

EDUCATIONAL OUTCOMES
Southern Illinois University Edwardsville
School of Pharmacy

SIUE adopts the Educational Outcomes developed by the AACP Center for the Advancement of Pharmaceutical Education (CAPE) as revised in 1998 and 2004.

Competency Statements and Enabling Objectives
(Courses)

I. BASIC FOUNDATIONS FOR PHARMACEUTICAL CARE

Statement 1

Apply knowledge of basic sciences and pharmaceutical sciences to the understanding of human diseases, drugs and therapeutics.

- 1.1 Apply knowledge of human organs, systems, tissue injury, and disease processes.** *(Biochemistry I and II, Integrated Pharmacotherapeutics)*
- 1.2 Apply principles of pharmacology, pharmacodynamics, pharmacokinetics and toxicology.** *(Principles of Drug Action I and II, Biopharmaceutics and Pharmacokinetics)*
- 1.3 Apply principles of structure-activity relationships of drugs to pharmacological actions.** *(Principles of Drug Action I and II, Integrated Pharmacotherapeutics)*
- 1.4 Apply principles of molecular biology and pharmacogenomics to drug therapy.** *(Biochemistry I and II)*
- 1.5 Apply principles of immunology to drug therapy.** *(Microbiology & Immunology)*
- 1.6 Apply principles of biochemistry to understanding of human diseases.** *(Biochemistry I and II)*
- 1.7 Apply physical and chemical principles to understanding of drug and dosage formulation.** *(Pharmaceutics)*

II. PHARMACEUTICAL CARE: PROVIDE PATIENT-CENTERED CARE

Statement 2

Design, implement, monitor, evaluate, and adjust pharmaceutical care plans that are patient-specific and evidence-based.

- 2.1 Initiate and establish relationships with patients/caregivers** *(Introduction to Pharmacy Practice, Service Learning, HIPAA Training – Orientation and Online, Advanced Practice Experiences)*
 - 2.1.1 Demonstrate empathy**

- 2.12 Establish trust**
- 2.13 Maintain confidentiality**

2.2 Compile patient information to maintain a database sufficient to provide care.

- 2.21 Access and use appropriate patient records** (*Introduction to Pharmacy Practice, HIPAA Training, Introductory Practice Experiences, Advanced Practice Experiences*)
- 2.22 Conduct interviews with patients, caregivers, and providers** (*Introduction to Pharmacy Practice, Service Learning, Introductory Practice Experiences, Advanced Practice Experiences*)
- 2.23 Apply physical assessment techniques and available health screenings** (*Physical Assessment & Patient Care Skills, Integrated Pharmacotherapeutics, Self Care & Alternative Medicines, Advanced Practice Experiences*)

2.3 Assess patient information

- 2.31 Evaluate the completeness, reliability and validity of patient data and drug information** (*Drug Information, Biomedical Literature Evaluation*)
- 2.32 Apply knowledge of anatomy, physiology, and pathophysiology to determine the significance of patient's complaints.** (*Integrated Pharmacotherapeutics, Advanced Practice Experiences*)
- 2.33 Apply knowledge of biochemistry, medicinal chemistry, pharmacogenomics, and pharmacology to patient data.** (*Biochemistry I & II, Principles of Drug Action I & II, Integrated Pharmacotherapeutics, Advanced Practice Experiences*)
- 2.34 Apply knowledge of pharmaceuticals and biopharmaceuticals to patient's drug data.** (*Pharmaceutics, Biopharmaceutics & Pharmacokinetics, Advanced Practice Experiences*)
- 2.35 Identify and evaluate pharmaceutical information from drug information resources** (*Drug Information, Biomedical Literature Evaluation, Pharmaceutics, Biopharmaceutics & Pharmacokinetics, Advanced Practice Experiences*)
- 2.36 Evaluate laboratory tests.** (*Physical Assessment & Patient Care Skills, Integrated Pharmacotherapeutic, Advanced Practice Experiences*)
- 2.37 Identify and prioritize all actual and potential drug related problems.**(*Integrated Pharmacotherapeutics, Advanced Practice Experiences*)

