2.1.7. Document patient care related activities.
	2.2. **Medication Use Systems Management (Manager)** Manage patient healthcare needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication use systems.	**2.2.1.** Compare and contrast the components of typical medication use systems in different pharmacy practice settings.
		2.2.2. Describe the role of the pharmacist in impacting the safety and efficacy of each component of a typical medication use system (i.e., procurement, storage, prescribing, transcription, dispensing, administration, monitoring, and documentation).
		2.2.3. Utilize technology to optimize the medication use system.
		2.2.4. Identify and utilize human, financial, and physical resources to optimize the medication use system.
		2.2.5. Manage healthcare needs of patients during transitions of care.
		2.2.6. Apply standards, guidelines, best practices, and established processes related to safe and effective medication use.
		2.2.7. Utilize continuous quality improvement techniques in the medication use process.
	2.3. **Health and wellness (Promoter)** Design prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness.	**2.3.1.** Describe systematic preventive care, using risk assessment, risk reduction, screening, education, and immunizations.
		2.3.2. Provide prevention, intervention, and educational strategies for individuals and communities to improve health and wellness.
		2.3.3. Participate with interprofessional healthcare team members in the management of, and health promotion for, all patients.
		2.3.4. Evaluate personal, social, economic, and environmental conditions to maximize health and wellness.
	2.4. **Population-based care (Provider)** Describe how population-based care influences patient centered care and influences the development of practice guidelines and	**2.4.1.** Assess the healthcare status and needs of a targeted patient population.
		2.4.2. Develop and provide an evidence-based approach that considers the cost, care, access, and satisfaction needs of a targeted patient population.
		2.4.3. Participate in population health management by evaluating and

		evidence-based best practices.	adjusting interventions to maximize health.
3 - Approach to Practice and Care	**3.1. Problem Solving (Problem Solver)** Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.	**3.1.1.** Identify and define the primary problem.	
		3.1.2. Define goals and alternative goals.	
		3.1.3. Explore multiple solutions by organizing, prioritizing, and defending each possible solution.	
		3.1.4. Anticipate positive and negative outcomes by reviewing assumptions, inconsistencies, and unintended consequences.	
		3.1.5. Implement the most viable solution, including monitoring parameters, to measure intended and unintended consequences.	
		3.1.6. Reflect on the solution implemented and its effects to improve future performance.	
	3.2. Educator (Educator) Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding.	**3.2.1.** Conduct a learning needs assessment of constituents who would benefit from pharmacist-delivered education (e.g., patients/caregivers, technicians and interns, pharmacy students, fellow pharmacists, other healthcare providers, legislators).	
		3.2.2. Select the most effective techniques/strategies to achieve learning objectives.	
		3.2.3. Demonstrate the ability to coordinate educational efforts with other healthcare providers, when appropriate, to ensure a consistent, comprehensive, and team-based encounter.	
		3.2.4. Ensure instructional content contains the most current information relevant for the intended audience.	
		3.2.5. Adapt instruction and deliver to the intended audience.	
		3.2.6. Assess audience comprehension.	
	3.3. Patient Advocacy (Advocate) Assure that patients' best interests are represented.	**3.3.1.** Empower patients to take responsibility for, and control of, their health.	
		3.3.2. Assist patients in navigating the complex healthcare system.	
		3.3.3. Ensure patients obtain the resources and care required in an efficient and cost-effective manner (e.g., triage to social and/or other healthcare services).	
	3.4. Interprofessional collaboration (Collaborator) Actively participate and engage as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs.	**3.4.1.** Establish a climate of shared values and mutual respect necessary to meet patient care needs.	
		3.4.2. Define clear roles and responsibilities for team members to optimize outcomes for specific patient care encounters.	
		3.4.3 Communicate in a manner that values team-based decision making and shows respect for contributions from other areas of expertise.	
		3.4.4. Foster accountability and leverage expertise to form a highly functioning team (one that includes the patient, family, and community) and promote shared patient-centered problem solving.	
