

Pharmacy

APRC 1995-1996

Section 1 of 4

Ferris State University

Academic Program Review

The Doctor of Pharmacy Program

February, 1996

MEMORANDUM

TO: Rick Hult
College of Pharmacy

FROM: Linda Harris
Academic Senate

DATE: January 24, 1996

SUBJECT: Sample Program Reviews

Tom Oldfield requested that we send you sample academic program reviews. If you would like to view additional reviews, please call me at extension 2691. You view them at the Senate office and I'll be happy to copy any you would like to study in depth.

/lkh

Enclosure

Table of Contents



Academic Program Review Process	page 1
Section 1: Program Overview	page 2
Section 2: Graduate and Student Survey	page 43
Section 3: Employer Survey	page 46
Section 4: Student Evaluation of Program	page 47
Section 5: Faculty Perceptions of The Doctor of Pharmacy Program	page 48
Section 6: Advisory Committee Perceptions of The Doctor of Pharmacy Program	page 49
Section 7: Labor Market Analysis	page 50
Section 8: Evaluation of Facilities and Equipment	page 52
Section 9: Curriculum Evaluation	page 53
Section 10: Enrollment Trends over the Past Five Years	page 54
Section 11: Program Productivity/Cost	page 55
Section 12: Conclusions	page 58
Section 13: Recommendations	page 61
Appendices	

Table of Appendices

❧

- Appendix A.** Unit Action Plan for the College of Pharmacy
Fiscal Year 1996
- Appendix B.** Summary of the Faculty Scholarly Activity
- Appendix C.** University and College Committee Assignments
- Appendix D.** *Curricula Vitae* of Faculty Members Directly
Involved in the Doctor of Pharmacy Program
- Appendix E.** Student Credit Hours (SCH), Full Time
Equated Faculty (FTEF) and SCH/FTEF
Aggregated by Course Prefix within College and
Department 1993-95
- Appendix F.** Ranked Listing of Student Credit Hours (SCH)/
Full Time Equated Faculty (FTEF), Aggregated
by Department, Fall + Winter Semesters,
1994-95
- Appendix G.** Teaching Costs per Student Credit Hour by
Prefix and Level - Ranked High to Low,
1993-94 Data
- Appendix H.** Ranked Listing of Program Teaching Costs
per Student Credit Hours, 1993-94 Data
- Appendix I.** Curricula Leading to the Doctor of Pharmacy
Degree

Academic Program Review Process

Planning for the preparation of the Program Review Report began in the fall of 1995 with the formation of the Doctor of Pharmacy Program Review Panel consisting of Drs. Stephen Durst, Jaculin Harden, Richard Dettloff, and Richard Hult, representing the College of Pharmacy; Dr. Walter Hoeksema of the College of Arts and Sciences, and Dr. Peggy Malovrh, an alumni representative. Specific responsibilities were as follows:

Graduate Survey/Student Evaluation	Drs. Richard Dettloff and Stephen Durst
Employer Survey	Dr. Richard Hult
Faculty Perceptions	Dr. Walter Hoeksema
Labor Market Analysis	Dr. Jaculin Harden
Evaluation of Facilities and Equipment	Dr. Stephen Durst
Curriculum Evaluation	Dr. Stephen Durst

Section 1: Program Overview (“Program Profile”)

Evolution of the Doctor of Pharmacy Curriculum

Initial discussions regarding the doctor of pharmacy (Pharm.D.) degree preceded its implementation by approximately ten years. In the late 1970’s, the faculty of the College of Pharmacy, then the School of Pharmacy, began earnest discussions regarding eventual transition to the Pharm.D. degree. Through the 1980’s, various aspects of development and implementation were addressed by a variety of committees including a Presidential Blue Ribbon Task Force, which in 1985, recommended that “Ferris State College should offer the Pharm.D. degree as a first professional degree and as an ‘add-on’, post-B.S. degree starting in fall quarter, 1987.” In September, 1990, the inaugural class composed of six post-B.S. students was admitted. The Pharm.D. program became fully accredited by the American Council on Pharmaceutical Education (ACPE) in 1994 following preparation of a complete self-study in 1993 and an on-site visit by an ACPE accreditation team. A detailed chronology of the development of the Pharm.D. program at Ferris State University is as follows:

1979

The Pharm.D. Degree Task Force Report, issued in September, deals with recommendations concerning goals and objectives, competency statements, curriculum, facilities, number of students, faculty, and the finances associated with implementation of the Pharm.D. program.

1980

Dr. Donald Priebe, Vice President of Academic Affairs, refers task force report to the Educational Planning Committee (EPC). The EPC conditionally recommends adoption of the report in January. Subsequently, the report is reviewed and approved by the Academic Affairs Council (Committee on Instruction), scrutinized by the President’s Council of State Colleges and Universities, and brought to the attention of President Ewigleben in final form. A program revision request was submitted to the state of Michigan’s Office of Management and Budget. Unfortunately, due to the financial crisis that existed in Michigan in the early 1980s, it was never funded. The report was never formally approved by the Board of Control. However, North Central Association of Colleges and Schools had been notified of the intent to implement the degree as Assistant Vice President, Dr. E. Gary Nash, contacted them to delay a focused site visitation suggested for early in 1982.

1984-85

Attention returned to the Pharm.D. issue as an outgrowth of a self-study and American Council on Pharmaceutical Education (ACPE) visitation that occurred during October. Accordingly, on January 11, 1985, President J. William Wenrich, upon the recommendation of the dean and the VPAA, appointed a

Blue Ribbon Task Force (BRTF) to address four specific charges, the third of which was "Review and recommend a course of action relative to the question of the Pharm.D." The final recommendations of the BRTF were released on May 17, 1985, and included "Ferris State College should offer the Pharm.D. degree as a first professional degree and as an add-on or post-B.S. degree starting in fall quarter, 1987. This Pharm.D. program should be offered to a limited number of highly qualified students." Ancillary to the development of a new B.S. curriculum, the Summer Curriculum Revision Committee (SCRC) made recommendations in September of 1985 as to what should be included in the emerging Pharm.D. curriculum.

