

**Domain 1: Foundational Knowledge**

(AACCP Definition: defined by each track , with each of the following Domains 2 through 5 to be applied to the specific area of foundational knowledge)

The student will demonstrate the ability to:

**PART I: All Students**

**Competency 1.1** Apply the fundamental concepts related to the development or use of drugs

**Competency 1.2** Apply the skills required to create new knowledge, products, or applications that innovate value

**Competency 1.3** Apply depth of knowledge to a research focus area in pharmaceutical sciences

**PART II: Track Specific**

**MBCC 1.1** Apply chemistry concepts to discover or evaluate new drug candidates

**PCE 1.1** Apply chemistry or engineering concepts to facilitate drug delivery

**PET 1.1** Apply pharmacologic principles to evaluate the impact of a targeted therapeutic on pathophysiologic mechanisms

**CET 1.1** Evaluate the clinical relevance of the interaction between a targeted therapeutic and the associated physiologic response

**POP 1.1** Evaluate outcomes associated with a therapeutic intervention or a change in healthcare policy applied to a population of patients

## Domain 2: Research

(AACP Definition: literature review and critical evaluation, hypothesis generation, research and study design, good research practices, interpretation and analysis, research ethics)

The student will demonstrate the ability to:

### Competency 2.1 **Develop a scientific premise supported by current evidence that addresses an unmet need**

Examples of how to achieve:

- Demonstrate mastery of scientific concepts and literature through written assessment
- Verbally defend a thesis
- Critically evaluate the findings of others through manuscript review
- Identify a gap in knowledge that is associated with a clinical need
- Describe a shortcoming of technology that could be improved through innovation

### Competency 2.2 **Clearly define a testable hypothesis or concept that is relevant to human health**

Examples of how to achieve:

- Identify and refine a scientific or clinical need for value creation
- Design, with mentoring, hypotheses for a research project
- Develop and defend a research hypothesis and specific aims designed to address it
- Utilize technologies and qualitative and quantitative methodologies to test hypotheses
- Identify limitations of a research plan and construct alternative approaches to address them

### Competency 2.3 **Implement a strategic approach to address a hypothesis or objective**

Examples of how to achieve:

- Design and execute experiments to test specific aims of a project
- Write a proposal, legislation, or thesis that describes a strategy to achieve value creation

### Competency 2.4 **Conduct research in accordance with ethical standards and best practices**

Examples of how to achieve:

- Create and maintain a laboratory notebook that is succinct and easy to follow
- Identify current ethical issues in research
- Attend a seminar or webinar on intellectual property
- Utilize good research practices including assay validation and use of appropriate controls

### Competency 2.5 **Interpret results in order to evaluate their impact**

Examples of how to achieve:

- Interpret and analyze data generated in a research project
- Integrate findings into the fabric of competing and supporting literature
- Advance the scientific field through experimental discovery surrounding the research project
- Demonstrate an understanding of the ramification of the findings across the spectrum of pharmaceutical sciences
- Identify limitations of your research
- Evaluate the impact of a new invention or novel process

### **Domain 3: Communication**

(AACP Definition: scientific proposal writing (grants/contracts, proposal/executive summary, intellectual property disclosures), research dissemination, scientific review and response to critiques, oral presentation)

The student will demonstrate the ability to:

#### **Competency 3.1 Communicate findings and ideas through scientific writing**

Examples of how to achieve:

- Compose and publish original research manuscripts utilizing data generated in a research project
- Develop research proposals for a planned investigation
- Write an IRB proposal based upon a research project
- Write and publish a review paper in the field of study
- Compose and submit research grants and other grant proposals
- Write or critique other forms of scientific writing such as business plans, NDAs, contracts, and patents

#### **Competency 3.2 Facilitate learning for individuals or groups**

Examples of how to achieve:

- Teach a didactic lecture to a large group of students or trainees
- Facilitate small group learning in an undergraduate, professional, or graduate course
- Teach technique or skill to an individual within the research group
- Instruct a patient or patient group in an aspect of pharmaceutical or clinical care
- Mentor a trainee within the research group
- Establish and maintain good mentorship practices in an academic or industrial setting