	3.5. Health equity (Includer) - Recognize social determinants of health to diminish disparities and inequities in access to quality care.	**3.5.1.** Recognize the collective identity and norms of different cultures without overgeneralizing (i.e., recognize and avoid biases, prejudice, and stereotyping).	
		3.5.2. Demonstrate an attitude and behaviors that are respectful of different cultures.	
		3.5.3. Assess a patient's health literacy and modify communication strategies to meet the patient's needs.	
		3.5.4. Safely and appropriately incorporate patients' cultural beliefs and practices into health and wellness care plans.	
		3.5.5. Recognize the social determinants of health and their influence on health.	
		3.5.6. Use social determinants of health to prevent or diminish health disparities.	
	3.6. Communication (Communicator) – Effectively communicate verbally and nonverbally when interacting with an individual, group, or organization.	**3.6.1.** Interview patients using an organized structure, specific questioning techniques (e.g., motivational interviewing), and medical terminology adapted for the audience.	
		3.6.2. Actively listen and ask appropriate open and closed-ended questions to gather information.	
		3.6.3. Use available technology and other media to assist with communication as appropriate.	
		3.6.4. Use effective interpersonal skills to establish rapport and build	

		trusting relationships.
		3.6.5. Communicate assertively, persuasively, confidently, and clearly.
		3.6.6. Demonstrate empathy when interacting with others.
		3.6.7. Deliver and obtain feedback to assess learning and promote goal setting and goal attainment.
		3.6.8. Develop professional documents pertinent to organizational needs (e.g., monographs, policy documents).
		3.6.9. Document patient care activities clearly, concisely, and accurately using appropriate medical terminology.
4 – Personal and Professional Development	**4.1. Self-awareness (Self-aware)** Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth.	**4.1.1**. Use metacognition to regulate one's own thinking and learning.
		4.1.2. Maintain motivation, attention, and interest (e.g., habits of mind) during learning and work-related activities.
		4.1.3. Identify, create, implement, evaluate and modify plans for personal and professional development for the purpose of individual growth.
		4.1.4. Approach tasks with a desire to learn.
		4.1.5. Demonstrate persistence and flexibility in all situations; engaging in help seeking behavior when appropriate.
		4.1.6. Strive for accuracy and precision by displaying a willingness to recognize, correct, and learn from errors.
		4.1.7. Use constructive coping strategies to manage stress.
		4.1.8. Seek personal, professional, or academic support to address personal limitations.
		4.1.9. Display positive self-esteem and confidence when working with others.
	4.2. Leadership (Leader) Demonstrate responsibility for creating and achieving shared goals, regardless of position.	**4.2.1.** Identify characteristics that reflect leadership versus management.
		4.2.2. Identify the history (e.g., successes and challenges) of a team before implementing changes.
		4.2.3. Develop relationships, value diverse opinions, and understand individual strengths and weaknesses to promote teamwork.
		4.2.4. Persuasively communicate goals to the team to help build consensus.
		4.2.5. Empower team members by actively listening, gathering input or feedback, and fostering collaboration.
	4.3. Innovation and Entrepreneurship (Innovator) Engage in innovative activities by using creative thinking to envision better ways of accomplishing professional goals.	**4.3.1.** Demonstrate initiative when confronted with challenges.
		4.3.2. Develop new ideas and approaches to improve quality or overcome barriers to advance the profession.
		4.3.3. Demonstrate creative decision making when confronted with novel problems or challenges.
		4.3.4. Assess personal strengths and weaknesses in entrepreneurial skills.
		4.3.5. Apply entrepreneurial skills within a simulated entrepreneurial activity.
		4.3.6. Conduct a risk-benefit analysis for implementation of an innovative idea or simulated entrepreneurial activity.
	4.4. Professionalism (Professional) Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society.	**4.4.1.** Demonstrate altruism, integrity, trustworthiness, flexibility, and respect in all interactions.
		4.4.2. Display preparation, initiative, and accountability consistent with a commitment to excellence.
		4.4.3. Deliver patient-centered care in a manner that is legal, ethical, and compassionate.
		4.4.4. Recognize that one's professionalism is constantly evaluated by others.
		4.4.5. Engage in the profession of pharmacy by demonstrating a commitment to its continual improvement.