1986-88

Further development of the curriculum occurred in 1986 when a Pharm.D. committee consisting of clinical and basic science faculty and administrative representatives convened. Course catalogs from other universities were gathered and studied. With that information and ideas from committee members, a skeleton curriculum consisting of course titles and credit hours was tentatively established. Faculty members with expertise in the content of the area of the identified classes were then given the task of developing individual courses. The final curriculum was adopted by the faculty of the School of Pharmacy on May 12, 1987. The Board of Control approval to grant the Pharm.D. was obtained May 13, 1988.

1988-Present

A Pharm.D. degree began to be developed upon approval by the pharmacy faculty and the president of Ferris State University in 1989. A Pharm.D. Degree Task Force was established which developed the components of the degree for College adoption. The inaugural class consisting of six students began to pursue the degree in the fall of 1990 and all successfully completed its requirements and graduated in the spring of 1992. They were followed by subsequent enrollments of six students in 1991 and six in 1992. In 1993, a class of eleven students was admitted. In 1994, a part-time or "extended-track option" was made available to candidates, three students were admitted in the extended-track curriculum while two students were admitted to the conventional post-B.S. program. Despite an enrollment limit of 12 students, in 1995, a total of 13 students were admitted to the program, two of which opted for the extended-track curriculum.

Program Profile

Purpose of the Program

With the expansion of the pharmacists' clinical role, particularly in institutional practice in the 1960's, the need for a higher level of educational preparation was obvious and the development and implementation of several Pharm.D. programs across the country was facilitated. During the 1970's, additional Pharm.D. programs were implemented while baccalaureate programs throughout the country were revised extensively to incorporate additional clinical experiences for all students. In addition, the clinical responsibilities previously identified almost exclusively with institutional practice became more commonplace in a variety of practice settings including ambulatory clinics and community practice. With this continued expansion of pharmacists' responsibilities, Pharm.D. programs increased in number as the level of clinical education for all pharmacists increased dramatically. Recognizing the increasing level of clinical preparation required for contemporary practice, ACPE, in 1992, proposed that baccalaureate-level programs would no longer be accredited after the year 2000. With this proposal, ACPE launched the profession's most consuming debate in recent history. ACPE solicited public comment over the next two and one-half years. Debate has involved all areas of pharmacy practice as participants, both individuals and professional organizations, have voiced support for maintaining the existing two-degree option while others have looked to the expanding role of pharmacists in the delivery of pharmaceutical care as a clear mandate for adoption of the Pharm.D. degree as the sole professional degree. Pharmaceutical care represents a significant change in traditional pharmacy practice. It places the responsibility for outcomes of drug therapy with the pharmacist. It redirects the pharmacists' professional efforts in the care of the patient, rather than simply drug procurement and dispensing. The Pew Health Professions Commission recently stated that "[pharmaceutical care] is consistent with the major themes of health care reform and the movement to a managed care environment, quality improvement and cost reduction, and holds the potential for serving as a model for professional evolution within a changing health care system." It was also noted that "pharmaceutical care requires a fundamental realignment of pharmacist responsibility and a major change in pharmaceutical education." Currently, Pharm.D. graduates comprise approximately 25% of all entry-level graduates. Of 75 U.S. colleges and schools of pharmacy, twenty-eight offer the Pharm.D. degree as their exclusive professional degree while an additional 21 offer both the B.S. degree and the Pharm.D. degree. At this point, 59 schools or colleges offer a post-B.S. Pharm.D. degree.

Recognizing the need for comprehensive planning in order to maintain contemporary programming in both the baccalaureate and Pharm.D. programs, the College's administrators and faculty developed a strategic plan for the College (see appendix A). The mission statement for the College validates the initial and

further allocation of University and College resources to the Pharm.D. program. Identified in the mission of the College and consistent with the University's mission is "...the selection and education of qualified students to become employable, competent practitioners of pharmaceutical care. ...to be capable of professional growth with ability to contribute to the profession and to a constantly changing global society." It is with recognition of the future direction of pharmacy practice as outlined above and with acceptance of both the University and College mission statements that the Pharm.D. program ensures a continuation of the leadership role Ferris' College of Pharmacy has played in the pharmacy profession for over a century. Within the framework created by the mission statement and the six specific goals of the College of Pharmacy, the Pharm.D. program mission statement was developed. It states: "*The mission of the Ferris State University Pharm.D. program is to develop professional pharmacy practitioners capable of self-directed activity in patient care, education and scholarly endeavors.*"

Furthermore, seven goals and objectives for the program have been developed by faculty members.

Goals and Objectives for the Pharm.D. Program

The Pharm.D. curriculum builds on prior education and experience to provide graduates with greater scope, depth and proficiency in their ability to:

1. Obtain detailed drug histories in the context of diagnostic and therapeutic decision making.
2. Apply pharmacotherapeutic principles in the development of treatment regimens.
3. Integrate the psycho-socio and economic aspects of patient-care and health-care delivery policies into professional practice.
4. Use pharmacokinetic and pharmacodynamic principles with the integration of patient parameters for development of dosage regimens.
5. Use knowledge of experimental design and statistical methodology in the critical analysis of drug literature and expansion of the pharmacotherapeutic knowledge base.
6. Serve as an authoritative information source in pharmacotherapy.
7. Assume responsibility for patient management and care through the identification of clinically relevant factors affecting pharmacotherapy, the design and implementation of therapeutic regimens, and the monitoring and assessment of patient outcomes.