2.4 Develop a pharmaceutical care plan (*Pharmacy Rounds*)

- 2.41 Develop pharmacotherapeutic goals for the patient** (*Integrated Pharmacotherapeutics, Advanced Practice Experiences*)

- 2.42 Apply knowledge of pharmacology, immunology, microbiology, medicinal chemistry, and therapeutics in recommending appropriate drug therapy.** *(Integrated Pharmacotherapeutics, Advanced Practice Experiences)*
- 2.43 Recommend appropriate non-drug therapy regimens.**
- 2.44 Develop appropriate dosing regimens based on patient characteristics** *(Pharmaceutics, Biopharmaceutics & Pharmacokinetics, Clinical Pharmacokinetics, Biotechnology, Advanced Practice Experiences)*
- 2.45 Select the appropriate drug (device) in the correct dose and schedule using the appropriate delivery system and biopharmaceutics, and pharmacokinetic data.** *(Pharmaceutics, Introduction to Pharmacy Practice, Biopharmaceutics & Pharmacokinetics, Clinical Pharmacokinetics, Advanced Practice Experiences)*
- 2.46 Develop a rational plan for monitoring therapeutic outcomes.** *(Integrated Pharmacotherapeutics, Advanced Practice Experiences)*
- 2.47 Apply knowledge of pharmacology, medicinal chemistry and therapeutics in monitoring therapeutic outcomes, managing adverse effects and drug interactions.** *(Integrated Pharmacotherapeutics, Advanced Practice Experiences)*
- 2.48 Develop a rational plan for monitoring and managing adverse events.** *(Integrated Pharmacotherapeutics, Advanced Practice Experiences)*
- 2.49 Develop plans for anticipating, avoiding, and resolving drug interaction.** *(Integrated Pharmacotherapeutics, Advanced Practice Experiences)*
 - 2.491 Develop plans for patient education on drug therapy, preventive health, and health lifestyle alternatives.** *(Integrated Pharmacotherapeutics, Self Care & Alternative Medicines, Health Promotion & Literacy, Advanced Practice Experiences, Service Learning)*
 - 2.492 Develop plan for referral of patient to appropriate health care providers or social support networks.** *(Health Care Systems, Introductory Pharmacy Practice Experience, Advanced Practice Experiences)*
- 2.5 Implement and assess a care plan to optimize patient outcomes. (Pharmacy Rounds)**
 - 2.51 Apply knowledge of pharmacology, microbiology, immunology, medicinal chemistry and therapeutics in assessing the implementation of the care plan.** *(Integrated Pharmacotherapeutics, Advanced Practice Experiences)*
 - 2.52 Apply knowledge of pharmaceutics and biopharmaceutics in assessing the implementation of the care plan.** *(Biopharmaceutics and Pharmacokinetics, Integrated Pharmacotherapeutics, Advanced Practice Experiences)*
 - 2.53 Collaborate with the patient and/or providers to implement the pharmaceutical care plan with consideration for patient physiologic and**

pathophysiologic characteristics, confidentiality, relevant social and economic factors, and health promotion needs and practices. (*Integrated Pharmacotherapeutics, Biomedical Literature Evaluation, and Advanced Practice Experiences*)

- 2.54 Ensure that the patient understands the pharmaceutical care plan and receives appropriate sources of information regarding the indications, adverse effects, dosage, interactions, storage and administration techniques.** (*Introduction to Pharmacy Practice, Drug Information, and Advanced Practice Experiences*)
- 2.55 Work with the patient to promote and enable adherence to the plan and provide supplementary educational materials when appropriate.** (*Drug Information, Advanced Practice Experiences*)
- 2.56 Assess patient adherences, monitor safety and efficacy, assess actual outcomes, and suggest or implement appropriate modifications to the plan.** (*Integrated Pharmacotherapeutics, and Advanced Practice Experiences*)
- 2.57 Document pharmaceutical care activity, interventions, and outcomes in the patient medical record and/or in pharmaceutical care documentation system.** (*Advanced Practice Experiences*)

