Assessment Report of the College of Pharmacy to The University Assessment Committee for the Academic Years 2007-2009

I. Mission – College of Pharmacy

The mission of the College of Pharmacy is to educate students to meet the pharmaceutical needs of society, to advance pharmaceutical knowledge through research and to serve the profession and the community.

II. Educational Goals – College of Pharmacy

The goals of the educational programs of the college are to develop graduates who will:

1. Possess a broad knowledge base of pharmaceutical, clinical, administrative, and/or behavioral sciences
2. Apply fundamental concepts and critical thinking skills to solve problems
3. Effectively communicate, both verbally and in writing
4. Be proactive, resourceful team members
5. Self-assess on an ongoing basis to maintain and continue their professional development (i.e., be life-long learners)
6. Serve as leaders in their organizations, chosen professions, and community
7. Display responsible professional and ethical characteristics and behaviors that benefit patients, society, and the graduates’ chosen professions.

III. Doctor of Pharmacy

A. The competencies and learning outcomes for the Doctor of Pharmacy program, which was the College’s primary program during the 2007-2009 academic years, were:

After successfully completing the program, the students will be expected to:

1. Assess patients, utilizing patient-specific data (e.g., physical exam, laboratory tests, history, procedures), in order to provide pharmaceutical care.
2. Evaluate and prioritize patient problems and triage patients to other health professionals, as appropriate.
3. Design, implement, monitor, evaluate, and adjust a patient-specific, evidence-based pharmaceutical care plan or recommend modifications of an ongoing pharmaceutical care plan.
4. Identify, assess, and solve medication-related problems and/or issues.
5. Report and manage medication errors and adverse drug reactions.
6. Recommend and monitor non-pharmacological, nutritional, alternative and non-prescription therapies for patient-centered and population-based pharmaceutical care in an evidence-based manner.
7. Retrieve, interpret, evaluate, and apply scientific, lay, and professional information to specific patient care, population-based health care, and health policies.
8. Effectively communicate and collaborate with prescribers, allied health professionals, caregivers, policy makers, members of the community, administrative personnel, supportive personnel, and other involved providers of health care.
9. Safely and accurately evaluate, compound, package, and dispense prescriptions in appropriate dosage forms.
10. Communicate with patients in order to obtain appropriate patient-specific information on their health condition and medication history in order to ascertain the patients’ compliance, monitor medication use, determine the effectiveness of their current medical regimens, and, when applicable, devise a new medical regimen or suggest modifications to the current regimen.
11. Communicate with patients in order to counsel them regarding the purposes, proper uses, therapeutic and adverse effects, and self-monitoring of their medications and to promote wellness and health.
12. Manage medication use systems, through the ability to apply patient- and population-specific data, quality assurance strategies, and research processes, in order to minimize drug misadventuring, optimize patient outcomes, contribute to the development of drug use and health policy, and collaborate on the design of pharmacy benefits.
13. Manage human, physical, medical, informational, and technological resources, through the ability to assure efficient, cost-effective utilization of these resources in the provision of patient care.
14. Perform the proper administration of medications via nasal, inhalation, otic, optic, and injectable (subcutaneous and intramuscular) routes.
15. Develop skills to carry out duties in accordance with legal, ethical, social, economic, and professional guidelines and to interact in an appropriate professional manner with healthcare providers and patients.
16. Develop the skills necessary to maintain professional competence by identifying and analyzing emerging issues, products, and services and to become self-directed lifelong learners.
B. During the 2007-2009 academic years, the following information and data on student learning outcomes and student services were collected:

- NAPLEX licensure examination scores and passing rates
- MPJE law examination scores and passing rates
- AACP Graduate Survey
- End of Year Surveys of years P1, P2, P3
- AACP Preceptor Survey
- P2 pharmacy practice skill development (practical) examination scores
- P3 Capstone written assignment scores
- AACP Alumni Survey
- AACP Faculty Survey

C. Based on information collected and/or evaluated during the 2008-2009 academic year, the following is concluded about student learning in the Doctor of Pharmacy program:

- Based on the NABLEX Pharmacy licensure examination, 98.9% of our 2008 graduates passed as first time takers compared with 96.9% of first time takers statewide and 97.4% nationally. Discipline-specific scores are not determined and are therefore not available. The NABP is implementing a Pharmacy Competency Outcomes Assessment Examination in which the college will have 60 students participating in Spring of 2010, which is anticipated to provide meaningful discipline specific data to assist with possible curricular and course modifications.