The mission statement and program goals are reflective of a higher level of educational outcomes as well as a higher level of expectations by both patients and health practitioners. The endpoint of the Pharm.D. program is defined as a highly-skilled practitioner capable of delivery of clinical pharmacotherapeutic interventions and consultations to patients and health-care providers. It is felt by the faculty that such goals are well-aligned with emerging trends in the delivery of health care where interdisciplinary approaches to the management of patients are recognized as more effective than previous approaches. In their report, the Pew Health Professions Commission stated "An emerging area where pharmacists are likely to play a key role, along with other health professionals, is in the provision of comprehensive drug therapy management." Comprehensive drug therapy management is "the collaborative process of (1)

selecting appropriate drug therapies, (2) educating patients, (3) monitoring patients, and (4) continually assessing outcomes of therapy. As comprehensive drug therapy management becomes further defined and more commonly used, health professions educators will have to find ways to help students and practicing professionals develop competencies needed to more effectively provide comprehensive drug therapy management.”

With consideration of the existing demand and expected growth in the demand for the provision of pharmaceutical care by pharmacists, and with further reflection upon the University’s mission statement which states “Ferris educates its students to be employable and capable of professional growth, and further, to contribute to their profession and to a constantly changing, global society.” as well as the College’s complementary mission statement, it is reasonably concluded that the mission and goals of the Pharm.D. program are consistent with the mission of the university. Furthermore, it is important to recognize that the Pharm.D. program represents an initial effort in the transition to the exclusive education of Pharm.D.-level graduates. This transition, which has been suggested by ACPE, *must* begin as early as 1997 to ensure continued accreditation of the College of Pharmacy’s programs.

Although instruction in the Pharm.D. program occurs at clinical sites throughout the state, with didactic instruction offered in Kalamazoo, the Pharm.D. program is designed to build upon the strong basic science foundation established in the first two professional years of the baccalaureate program. Academically-qualified students may elect to complete the Pharm.D. as their first professional degree. The Pharm.D. program is designed to allow students choosing the accelerated track in the B.S. program to enter the program in the third professional year. The Pharm.D. curriculum has been designed to allow for integration of the two programs. The entry-level option allows for the most time efficient completion of the Pharm.D. degree with nine semesters. This entry-level option deletes the experiential component of the baccalaureate degree to facilitate entry into the Pharm.D. program. To further strengthen the integration of the two programs, direct admission into the Pharm.D. program is currently being discussed by the College. Admission into professional year one would provide for an higher level of integration between the two programs. Coursework could be designed in the first two professional years which would be built upon in the program’s final two years. A post-baccalaureate option also exists for graduates of the College of Pharmacy or any other ACPE-accredited baccalaureate program. This option requires a minimum of four additional semesters of study following completion of a baccalaureate degree.

The baccalaureate and Pharm.D. programs are further integrated through a common faculty. All members of the College’s pharmacy practice department are responsible for instruction in both programs and several members of the College’s basic science faculty are responsible for courses in the Pharm.D. program. Thus, a common faculty has facilitated a smooth interface between the programs. Complete integration of

courses between the two programs is currently prevented through geographic separation of the programs. The adoption of distributive learning technology within the College and University may provide opportunities for enhanced integration between the programs through curricular refinement.

Although distinctly independent, the Pharm.D. program and the clinical programs of both the College of Human Medicine and the College of Osteopathic Medicine at Michigan State University are closely related. An affiliation agreement is in place between the College of Pharmacy and the Michigan State University Kalamazoo Center for Medical Studies (MSU/KCMS) for instruction of the pathophysiology component in the Pathophysiology & Applied Therapeutics course sequence of the Pharm.D. program. The affiliation established has also greatly enhanced the articulation between the College of Pharmacy's clinical program and the MSU/KCMS clinical program. College of Pharmacy faculty members have been invited to assist in the instruction of medical students and residents and members of the MSU/KCMS faculty also participate in the clinical instruction of pharmacy students. Pharmacy faculty members have been provided offices in the MSU/KCMS University Medical and Health Sciences Center. Although not as extensive as the Kalamazoo arrangement, affiliations between the College of Pharmacy and the MSU Colleges of Medicine also exist in Grand Rapids, Lansing and Saginaw. In all locations, College of Pharmacy faculty members take part in the education of medical students and residents and collaborate with faculty members in clinical research projects.

The three Colleges of Pharmacy in the state currently offer either exclusively an entry-level Pharm.D. degree (The University of Michigan) or both a baccalaureate and Pharm.D. degree (Wayne State University, Ferris State University). Although similar in educational outcomes, the programs at each University are distinct, both in curricular design as well as geographic service area. The state's colleges of pharmacy have had the opportunity in recent months to discuss potential collaboration through development of shared, interdisciplinary experiential training sites. This effort is facilitated through the development of a proposal seeking federal funding for a statewide Area Health Education Center (AHEC). With funding of the proposal, experiential sites would be developed in which clinical instruction of students from all three colleges would occur. Further, it is envisioned that through AHEC scheduling, interdisciplinary training of pharmacy students with other health professions would be facilitated.

Preliminary discussions, organized by the Michigan Pharmacists Association, have established the groundwork for the creation of a Joint Commission on Pharmacy Practice. It is intended that through the Joint Commission, the three colleges of pharmacy and the Michigan Board of Pharmacy and the Michigan Pharmacists' Association can work together to advance pharmacy practice in the state.

The Pharm.D. program advances the century old tradition at Ferris of educating competent pharmacy practitioners. The college ranks thirteenth in the country, based on class size, and has long been recognized as a leading provider of pharmacists in the state. The Pharm.D. program embraces the emerging trend in health care toward a more clinically-competent pharmacist through increased education and preceptor-guided clinical experience. Although only graduating four classes thus far, graduates of the Pharm.D. program have assumed positions throughout the country in community, hospital and academic settings. Placement of graduates in nationally recognized residencies and fellowships has reflected respect for the educational outcomes of the program by employers.