Statement 3

Communicate and collaborate with prescribers, patients, care givers, and other involved health care providers to engender a team approach to patient care. (*Introductory Pharmacy Practice Experiences, Introduction to Pharmacy Practice, Self Care & Alternative Medicines, Advanced Practice Experiences*)

- 3.1 Communicate clearly, accurately and persuasively with various audiences using a variety of methods and media.**
- 3.2 Effectively communicate and counsel diverse patient populations by addressing language, educational, and cultural barriers.**
- 3.3 Use computer technology effectively in communicating with various audiences.**

Statement 4

Retrieve, analyze and interpret the professional, lay and scientific literature to provide drug information to patients, their families, and other involved health care providers. (*Drug Information, Biomedical Literature Evaluation, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences*)

- 4.1 Discriminate between the requestor's statement of perceived need and actual need in order to clarify a drug information request.**
- 4.2 Use a systematic and efficient procedure to retrieve appropriate drug information to satisfy a drug information request.**

- 4.3 **Examine research literature for appropriateness, accuracy, and completeness.**
- 4.4 **Identify inaccuracies of bias in the professional, scientific and lay literature.**
- 4.5 **Integrate selected drug information to form conclusions or recommendations in answering a drug information request.**
- 4.6 **Formulate a drug information response that is based on the requestor's level of understanding.**

Statement 5

Carry out duties in accordance with legal, ethical, social, economic and professional guidelines.

- 5.1 **Accurately prepare and dispense prescriptions.** *(Pharmaceutics, Introduction to Pharmacy Practice, Introductory Pharmacy Practice Experiences)*
- 5.2 **Accurately compound medications.** *(Pharmaceutics, Introduction to Pharmacy Practice, Introductory Pharmacy Practice Experiences)*
- 5.3 **Accurately compound and process sterile drug products.** *(Pharmaceutics, Introduction to Pharmacy Practice, Introductory Pharmacy Practice Experience)*
- 5.4 **Provide drug information.** *(Drug Information, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences)*
- 5.5 **Administer immunizations and other medications when appropriate.** *(Introduction to Pharmacy Practice, Immunization training)*
- 5.6 **Counsel patients regarding their pharmacotherapeutic needs.** *(Introduction to Pharmacy Practice, Self Care & Alternative Medicines, Introductory Pharmacy Practice Experiences, Health Promotion & Literacy, Advanced Practice Experiences)*
- 5.7 **Facilitate the resolution of ethical dilemmas while providing one's professional responsibilities.** *(Pharmacy Law and Ethics, Pharmacy Rounds, Advanced Practice Experiences)*
- 5.8 **Comply with legal requirements for medications.** *(Pharmacy Law and Ethics, Introduction to Pharmacy Practice, Introductory Pharmacy Practice Experience, Advanced Practice Experiences)*
- 5.9 **Apply pharmacoeconomic principles in the drug selection process.** *(Integrated Pharmacotherapeutics, Pharmacy Rounds, Advanced Practice Experiences)*
 - 5.91 **Apply socio-behavioral principles in medication therapy management services.** *(Introduction to Pharmacy Practice, Self Care & Alternative Medicines, Health Care Systems, Disease Management Training, Health Promotion & Literacy, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences)*
 - 5.92 **Apply principles to ensure optimal medication safety.** *(Introduction to Pharmacy Practice, Drug Information, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences, Management Selective)*

5.93 Identify trade and generic names, mechanisms of action, warnings, adverse effects, contraindications, drug interactions, dosage forms, and dosing regimens of the top 200 drug products and representatives from other major therapeutic drug classes.*(Introduction to Pharmacy Practice)*

Statement 6

Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact patient-specific therapeutic outcomes.