- For the MPJE Pharmacy Law examination, 98.7% of UTCP 2008 graduates passed as first time takers in Ohio. Statewide data for first time takers in Ohio for all schools is not available.

- The AACP Graduate Survey (2008 class) was conducted. More than 90% of UTCP graduates strongly agreed or agreed that they were competent in all but one competency. The same competency, “interpreting economic data relevant to drug management and specific diseases” had similar lower levels of agreement at the national level. However, UT graduates demonstrated higher levels of agreement than graduates of other schools (86% vs. 79%).

Pharmacy practice experiences were included on the survey. Four statements addressed introductory practice experiences. UTCP graduates were largely unable to respond to these statements (approximately 50% of the class) and therefore low levels of agreement (42-51%) were demonstrated compared to students of other schools (68-75%). This seems to be a challenging area on both a local and national basis, as programs work to implement introductory experiential programs which comply with accreditation standards.
Twelve statements related to advanced pharmacy practice experiences. UTCP graduates demonstrated >90% agreement to all of the statements except two: during experiences in the hospital or health-system pharmacy setting, I was able to develop my patient care skills (89%, compared to 86% nationally), and sites available for advanced pharmacy practice experiences were of high quality (88%, compared to 90% nationally and 87% at peer schools).

The fifth section of the AACP Graduate Survey considered the student experience. Statements with lower agreement levels (by 9-20%) than other schools (peer and public national) related to awareness of the process for raising issues with administration, awareness of student representatives on committees, effective student government, effective determination and use of student opinion, encouragement to participate in professional meetings, and awareness of opportunities to participate in research. Statements regarding the college’s effective management of academic and professional misconduct demonstrated lower levels of agreement by both UTCP graduates and graduates of other schools (57-68% agreement). Statements about facilities, experiential sites, and education resources were rated lower (by 18-24%) than other schools. Statements that demonstrated higher (by 9-15%) agreement than comparison schools related to laboratories and simulated environments meeting educational needs:

One statement relating to overall impressions of the pharmacy program demonstrated a markedly lower level of agreements than for other graduates: “If I were starting my pharmacy program over again I would choose the same college/school of pharmacy” (71% vs. 86% peer and 81% public). Only 85% of UTCP graduates agreed with “If I were starting my college career over again, I would choose to study pharmacy” compared with 89% of peer school and 87% of public school graduates.

- **End of Year Surveys** of students completing P1-P3 years of the Doctor of Pharmacy program were conducted for the third time in 2008. The survey results documented the students’ perceptions of growth in over 100 sub-competency statements over the 3-year period. For the P1 class there was 13 to 93% agreement, for the P2 class there was 45 to 97% agreement, and for the P3 class there was greater than 76% agreement for all statements. The graduating class agreed that all of the 19 competencies included on the AACP Graduate survey were met (85-98% agreement).

Similar to the results in 2007, the management sub competencies comprise the commonly noted area perceived as not being achieved as highly as others are, although student perception of competency in this area is still improving overall from previous years. This competency area is addressed more significantly in the experiential sequence, which comprises the final academic year. Ability to recommend and monitor nutritional and
alternative therapies has also been perceived as being achieved at lower levels than other areas. These competencies are also continuing to improve.

- Experiential preceptors provide valuable information regarding the abilities of our students. On the AACP Preceptor Survey, more than 85% of the responding preceptors agreed or strongly agreed that our students were prepared to perform all 11 of the listed competencies. Levels of agreement were higher than public school national averages on six of 11 of the competencies, similar on four of the competencies and lower on only one competency. That competency related to our students’ ability to manage a patient centered practice (85.6% agreement vs. 88.1% agreement nationally). Preceptors also provide evaluations of our students at the end of each of the eight required 4-week rotations. These evaluations document that our students are well prepared to begin and complete the tasks required of the rotations. As commonly observed in the past, experiential preceptors uniformly share that our students are very well prepared.

- The End of Year and Graduate Surveys included 30 points regarding college policies, administration and student resources. The questions/statements where the least positive responses were expressed related to financial aid advising, access to relaxation areas, and access to study areas.

- Assessment of pharmacy practice skills is conducted via practical examination at the end of the P2 year. Of the 105 students who took the examination, 100% passed on the first attempt (average 85%).