Resources of the Program

Personnel

Administration

Mathison, Ian W., PhD Dean
B.Pharm., Ph.D., D.Sc.,
University of London, England

Hengesh, Edmund J., PhD¹ Interim Assistant Dean for Student Academic Affairs
B.S. Ferris State University
M.S., Ph.D., Michigan State University

Durst, Stephen W., PharmD, BCPS² Interim Assistant Dean of Pharmacy Practice
B.S. Ferris State University
Pharm.D., The University of Michigan

Jirak, Jana L., PharmD Externship Director
Pharm.D., The University of Nebraska

Faculty

Dakkuri, Adnan, PhD Professor, Pharmaceutics
B.S., American University of Beirut
M.S., Ph.D., The University of Illinois

Dettloff, Richard W., PharmD, BCPS Assistant Professor, Pharmacy Practice
B.S. Ferris State University
Pharm.D., The University of Cincinnati

DeYoung, G. Robert, PharmD, BCPS Assistant Professor, Pharmacy Practice
B.S., Ferris State University
Pharm.D., The University of Washington

¹Effective 1/1/94 Interim Assistant Dean

²Effective 7/1/93 Interim Assistant Dean

Durian, Benjamin R., PhD B.S., The University of Toledo M.S., The University of Michigan Ph.D., Michigan State University	Professor, Pharmacology
Glynn, Graham E., PhD B.S., University College Dublin, Ireland Ph.D., North Eastern Ohio Universities College of Medicine	Assistant Professor, Pharmacology
Grunden, John W., Pharm.D. B.S., Washington State University Pharm.D., The University of Utah	Assistant Professor, Pharmacy Practice
Harden, Jaculin L. , PharmD, BCNSP B.S., Ferris State University Pharm.D., The Ohio State University	Assistant Professor, Pharmacy Practice
Holt, Diane M., PharmD, BCPS B.S., Pharm.D., Purdue University	Professor, Pharmacy Practice
Hult, Richard L., PhD B.S., Ferris State University M.S., Ph.D., Oregon State University	Professor, Pharmacology
Jacoby, Ronald L., PhD B.S., Ferris State University Ph.D., The University of Connecticut	Professor, Pharmaceutical Chemistry
Jameson, John P., PharmD, BCPS, FASHP B.S., Ferris State University Pharm.D., The University of Minnesota	Professor, Pharmacy Practice
Krueger, Robert J., PhD B.S., The University of Connecticut Ph.D., The University of Iowa	Professor, Pharmacognosy
Lovsted, Elsie M., PhD B.S., Ph.D., The University of Minnesota	Professor, Medicinal Chemistry
McMullen, Kenneth J., BS B.S., Ferris State University	Instructor, Pharmacy
Moore, Karen L., MS B.S., Ferris State University M.S., Wayne State University	Professor, Pharmacy
Neumann, Norwood R. , DVM, PhD B.S., Ohio Northern University M.S., Ph.D., Purdue University D.V.M., Michigan State University	Professor, Pharmacology

Ngoh, Lucy N., PhD B.S., University of Washington M.H.A., Tulane University Ph.D., University of Texas-Austin	Assistant Professor, Pharmacy Administration
Nienhuis, Marc A., PharmD ³ B.S., Ferris State University Pharm.D., The University of Michigan	Associate Professor, Pharmacy Practice
Pearson, John G., PhD B.S., Washington State University Ph.D., The University of Idaho	Professor, Biopharmaceutics
Richardson, Mary S. , PharmD, BCPS B.S. Western Maryland College Pharm.D., The University of Maryland	Assistant Professor, Pharmacy Practice
Rider, Joan M., PharmD, BCPS B.S., Ferris State University Pharm.D., The University of Michigan	Associate Professor, Pharmacy Practice
Ross, Mary Frances, PharmD, BCPS B.S., Wayne State University Pharm.D., University of Texas-Austin	Associate Professor, Pharmacy Practice
Slywka, Gerald W., PhD B.S.P., M.S., The University of Saskatchewan B.S., The University of Tennessee M.A., Central Michigan University Ph.D., The University of Alberta	Professor, Pharmaceutical Chemistry
Spaulding, Charles D., MBA, PhD B.B.A., M.B.A., Ph.D., Northwest Louisiana University	Associate Professor, Pharmacy Administration
Straley, Craig M. , PharmD B.S., Ferris State University Pharm.D., State University of New York at Buffalo	Associate Professor, Pharmacy Practice
Smith, Curtis L., Pharm.D. B.S., Ferris State University Pharm.D., The University of South Carolina	Assistant Professor, Pharmacy Practice
Ward, Joseph G., BS B.S., Ferris State University	Health Center Pharmacist

³Half-time FTE

Searches are currently being conducted for a FTE calendar year position pharmacy practice, preferably with emphasis in ambulatory care/primary care.

Until a permanent administrative structure can be implemented in the college, administrative responsibilities have been met through the interim appointments of Drs. Hengesh and Durst as assistant deans for student academic affairs and pharmacy practice, respectively. The Fiscal Restructuring Plan has had a significant effect upon the College of Pharmacy. One administrative position and two faculty positions were lost; fortunately, the positions were all open and layoffs were not necessary. However, the losses have had a profound effect in the college. The loss of an administrative FTE has created a significant demand upon the dean and interim assistant dean for student academic affairs. Additionally, the assistant dean of pharmacy practice, until the recent appointment of a new Pharm.D. coordinator, has been responsible for the activities of the department as well as the day to day coordination of the Pharm.D. program. Several proposals have been developed which attempt to provide administrative support for the College's on-campus and off-campus programming. Because of the record-level of interest in the College's programs and the decentralized nature of the College's clinical program, all arrangements represent a significant challenge to members of the administrative team. Faculty losses due to fiscal restructuring have also profoundly affected the Pharm.D. program. The loss of a pharmacy practice FTE has restrained further development of elective courses in the Pharm.D. program and exacerbated the didactic teaching overload of the pharmacy practice faculty. In addition, occasional assignment of baccalaureate clerkship students to adjunct faculty is now necessary to prevent delays in graduation. Adjunct faculty have also been utilized to precept Pharm.D. clerkships. The second faculty loss was in the pharmacy administration seniority group. Likewise, this loss has limited the development of electives and necessitated overload teaching on the part of pharmacy administration faculty.