6.1 Participate in self-learning and professional development *(Pharmacy Rounds, Advanced Practice Experiences, Senior Project, Professional Organization Involvement)*

III. PHARMACEUTICAL CARE: PROVIDE POPULATION-BASED CARE

Statement 7

Develop and implement population-specific, evidence-based disease management programs and protocols based upon analysis of epidemiologic and pharmaco-economic data, medication use criteria, medication use review, and risk reduction strategies. *(Biomedical Literature Evaluation, Health Care Systems, Self Care and Alternative Medicines, Integrated Pharmacotherapeutics, Health Promotion & Literacy, Senior Project, Pharmacy Rounds, Advanced Practice Experiences, Immunization training, Disease Management training, Professional Organization involvement)*

7.1 Analyze epidemiologic and pharmaco-economic data.

Statement 8

Communicate and collaborate with prescribers, population members, care givers, and other involved health care providers to engender a team approach to patient care. *(Senior project as interdisciplinary project, Advanced Practice Experiences, Pharmacy Rounds)*

Statement 9

Retrieve, analyze, and interpret the professional, lay and scientific literature to provide drug information to other health care providers and to the public. *(Drug Information, Biomedical Literature Evaluation, Introductory Pharmacy Practice Experiences, Senior project, Advanced Practice Experiences)*

Statement 10

Carry out duties in accordance with legal, ethical, social, economic and professional guidelines. *(Pharmacy Law and Ethics, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences)*

Statement 11

Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact population-based, therapeutic outcomes.

(Pharmacy Rounds, Advanced Practice Experiences, Senior Project, Professional Organization Involvement, Immunization Training, Disease Management training)

IV. SYSTEMS MANAGEMENT: MANAGE HUMAN, PHYSICAL, MEDICAL, INFORMATIONAL, AND TECHNOLOGICAL RESOURCES

Statement 12

Apply relevant legal, ethical, social, economic, and professional principles/issues to assure efficient, cost-effective utilization of human, physical, medical, informational, and technological resources in the provision of patient care.

12.1 Apply principles for recruiting, hiring, training, developing, supervising, motivating, retaining, and evaluating professional and non-professional staff.

(Human Resources Management, Advanced Practice Experiences, Pharmacy Rounds)

12.2 Apply principles for designing, managing and controlling the medication use system. *(Health Care Systems, Health Care & Financial Management, Management Selective, Senior Project, Advanced Practice Experiences)*

12.3 Apply principles of business, marketing and strategic planning for managing a pharmacy practice. *(Health Care & Financial Management, Disease Management Training, Advanced Practice Experiences)*

12.4 Apply principles of financial management in managing a pharmacy practice. *(Health Care & Financial Management, Advanced Practice Experiences)*

12.5 Apply principles of pharmacoeconomics in the management of the medication use system. *(Management Selective, Integrated Pharmacotherapeutics, Pharmacy Rounds, Advanced Practice Experiences)*

12.6 Apply knowledge of information and technology systems relevant to pharmacy practice. *(Introduction to Pharmacy Practice, Drug Information, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences)*

12.7 Comply with laws and regulations pertinent to pharmacy practice. *(Pharmacy Law and Ethics, Introduction to Pharmacy Practice, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences)*

12.8 Apply socio-behavioral and ethical principles relevant to resource management in pharmacy practice. *(Health Care Systems, Pharmacy Law and Ethics, Pharmacy Rounds, Advanced Practice Experiences)*

Statement 13

Communicate and collaborate with patients, prescribers, other health care providers, and administrative and supportive personnel to engender a team

approach to assure efficient, cost-effective utilization of human, physical, medical, informational, and technological resources in the provision of patient care.