- P3 students are required to complete the Capstone literature evaluation written assignment. The average score on this assignment was 89.6%. Students who originally score less than 80% were required to rewrite their assignment. Of the 97 students who completed the assignment, three were required to complete rewrites.

- The AACP Alumni Survey was administered to the doctor of pharmacy class of 2006. Twenty-five alumni responded (25% response rate), 13 of which were practicing in chain community pharmacy. Overall, the responding alumni were very satisfied with the preparedness provided by their academic program with >80% agreement rates for 9/10 of the competency statements. The alumni agreed most positively that their program had effectively taught them to maintain professional competence (96%), and to retrieve and evaluate health sciences literature (92%) Weakest levels of agreement were noted for the statement regarding their ability to develop disease state management programs (76% disagreement). They also disagreed that the college provided an adequate
number and mix of practice facilities for experiential education (64% disagreement). Only 64% agreed that they would choose the same college of pharmacy if they were starting their college education again (compared with 87% nationally).

- The AACP Faculty Survey was administered in June of 2008. The points which relate to teaching and learning to which the faculty demonstrated the strongest levels of disagreement related to the following points:
  o The college administration’s ability to function as a unified team (45%, compared to 23-25% at national and peer schools),
  o The effectiveness of the curriculum committee (60% compared to 7 and 14% nationally and at peer schools).
  o The college has a sufficient number of qualified full-time faculty to deliver the professional program (75%, versus 28 and 16% nationally and at peer schools, respectively)
  o The program’s resources being adequate to accommodate student enrollment (70% compared to 23% nationally and 14% at peer schools).
  o There are orientation programs for non-practice faculty to orient them to the profession and pharmacy education (60%, versus 37% nationally and at peer schools).
  o Faculty were also less likely to agree that time spent on teaching was appropriate (65%, versus 87% nationally and 92% at peer schools).

1. Based on our conclusions about student learning and services in the Doctor of Pharmacy Program, we have taken and will be taking the following action steps during the 2007-2009 academic years.

   a. Curriculum
      i. The curriculum committee and faculty have reviewed and implemented a new Doctor of Pharmacy curriculum in the Fall of 2009. The new curriculum provides significantly more hours (six hours versus 3 hours in the old curriculum) of Early Experiential courses, which will accomplish a continuum of experiences over the P1-P3 years in a manner that is integrated with the required didactic curriculum. The new courses will not only expose students to the entire breadth of pharmacy practice. A pilot version of the P1 course was offered in the 2008-2009 academic year. The new curriculum will also expose the students to pharmacy management applications across all areas of practice, which should facilitate student learning in the Management course series. It also incorporates clinical skills, drug information skills, pharmacy law, calculations skills and professionalism across the three-year continuum. A well-delivered Early Experiential course series
should significantly enhance learning in the didactic portion of the curriculum.

ii. Additional curricular modifications include enhanced integration of pharmacy practice and basic science courses, incorporation of practical applications in basic science courses, and basic science principles in pharmacy practice courses. Pilot projects in integration between basic sciences and pharmacy practices courses were initiated in the 2007-2009 academic years and are planned to continue as the new curriculum is implemented. Additional integration Curricular integration is planned for all years of the curriculum but has been structured into courses into Medicinal Chemistry and Pharmacotherapy courses in Oncology, Neurology and Psychiatry, specifically. Starting the fall of 2009, the Pharmacotherapy course series has and will be initiated earlier in the curriculum in order to provide the students with greater opportunities to see clinical applications earlier in their careers.

iii. The new curriculum also allows more flexibility and opportunity for elective courses. The total number of required hours to graduate with the Doctor of Pharmacy degree has been reduced from 159 to 130 and the number of required summers has been reduced from 2 summers to 1 summer. These changes will also enable students to complete an Honors Thesis. In addition, the students will have the opportunity for 3 hours of undergraduate and 5 hours of graduate electives compared with only 5 hours of graduate electives in the old curriculum. These changes are in response to student feedback and desire for additional elective coursework.

iv. A Professionalization Orientation Program was initiated in Fall 2008, with the goal of orienting the students to their professional identity, the characteristics of professionals and the professional role of the pharmacist. This one-day program was provided on the Friday prior to the start of classes in the fall with all students being required to attend. This program was developed in response to local and national challenges in the development of professional traits in pharmacy and other young professionals. Based on student and faculty feedback, the program was successful at establishing a baseline standard expectation for student professional behavior and is now an annual event.