Although always a priority for the College, responsibility for the Pharm.D. program has been shifted to several individuals since the program began in 1990. Initially, the department head of pharmacy practice was directly responsible for the Pharm.D. program. Many of the day-to-day operations of the program were carried out by faculty members assigned to the Kalamazoo site, and the externship director. In 1991, the department head of pharmacy practice resigned, two individuals split the responsibilities for both the department and Pharm.D. program. Coordination of the Pharm.D. program was assigned to Dr. Stephen Durst in conjunction with his clerkship and didactic teaching responsibilities in Kalamazoo. All other administrative duties for the department were assigned to Dr. Jana Jirak, also based in Kalamazoo, who served as interim assistant dean of pharmacy practice and externship director. On July 1, 1993, Dr. Durst was appointed interim assistant dean of pharmacy practice and Dr. Jirak assumed her responsibilities as externship director. Most recently, recognizing the increasing demands as interim assistant dean of pharmacy practice and the need to ensure that the Pharm.D. program is well supported administratively, Dr. Durst's responsibilities for the Pharm.D. program coordination were assigned to Dr. Richard Dettloff.

It is important to note that over the last five years, the number of faculty FTE's in the department has doubled, the entire Pharm.D. curriculum has been initiated, and the undergraduate experiential training has doubled in length. This places a significant additional burden on the interim assistant dean and pharmacy practice faculty

The comparison of student credit hours (SCH) produced per full-time equated faculty (FTEF) by college, as reported by Ferris' Office of Institutional Studies, appears in Table 1.

Table 1. Student Credit Hours per Full Time Equated Faculty by College

College	SCH/FTEF Fall, Winter and Spring Quarters				
	1990-91	1991-92	1992-93	1993-94	1994-95
Arts and Sciences	976	1039	1007	594	581
Education	795	849	876	555	553
Business	1010	1035	978	563	493
Pharmacy	571	579	603	383	407
Technology	441	477	483	316	334
Allied Health	515	550	560	374	365
Optometry	282	296	306	255	211

The most recent data ranks pharmacy productivity fourth among the seven colleges. Currently, clerkship instructional hours, designated as practicum for accounting purposes, are not accounted for in the calculation of workload. Significant concern has been raised by members of the pharmacy practice faculty regarding this accounting method in that it fails to document the extensive hours of instruction provided at the clinical sites. Productivity data from other seniority groups may also appear lower than the campus average as a basic pharmacy science faculty member in a highly specialized but required content area may teach one or two semesters of 4-credit-hour classes or more in the bachelor's program. These characteristics unique to pharmacy prohibit the use of the standard workload guidelines.

Table 2 presents SCH, FTEF, and SCH/FTEF by course prefix. The relationship among pharmacy specialty groups, course offering designations, and the four pharmacy seniority units is as follows:

<u>Specialty Group</u>	<u>Course Offerings</u>	<u>Seniority Unit</u>
Pharmacy Administration	PHAR	Pharmacy/Pharmacy Administration
Pharmaceutical Chemistry.	PHAD	Pharmacy/Pharmacy Administration
Pharmacology	PHCH	Pharmaceutical Chemistry
Pharmacy Practice	PHCL	Pharmacology
Pharmacy Service	PHPR, PHCL, PHAD	Pharmacy Practice
	PHSV	

**Table 2: Student Credit Hours (SCH), Full Time Equated Faculty(FTEF) and SCH/FTEF
Aggregated by Course Prefix Within The College of Pharmacy**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				Summer	SCH/FTEF		F + W
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W		Fall	Winter	
<u>College of Pharmacy</u>													
PHAD	1993-94	0.00	314.00	595.00	909.00	0.00	0.74	1.08	1.82		426.14	548.39	498.95
PHAD	1994-95	260.00	428.00	706.00	1,134.00	0.44	1.00	1.08	2.08	590.91	428.00	650.69	543.88
PHAQ	1993-94	0.00	130.00	0.00	130.00	0.00	0.26	0.00	0.26		494.00		494.00
PHAR	1993-94	0.00	1,606.00	818.00	2,424.00	0.00	2.58	2.08	4.66		621.64	393.96	520.19
PHAR	1994-95	164.00	1,728.00	8.66	2,594.00	0.68	2.54	2.40	2.95	242.30	679.87	360.24	524.21
PHCG	1993-94	0.00	0.00	22.00	22.00	0.00	0.00	0.15	0.15			148.92	148.92
PHCG	1994-95	6.00	0.00	32.00	32.00	0.15	0.00	0.36	0.36	41.06		88.64	88.64
PHCH	1993-94	0.00	1,517.00	750.00	2,267.00	0.00	2.53	1.77	4.30		599.69	423.71	527.24
PHCH	1994-95	485.00	1,754.00	684.00	2,438.00	0.83	2.07	1.35	3.42	586.98	846.50	506.90	712.56
PHCL	1993-94	0.00	720.00	1,067.00	1,787.00	0.00	1.28	2.21	3.49		564.58	482.67	512.63
PHCL	1994-95	519.00	1,215.00	1,067.00	2,282.00	0.84	1.92	1.98	3.90	615.87	631.47	539.02	584.59
PHCQ	1993-94	0.00	134.00	0.00	134.00	0.00	0.28	0.00	0.28		478.57		478.57
PHLQ	1993-94	0.00	256.00	0.00	256.00	0.00	0.28	0.00	0.28		917.92		917.92
PHPR	1993-94	0.00	1,183.00	1,149.00	2,332.00	0.00	5.22	6.36	11.58		226.80	180.55	201.38
PHPR	1994-95	8.00	1,089.50	1,450.00	2,539.50	0.00	5.94	6.19	12.13		183.36	234.39	209.39
PHQQ	1993-94	0.00	140.00	0.00	140.00	0.00	0.13	0.00	0.13		1,120.00		1,120.00
PHSV	1993-94	0.00	0.00	6.00	6.00	0.00	0.00	0.22	0.22			27.08	27.08
PHSV	1994-95	3.00	2.00	0.00	2.00	0.00	0.20	0.00	0.20		9.98		9.98