13.1 Apply principles of effective leadership. (*Service Learning, Human Resources Management, Introductory Pharmacy Practice Experiences, Management Selective, Advanced Practice Experiences*)

13.2 Apply principles for working collaboratively within the health care system. (*Health Care Systems, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences*)

13.3 Apply knowledge of the American economic system as applied to pharmacy and health care. (*Health Care & Financial Management*)

13.4 Develop team building skills (*Orientation, problem-based learning teaching approaches, Service learning*)

Statement 14

Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines. (*Pharmacy Law and Ethics, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences*)

Statement 15

Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact management of human, physical, medical, informational, and technological resources in the provision of patient care.

15.1 Participate in self-learning and professional development. (*Pharmacy Rounds, Management Selective, Senior Project, Advanced Practice Experiences, Professional Organization Involvement*)

V. SYSTEMS MANAGEMENT: MANAGE MEDICATION USE SYSTEMS

Statement 16

Apply patient- and population-specific data, quality assurance strategies, and research processes to assure that medication use systems minimize drug misadventuring and optimize patient outcomes.

16.1 Apply quality assessment strategies to the medication use system. (*Management Selective, Health Care Systems, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences*)

16.2 Report and manage medication errors and adverse drug reactions. (*Introductory Pharmacy Practice Experiences, Advanced Practice Experiences, Drug Information*)

16.3 Develop, implement, evaluate and modify a formulary system. (*Management Selective, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences, Integrated Pharmacotherapeutics*)

16.4 Apply principles of outcomes research to the evaluation of pharmaceutical care. *(Biomedical Literature Evaluation, Management Selective, Advanced Practice Experiences, Senior Project)*

Statement 17

Apply patient- and population specific data, quality assurance strategies and research processes to develop drug use and health policy and to design pharmacy benefits.

17.1 Participate in the pharmaceutical care system's process for conducting drug use evaluations. *(Drug Information, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences)*

17.2 Apply principles of outcomes research to the formulation of medication use policies. *(Management Selective, Pharmacy Rounds, Advanced Practice Experiences, Senior Project)*

17.3 Apply principles to the design of pharmacy benefits. *(Health Care Systems, Health Care & Financial Management, Pharmacy Rounds, Management Selective)*

Statement 18

Communicate and collaborate with prescribers, patients, caregivers, other involved health care providers and administrative and supportive personnel to identify and resolve medication use problems. *(Introductory Pharmacy Practice Experiences, Advanced Practice Experiences)*

Statement 19

Carry out duties in accordance with legal, ethical, social, economic and professional guidelines. *(Pharmacy Law and Ethics, Introductory Pharmacy Practice Experiences, Advanced Practice Experiences)*

Statement 20

Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact medication use systems, to develop use and health policy, and to design pharmacy benefits. *(Pharmacy Rounds, Senior Project, Management Selective, Advanced Practice Experiences)*

VI. PROMOTE PUBLIC HEALTH: ACCESS TO HEALTH AND DISEASE PREVENTION SERVICES AND PUBLIC HEALTH POLICY

Statement 21

Apply population-specific data, quality assurance strategies and research processes to develop, identify and resolve public health problems and to develop public health policy. *(Service Learning, Senior Project, Health Promotion and Literacy, Disease Management Training, Immunization Training, Management Selective, Advanced Practice Experiences)*

21.1 Participate in community health promotion and disease prevention activities.

21.2 Provide patients with access to poison prevention and treatment information.

21.3 Provide emergency first aid treatment and cardiopulmonary resuscitation.

21.4 Demonstrate awareness of local emergency plans and national disaster response systems as they relate to health care system.

21.5 Recommend appropriate actions for persons abusing drugs.

Statement 22

Communicate and collaborate with prescribers, policy makers, members of the community and other involved health care providers and administrative and supportive personnel to identify and resolve public health problems and to develop public health policy.

Statement 23

Maintain professional competence by identifying and analyzing emerging issues, products, and services that may affect the efficacy or quality of disease prevention services or public health policy to amend existing or develop additional services or policies.