v. The Curriculum Committee has resumed regular monthly meetings in order to effectively review the newly implemented curriculum.

b. Instruction

i. The College of Pharmacy has participated in the University’s adoption of Epsilen ePortfolio program. Epsilen has been used in the P1-P4 classes on both a required and elective basis. A pharmacy specific portfolio and outcomes assessment system is being considered for adoption in the 2010-2011 academic year.

ii. Cumulative Final examinations have been incorporated in all required courses in the Doctor of Pharmacy program as an initial step to the
development of end of year assessment examinations. The new Pharmacy Curricular Outcomes Assessment Examination offered by the National Association of Boards of Pharmacy will be offered to 60 Doctor of Pharmacy students in January 2010. Results of this assessment will provide valuable information regarding the effectiveness of the curriculum in numerous specific content areas.

iii. Pilot projects to integrate pharmaceutical science and clinical pharmacy instruction are being incorporated into a number of courses throughout the curriculum and will serve as models for planned larger scale curricular change for future years.

iv. The new three year, six-course sequence Professional Practice Development (PPD) was expanded from its previous 2-course sequence. It now incorporates pharmaceutics, calculations, drug information, drug knowledge competencies, pharmacy law, ethics, and professionalism and professional skills. This course series will assist with the applications of these concepts into the early experiential course series, which is being offered concurrently.

IV. Bachelor of Science in Pharmaceutical Sciences Program

A. Program Structure

The program includes four disciplines, which reside in the three colleges departments. They are respectively:

(a) Pharmacy Administration, with the Pharmacy Practice Department
(b) Pharmaceutics, with the Pharmacy Practice Department
(c) Medicinal and Biological Chemistry with the Department of Medicinal & Biological Chemistry
(d) Pharmacology & Toxicology with the Department of Pharmacology

B. Learning Outcomes: BSPS (Draft, under review by Curriculum Committee, faculty approval anticipated mid-2010)

1. Apply principles of physical, biological, and administrative sciences to successfully solve problems in the pharmaceutical sciences

   (a) Interpret the results of studies as presented in reviews and in the primary literature
   (b) Apply the concepts of controlled experimentation and evidence-based practice
   (c) Be able to use primary literature and reference materials to acquire and
evaluate relevant information and frame questions requiring further research.
(d) Be able to begin a process of a critical evaluation of technical issues related to the pharmaceutical sciences

2. Communicate effectively, both orally and in writing, with other professionals and the public; write an interpretable technical report
3. Work cooperatively as part of both disciplinary and interdisciplinary teams
4. Understand the basic principles of chemistry, life science, medicinal chemistry, pharmacology and biochemistry as they apply to the activity of drugs, biologicals, and toxins
5. Be able to apply appropriate computer technology to create effective written, graphic, and oral presentations
6. Apply computer technology to the collection, processing, and analysis of data appropriate to a student’s specialty
7. Understand the organization of the scientific community and the roles of academia, government, and private industry as well as how this organization affects research, drug development, health care, and technical decision making
8. Develop skills to carry out duties in accordance with accepted legal, ethical, social, economic, and professional practices and interact in a professional manner with managers, colleagues, and subordinates
9. Develop the skills necessary to maintain professional competence and incorporate new developments and technologies into practice
10. Recognize key contemporary problems in a discipline, and understand how these are being addressed through research
11. Possess professional skills, and secure and perform in an internship
12. Possess the professional skills and expertise to secure employment or admission to a graduate degree program upon graduation

B. BSPS Program - Assessment Data Collected

- Student surveys administered at the end of individual courses
- Placement of students into internship sites, both inside of and outside of the University of Toledo
- Preceptor evaluation from internship
- Performance in P2 – capstone courses
- Survey of graduating seniors
- Placement of graduates into jobs and graduate programs
- Participation of students in undergraduate research, honors thesis submission, conference participation and inclusion of undergraduate students as authors of
technical publications

- Staff attendance/observation at group internship and job placement interviews
- Retention and graduation (collected and compiled by the Office of Student Affairs)

C. Based on conclusions about student learning and services in the Bachelor of Sciences in Pharmaceutical Sciences Program, the following action steps have been or are being taken during the 2007-2009 academic year.