Note: PHAQ, PHCQ, PHLQ, and PHQQ prefixes designate semester transition courses

All of the faculty who instruct in the Pharm.D. program have additional full-time or near full-time responsibilities in the College's baccalaureate program. Each provides lectures to the doctoral students in their specialty area. The level of faculty involvement in the Pharm.D. program ranges from a single lecture in a specialty area to course coordination and complete responsibility for course instruction. Additionally, clinical instruction of Pharm.D. students occurs principally at clinical sites utilized by the B.S. students. All pharmacy practice faculty members are responsible for clinical instruction in both the B.S. and Pharm.D. programs. Clinical faculty may have up to four clerkship students concurrently; this total is composed of both B.S. and Pharm.D. students with usually one or two Pharm.D. students complemented by an appropriate number of B.S. students.

Pharmacy practice faculty, all with calendar-year appointments, are required to establish an active practice site for experiential education. Scholarly activity is expected in an area of interest, and opportunities are provided by appropriate scheduling of students and lectures. Fiscal and physical resources are available from the college and university to meet the current needs of the faculty. For example, most grant applications submitted by a pharmacy faculty member to Ferris State University have been funded. Appendix B summarizes the most recent year's scholarly activity for the college.

Most faculty members serve on several college committees, and many serve on university-level committees. Appendix C contains a current listing of committee assignments. The majority of faculty also offer their expertise to community and professional organizations. This is consistent with both the college and university mission statements.

Additional service activities are expected of clinical faculty members at their host institution. The affiliation agreement signed by both the university and affiliating institution. The agreement defines that in exchange for faculty support through office space and student access to hospital patients and services, the University is obligated to provide support to the pharmacy and/or medical services at the host site. The agreement lists the first priority of a faculty member to be instruction, followed by service and then scholarly endeavors. However, only after instructional responsibilities have been satisfactorily met can the faculty member engage in extensive service activities.

The College of Pharmacy has strong support from practitioners throughout Michigan who are willing to serve as volunteer faculty. Over 300 individuals serve the college primarily through the clinical externship component of the B.S. program. Within the Pharm.D. program, adjunct faculty participate in the didactic instruction of students based on their area of specialty. In addition, some specialty clerkships are precepted by adjunct faculty when pharmacy practice faculty do not possess the specialization required for proper instruction in the specialty area. Students are limited in the number of adjunct faculty precepted clerkships they may schedule and the clerkships are closely monitored by the department.

Individuals interested in participating as adjunct faculty are asked to submit an application and curriculum vitae to the interim assistant dean of pharmacy practice. The interim assistant dean meets with the appropriate course coordinator to review the individual's qualifications and assess the need for the individual's expertise in the course. In the event the individual desires to be involved in clerkship or externship training, the interim assistant dean meets with the externship director or Pharm.D. program coordinator for the review. It is expected that the externship director or Pharm.D. program coordinator has visited the instructional site prior to the review process to evaluate the quality of pharmacy services and the anticipated quality of instruction available. If the prospective adjunct lecturer or preceptor is determined to benefit the existing program, the interim assistant dean sends the application materials along with a recommendation to the dean of the College of Pharmacy. Upon approval of the dean, the vice president of academic affairs is requested to grant the faculty appointment.

Adjunct faculty rank is equated to traditional faculty rank. Those without advanced degrees are appointed to the rank of adjunct instructor. Individuals with advanced degrees hold an appointment as adjunct assistant professor. No system is in place for promotion of the adjunct faculty. Adjunct faculty responsible for instruction in the Pharm.D. program are listed below.

Victoria Tutag-Lehr, Pharm.D.
B.S., Ferris State University
Pharm.D., Wayne State University

Wayne Melchior, Pharm.D., BCPS
B.S., Pharm.D., Wayne State University

Kathy Diener, Pharm.D.
B.S., Pharm.D., Ferris State University

Steven Cote, M.B.A.
B.S., Wayne State University
M.B.A., University of Detroit

Chin-Yeh Liu, Pharm.D.
B.S., Taipei Medical College, Taipei, Taiwan
Pharm.D., University of Wisconsin

Steven Moody, M.S.
B.S., Creighton University
M.S., Wayne State University

Joan Herbert, Pharm.D.
Pharm.D., The University of Michigan

Kevin Przybylski, Pharm.D.
Pharm.D., The University of Michigan

Jim Lile, Pharm.D.
B.S., Pharm.D., Purdue University

Sue Arens, Pharm.D.
B.S., Ferris State University
Pharm.D., The University of Illinois at Chicago

Peggy Malovrh, Pharm.D.
B.S., Pharm.D., Ferris State University

Ellen Antal, Pharm.D.
B.S., University of Pittsburgh
Pharm.D., Duquesne University

Ann Hunt-Fugate, Pharm.D.
B.S., Pharm.D., University of Minnesota

R. Lee Clark, Pharm.D.
B.S., Pharm.D., Mercer University

Monte Cohon, Pharm.D.
B.S., Ferris State University
Pharm.D., The University of Michigan

Vandana Slatter, Pharm.D.
B.S., University of British Columbia
Pharm.D., University of Washington

Michael Bouthillier, Pharm.D.
B.S., Ferris State University
Pharm.D., University of Utah

Nicolé Hoover, Pharm.D.
B.S., Pharm.D., Ferris State University

Jeffrey Van Houten, Pharm.D.
B.S., Pharm.D., Ferris State University

All adjunct faculty who participate in pharmacy practice courses are continually evaluated by students through written and verbal mechanisms. These evaluations are reviewed by the appropriate individual (Pharm.D. program coordinator, externship director, pathophysiology course coordinator, etc.) and shared with the volunteer lecturer or preceptor for ongoing quality improvement. Adjunct faculty who consistently do not meet the needs or standards of the college are replaced. A listing of sites utilized for clinical

clerkship instruction is contained in the *Instructional Resources* section of this report. The College does not employ temporary faculty members for instruction in either the B.S. or Pharm.D. programs.