#### **Competency 3.3 Disseminate findings and ideas to multiple audience types**

Examples of how to achieve:

- Present individual results at laboratory data meetings
- Present elevator-type talk to lay or mixed audiences
- Present findings in a research seminar
- Present findings at national meetings in poster or podium form
- Disseminate research findings through various forms of media

#### **Competency 3.4 Utilize interpersonal communication to foster productive interactions**

Examples of how to achieve:

- Collaborate with others to address research hypotheses
- Form a team in order to solve a problem that requires multiple levels of expertise
- Work with others to create a new process, program, or organization that fills an unmet need

## Domain 4: Leadership and Management

(AACP Definition: effective leadership and teamwork, innovation and entrepreneurial discovery, project management, personnel management)

The student will demonstrate the ability to:

### Competency 4.1 Significantly contribute to the achievements of a team

Examples of how to achieve:

Communicate and collaborate professionally on tasks or projects with individuals with different expertise  
Participate in a service learning project  
Attend a legislative advocacy event or webinar  
Create a startup company by working as part of a team

### Competency 4.2 Think innovatively when presented with a task or problem

Examples of how to achieve:

Write and publish a paper outlining how technology might affect your field  
Identify a new solution to a research problem through the application of alternative approaches  
Create an action plan that innovatively applies qualitative and quantitative methodologies  
Create a SWOT (strengths, weaknesses, opportunities, and threats) analysis and use it to address an issue  
Execute a plan that creates value in the form of a new business, product, process, or organization

### Competency 4.3 Develop leadership skills that promote collaborative achievement

Examples of how to achieve:

Actively lead a team project within the research group  
Delegate and direct collaborators to execute a set of experiments  
Inspire a group of graduate students as part of a student, college, university, or national organization  
Give group feedback on a project

### Competency 4.4 Apply principles of management to achieve a goal

Examples of how to achieve:

Effectively plan and execute a research project, managing obstacles and alternatives as you progress  
Organize and oversee the progress of individuals within the research group  
Direct a community service or engagement project for a student, college, university, or national organization  
Support and facilitate achievement of an organization by serving as an officer  
Analyze how a global environment can influence how businesses operate  
Create a business plan that provides a strategy for a project or group  
Strategically utilize the expertise of others to overcome obstacles in a project

## Domain 5: Personal and Professional Development

(AACP Definition: self-awareness and self-direction, adaptability, self-promotion, professionalism, cultural awareness and sensitivity)

The student will demonstrate the ability to:

### Competency 5.1 Exhibit behaviors that are consistent with the trust given to professionals by society

Examples of how to achieve:

Identify ethical dilemmas in research

Present or discuss ethical principles that are applied in the conduct of research and professional practice

Participate in a mock trial, audit, or focus group

Demonstrate altruism, integrity, trustworthiness, flexibility, and respect in all interactions

Display preparation, initiative, and accountability consistent with a commitment to excellence

### Competency 5.2 Utilize self-awareness to engage in the development of life skills needed to achieve career goals

Examples of how to achieve:

Create an Individual Development Plan (IDP) that includes goals related to personal and professional development

Undergo self-assessment and engage in opportunities to improve emotional intelligence and interpersonal skills

Develop an iterative plan to guide career decisions

Identify personal and professional shortcomings and develop plans to improve upon them

Understand and embrace protective factors that support personal wellbeing

### Competency 5.3 Practice cultural humility in professional settings

Examples of how to achieve:

Participate in cultural events within the Lexington community

Give a presentation on how your research will reduce health disparities in a specific population

Create a reflection on a potential cultural conflict in research

Participate in unconscious bias training and recognize and avoid biases and stereotyping

Demonstrate an attitude that is inclusive and respectful of different cultures and values

Develop relationships, value diverse opinions, and understand strengths and weaknesses that promote teamwork

Evaluate how differences in cultural diversity may influence professional etiquette and research practices

### Competency 5.4 Implement self-directed practices of personal and professional advocacy

Examples of how to achieve:

Attend and actively engage at workshops, conferences, and seminars

Network with others within a specific scientific or clinical focus area on LinkedIn

Create a portfolio of work that demonstrates achievements and a specific skill set