1. Curricular change in the Doctor of Pharmacy program have facilitated the creation of courses specific to the BSPS program which allow the delivery of content more specifically appropriate to each of the four disciplines. These modifications have been implemented in all majors to enhance achievement of the programs’ learning outcomes and better serve the needs of the BSPS students for scientific training.

2. The Office of Professional Development supervises and coordinates internship placement and the development of professional skills. Workshops aimed at professional skill enhancement have been developed.

3. Input from professionals from various industries in the healthcare and pharmaceutical industries have been added to assist with the refinement of curricular standards.

4. Program staff attending group internship placement interviews observed that students were uncomfortable during 1-on-1 discussion, unable to respond to typical questions smoothly and graciously, and in a few cases behaved in an unprofessional manner.
   - Workshops for oral presentation skills and interpersonal skills were devised and implemented
   - Interviewing workshops were made mandatory (they were previously voluntary)
   - Resume preparations workshops were made mandatory

5. Students in MBC 3330 were found to have difficulty solving problems based on stoichiometry, scientific calculations, and compositions.
   - The credit hours were increased from 1 hr to 2 hrs
   - The requirement was dropped for students in administrative science who did not need this skill.

6. Advisors and mentors noted that students were not informed about the process of application to graduate programs, availability of scholarships, or the construction of successful applications.
Seminars to describe the application process and the scope of the different programs available to BSPS graduates have been instituted.

8. Students report difficulty in accepting out-of-town internships, even when those programs offer better opportunity than local placements.
   - Mechanisms to enable students to take advantage of national and international internship opportunities, including financial support, formation of a cohort, internal scholarships, and assistance with housing are under development. In the interim, more sites in the in region have been developed to support the current need.

9. Students request assistance with job placement and job hunting.
   - Additional seminars, workshops and an increased scope of pharmaceutical science job fairs have been initiated.

10. Professionalization Orientation Program
    - This program was initiated in Fall 2008, with the goal of orienting the students to their respective disciplines. This one-day program was provided on the Friday prior to the start of classes in the fall with all students being required to attend. This program included outside speakers from the pharmaceutical industry and other organizations who oriented the students to career options within their specific disciplines. Based on student and faculty feedback, the program was successful and is now an annual event.

V. College of Pharmacy Student Services – Assessment Data and Actions

A. Financial Aid Service Issues
   1. The college’s office of student services continues to address financial aid issues noted by pharmacy students. A focus group on financial aid was held in Spring 2007. The outcome of this session is an annual financial aid session for P2 students as they anticipate transition into the P3 year. The sessions include a presentation by a financial aid officer and a question answer session, and informative materials on tuition and fees and financial aid. In additional, in response to feedback from the College of Pharmacy student council, a financial planning workshop was conducted for all college of Pharmacy students in Spring 2009. A panel of experts discussed financial issues facing students and provided advice for current and future financial planning. In preprofessional group advising sessions, fee structure for the professional division is discussed in order to prepare students for the increased costs. Students are also referred to Rocket Solution Central where they can have their financial aid questions addressed.
B. Student Space
1. Available space for student study and socialization is limited in Wolfe Hall. Every semester the Associate Dean for Student Affairs requests early access of course Blackboard web sites for College of Pharmacy students. The Office of Student Affairs opens the Student Resources Center (computer, study, relaxation area) at 7:30am. It is open evening and weekend hours in response to student need.

VI. Strategic Plan
A. The Strategic Plan
The Strategic Plan has been loaded into Prism are reflects the costs associated with implementation. Further, this topic is addressed in the Strategic Budget Reallocation planning of the college. Funding will be requested of the university to carry this project forward. The college will further suggest that programs identify common core functions, and engage such resources in a non-duplicative method.

VII. Resource Allocation
A. The most pressing issue facing the college is low faculty numbers identified in the Faculty survey and previous accreditation reports. This issue could be partially or completely addressed by the Enrollment Growth Plan included in budgets and the current Strategic Budget Reallocation document. Oversight of academic issues in the college could be facilitated by fulfillment of the requested internally appointed Academic Affairs Assistant Dean. Such a position should represent all academic programs equitably during administrative discussions.

B. The Office of the Dean was awarded a new position to be assigned to the assessment effort. The economics of this era, however, have prevented this position from being filled.