Instructional overload for the pharmacy practice faculty is summarized in Table 3. As is obvious, current faculty resources are unable to meet the didactic instructional requirements without overload hours. It is of significant concern that clinical instruction and practice is compromised when established instructional workload is exceeded. Pharmacy practice faculty members have willingly provided the additional support to ensure quality instruction.

Table 3. Total FTE Overload for Pharmacy Practice Faculty Members

	Academic Year 1993-94	Academic Year 1994-95	Academic Year 1995-96
Cumulative Overload			
Hours	34.5 hours	73.9 hours	90.6 hours

The Pharm.D. program is an off-campus program with didactic instruction centered in Kalamazoo and clerkships offered primarily at clinical sites throughout Michigan's lower peninsula. As has been discussed, both basic science and pharmacy practice faculty members provide instruction in the Pharm.D. program at the Kalamazoo facility. Additionally, in professional years one and two, pharmacy practice faculty travel to campus for instruction of undergraduate courses, often in collaboration with basic science faculty. Detailed descriptions of the off-campus facilities of the College are discussed in the "Instructional Resources" section of this report.

The support staff at the College of Pharmacy is located primarily on-campus; a part-time secretary is provided in Kalamazoo for the Pharm.D. program. In general, the responsibilities of the pharmacy practice department and the department's secretaries are significant. These include clerical support of the ten-week B.S. externship program which utilizes over 225 adjunct faculty throughout Michigan; support of 13.5 FTE in the pharmacy practice department, and the support of the Pharm.D. program in Kalamazoo which utilizes some 70 individuals for lecturing and clerkship training. Currently, student assistants are not utilized by the pharmacy practice department for support of either the baccalaureate program or the Pharm.D. program

Efforts to form an advisory committee for the baccalaureate and Pharm.D. programs have been ongoing for approximately eighteen months. A cadre of individuals that would provide broad expertise and insight in

college issues have been identified. Decisions regarding the advisory committee's responsibilities and methods for integration into the decision-making process of the college have yet to be made. Individuals identified initially have not been contacted to determine their level of interest. The College's alumni board does play a minor advisory role in curricular issues.

Instructional Resources

The Pharm.D. program relies on the physical facilities provided within the College of Pharmacy for provision of the first two years of instructional preparation for the Pharm.D. program. In general, the College of Pharmacy is a well planned facility which provides excellent instructional, laboratory, and study facilities for undergraduate students. These facilities have been used on occasion by the clinical faculty in the conduct of research and are available to Pharm.D. students to pursue research interests.

Major scientific and support equipment expenditures have been made possible through state funds, alumni donations and individual and corporate gifts. Faculty and/or administrative staff members may submit equipment requests to the dean for review. They are then forwarded by the dean to the proposed funding body. The process is also utilized to secure necessary equipment for the Pharm.D. program. In recent years, alumni donations have provided extensive support for such expenditures while institutional support has continued to decline. In addition to support for equipment purchases, the alumni fund has provided support to all second-year Pharm.D. students wishing to attend the American Society of Hospital Pharmacist mid-year clinical meeting. An annual loan of \$1,000 for each Pharm.D. student to assist in tuition costs is available through the dean's office.

Drug information services are provided through the Health Sciences Library for all on-campus faculty and students. The Health Sciences Library combines resources previously contained in the Colleges of Allied Health and Pharmacy in a single location. Generally, information requests from either clinical faculty or Pharm.D. students are met by the Drug Information Center located at Bronson Methodist Hospital or through the medical library where faculty or students are assigned; occasionally, when information is requested from pharmacy-specific databases, the Health Sciences Library may be utilized to provide literature searches or retrieval services.

In Kalamazoo, office and classroom facilities are leased from Bronson Methodist Hospital. Administrative offices and instructional classrooms are located in Truesdale Hall, a facility constructed to provide dormitory accommodations and instructional classrooms for the Bronson School of Nursing. Three offices of approximately 150 square feet each provide space for the interim assistant dean and the externship director as well as a part-time secretary. Additionally, a lecture room of approximately

400 square feet is leased to provide classroom facilities for the didactic instruction. A computer lab has been developed in another two-room office suite; four computers are provided for student and instructional use. In general, program needs have been well-met by the accommodations provided in Truesdale Hall. However, large classes in both 1993-94 and 1995-96 have stretched existing resources to the limit and have led to the utilization of additional classrooms available at Bronson Methodist Hospital. In anticipation of future program growth, discussions are underway to utilize instructional facilities in the MSU/KCMS University Medical and Health Sciences Center.

Justification of the Kalamazoo location of the Pharm.D. program centers on the significant resources available. This includes both the presence of many clinicians employed by The Upjohn Company and an affiliation with MSU/KCMS. Such resources are utilized to provide didactic expertise during the first year of the Pharm.D. program. Audiovisual equipment needed for instruction is reserved through the hospital; this has limited equipment expenditures in the program. Instructional equipment resources are provided through various departments in Bronson Methodist Hospital with monthly billing to the College of Pharmacy. Media services are provided to both students and faculty through the Bronson Methodist Hospital media center and the university's on-campus facilities. Research-oriented equipment is expected to be provided either through existing on-campus resources or equipment provided at specific clinical sites.

