

Ernest Mario School of Pharmacy, Rutgers University

Development and Ongoing Assessment of Courses in the PharmD Curriculum: Credit Assignment and Monitoring

The Ernest Mario School of Pharmacy has a clearly defined, closely monitored curriculum for the PharmD program. The School's Curriculum Committee is charged with oversight of the curriculum, assuring continual compliance with accreditation standards and keeping abreast of the ever-changing profession of pharmacy. The Committee includes at least one faculty member from each of the departments of the School and at least one student representative from each professional year of the program, plus the dean and two associate deans who are *ex officio* members. The Committee works closely with the Experiential Committee of the Department of Pharmacy Practice and Administration on required clinical rotations in the PharmD curriculum. Any changes recommended by the Experiential Committee are presented to the Curriculum Committee and the entire faculty for approval.

The School provides a rigorous and comprehensive curriculum with a thorough scientific foundation for the achievement of professional competencies. This includes two pre-professional years of basic science (45 credits) and humanities/social sciences (24 credits) and four professional years. Most courses offered in the pre-professional years are taught by faculty in the University's School of Arts and Sciences. Course sequence and course content are reviewed by faculty within the School of Pharmacy to ensure that students develop the appropriate knowledge base, critical thinking skills, and general education needed to succeed in the pharmacy professional program.

The faculty in the School of Pharmacy take responsibility for all of the required courses in the four-year professional program. In the first through third professional years, instruction in the areas of pharmacology, medicinal chemistry, and therapeutics is rigorous and carefully integrated. Faculty course coordinators oversee content, credit hour generation, coordinate instructors, and ensure attainment of educational and professional objectives. In the summer terms following the first and second professional years, students complete introductory and intermediate clinical rotations in community and institutional pharmacy settings. Following completion of didactic courses at the end of the third professional year, students begin a full year of rotations; they complete at least eight five-week full-time Advanced Pharmacy Practice Experiences (rotations) that require direct application of knowledge, skills, and professional attitudes and values learned in the professional years of the program. During the final year, student knowledge and skill competencies are assessed in capstone experiences using student portfolios and reaffirmed in the *Pharmacy Reflection Seminar*. In the classroom setting and in the field, the credit hour policy is clearly defined and closely monitored, in accordance with requirements of the professional accrediting body (American Council of Pharmacy Education – ACPE) and the School's by-laws.

Proposed new courses are developed by faculty members and vetted by departmental committees. The courses are then subject to rigid review by the Curriculum Committee, including a careful assessment of the contact hours, requirements, and relationship of the

course to existing required and elective courses offered to the PharmD students. Sometimes curricular modifications require adjustments in the credit hours generated or the credit hours required. For example,

- With the 2011 passage of the New Jersey Pharmacy Practice Act, pharmacists were granted the right to provide immunizations for the first time. A module was incorporated into the required *Physical Assessment* course to provide students with the needed skill set to take on this responsibility once they became licensed. The credits in this course were increased from two to three for added class and study time.
- The School increased the number of required Advanced Pharmacy Practice Experience rotations from seven to eight, effective with the class of 2012. This fulfills the accreditation requirement of at least 1,440 hours of experience. Each rotation at the Ernest Mario School of Pharmacy requires five forty-hour weeks of on-site experience plus portfolio work, so our students complete a minimum of 1,600 hours of advanced practice experience. Based on the requirements of the course, students earn five credits per rotation.

The curriculum is designed to provide progressive learning through the pharmaceutical, social and administrative, and clinical sciences with appropriate integration of early clinical rotations. Careful attention is paid to the proper sequencing of courses and coordinating the content of courses taught concurrently. The culmination of this process occurs during the Advanced Pharmacy Practice Experiences.

The Curriculum Committee also systematically evaluates existing core and elective courses; this includes closely monitoring time in class, required assignments, and the relationship of each course to the rest of the curriculum. Its work in AY 2012-2013 is summarized below:

- Completed the evaluation of the didactic courses in the 1st professional year of the program with the exception of one course (Pathophysiology). This review evaluated student and faculty satisfaction, syllabus content, and attainment of ability-based outcomes. A summary report will be written over the summer and adjustments will be made to the School's Ability-Based Outcomes map as identified by the course coordinators.
- Evaluated the coverage of sterile compounding in the curriculum. A faculty working group suggested modifications within Drug Delivery and Lab that were subsequently approved by the Committee. These include changes in sterile compounding lectures to avoid unnecessary duplication of material, addition of three laboratory sessions on sterile dosage forms, the addition of training video used in many hospitals on proper sterile technique, and the installation of a laminar flow hood to be used in instruction.
- Reviewed and approved a new PharmD/MD Dual Degree Program offered in conjunction with the Robert Wood Johnson Medical School. No credit changes are associated with this new program.
- Evaluated and approved a new two-credit professional elective, Concepts in Palliative and End-of-Life Care.
- Examined the first year of the pre-professional curriculum to evaluate options for including a new 2-credit biology laboratory. The Committee recommended that the minimum number of required

Humanities/Social Sciences Electives be reduced to 4 to keep credit loads reasonable for students. Introduction to Microeconomics is still required as is a Psychology/Sociology elective. Students entering the program with AP credits will have room to take more elective courses. The Committee also recommended that students in the professional years of the program be allowed to register for Humanities/Social Sciences electives with approval through the Dean's Office.

In accordance with guidelines provided by the Accreditation Council on Pharmacy Education, the School developed and regularly updates a map of Ability Based Outcomes to ensure that each course in the PharmD program has the appropriate learning objectives for its place in the curriculum. The Curriculum Committee, in consultation with course coordinators, has mapped each required and elective course, using the learning objectives outlined by the ACPE. The map demonstrates broad coverage of scientific topics throughout the curriculum with complementary reinforcement between paired classes within the same semester (e.g., *Medicinal Chemistry I* and *Pharmacology I* in fall P2 semester) as well as sequential basic science-therapeutics courses (*Pharmaceutical Microbiology*, fall P2 semester and *Infectious Disease Therapeutics*, spring P2 semester). As expected, there is a shift from Basic Biomedical (I) and Pharmaceutical (II) Sciences to Social/Behavioral/Administrative Pharmacy Sciences (III) and Clinical Sciences (IV) with each advancing year in the curriculum. Critical skills for the practice of pharmacy such as communication, professionalism, patient safety, etc. are reinforced in a number of required and elective courses.