Drug information resources needed in the Pharm.D. program are primarily met through the Drug Information Center at Bronson Methodist Hospital. The center was developed collaboratively in 1994 with the Bronson Methodist Hospital pharmacy department and has become the center for drug information activities in the Pharm.D. program. With the addition of Dr. John Grunden to the college faculty, plans for a drug information center at Bronson Methodist Hospital were completed.

Clinical Sites

Clerkship rotations are predominately precepted by clinical faculty members at off-campus sites across the state. These sites are also utilized for clinical training of the baccalaureate students. At all sites with clinical faculty present, a formal agreement is established with the host institution to define both the responsibilities of the faculty member, the College of Pharmacy, and the host institution. Summarized in the following table are descriptions of each clinical site utilized for clerkship training:

Table 4. Clerkship Descriptions - Doctor of Pharmacy Program

Location/Institution	Site Description	Faculty Members (*denotes adjunct faculty member)	Clerkships Precepted
Kalamazoo/Battle Creek Bronson Methodist Hospital	250 bed acute care teaching hospital. Specialty areas include: trauma/emergency cardiology pediatrics/neonatology	Richard W. Dettloff, Pharm.D. John W. Grunden, Pharm.D. Stephen W. Durst, Pharm.D. Diana Pone, Pharm.D.*	Internal Medicine Critical Care Drug Information Cardiology Pediatrics/Neonatology
Kalamazoo Center for Medical Studies University Medical and Health Sciences Center	Medical student and Resident training center with ambulatory clinics in: Internal Medicine Family Medicine Orthopedics Infectious Disease Pediatrics	Mary Frances Ross, Pharm.D.	Ambulatory Care
Battle Creek Veterans Affairs Medical Center	991 bed veterans hospital with 770 beds utilized for acute psychiatric care	Craig M. Straley, Pharm.D.	Psychiatry
Grand Rapids St. Mary's Hospital	330 bed acute care teaching hospital. Specialty areas include: nephrology rehabilitation outpatient services	Joan M. Rider, Pharm.D. John P. Jameson, Pharm.D.	Internal Medicine Pulmonary Medicine Ambulatory Care
Butterworth Hospital	500 bed acute care teaching hospital. Specialty areas include: pediatrics/neonatology cardiology trauma care	Diane M. Holt, Pharm.D. Michael Bouthillier, Pharm.D.*	Internal Medicine Infectious Disease Pediatrics
Blodgett Memorial Medical Center	400 bed acute care teaching hospital. Specialty areas include: cardiology neurology/neurosurgery	Jaculin Harden, Pharm.D G. Robert DeYoung, Pharm.D.	Nutrition Critical Care Ambulatory Care Internal Medicine

Location/Institution	Site Description	Faculty Members (*denotes adjunct faculty member)	Clerkships Precepted
Bay City/Saginaw Bay Medical Center	500 bed acute care teaching hospital. Specialty areas include: surgery critical care oncology cardiology	Marc A. Nienhuis, Pharm.D.	Internal Medicine Nutrition Infectious Disease
Saginaw Cooperative Hospital Incorporated	Medical student and residency training center with specialty clinics in: internal medicine family medicine OB/GYN	(position open)	Ambulatory Care
Lansing Edward W. Sparrow Memorial Hospital	500 bed regional acute care hospital. Specialty areas include: pediatrics oncology trauma/burns	Curtis L. Smith, Pharm.D Ann Hunt-Fugate, Pharm.D.*	Internal Medicine Clinical Pharmacokinetics Pediatrics
St. Lawrence Hospital	350 bed acute care teaching hospital. Specialty areas include: geriatrics ambulatory care psychiatry	Mary S. Richardson, Pharm.D.	Geriatrics
Houston, Texas M.D. Anderson Cancer Center		Steve Huber, M.S.*	Oncologic Disease
Detroit, Michigan Hutzel Hospital		Victoria Tutag-Lehr, Pharm.D.*	Oncologic Disease
Buffalo, New York Millard Filmore Hospital		James Carr, Pharm.D.*	Clinical Pharmacokinetics
Kalamazoo, Michigan Pharmacokinetic Research and Development; The Pharmacia and Upjohn Co.		Edward Antal, Ph.D.*	Clinical Research

Location/Institution	Site Description	Faculty Members (*denotes adjunct faculty member)	Clerkships Precepted
Salt Lake City, Utah Salt Lake City Veterans Affairs Medical Center		Christopher Stock, Pharm.D.*	Addiction Medicine
Pontiac, Michigan St. Joseph Mercy Hospital		Wayne Melchior, Pharm.D.*	Drug Information
Lansing, Michigan St. Lawrence Dimondale Center		Sue Arens, Pharm.D.*	Long-term Care

Supplies and Expense/Equipment Acquisition/Gifts and Grants

The Pharm.D. program operates within the financial resources of the College of Pharmacy. Implementation of the program was the result of funding derived from a larger initiative composed of three elements: 1) conversion of basic science faculty to calendar-year appointment, 2) revision of the baccalaureate experiential training, essentially a doubling of experiential training., and 3) implementation of the Pharm.D. degree. Thus, although directly related to a 1989 budget initiative of \$750,000, the Pharm.D. program is funded by only a portion of the 1989 initiative. Expenditures of both the College of Pharmacy and the pharmacy practice department for last four years, together with a projection for the 1995-96 year, are contained in Tables 5 and 6. The Pharm.D. program costs are primarily taken from the pharmacy practice budget, yet the pharmacy practice budget cannot be considered to represent only costs pertaining to the Pharm.D. program. Costs related to instructional responsibilities in the baccalaureate curriculum are also included. It should be noted that no accounting of specific costs relating to the Pharm.D. program is compiled.

Table 5. Pharmacy Expenditures by Funding Source

	Actual 91-92	Actual 92-93	Actual 93-94	Actual 94-95	Budget 95-96
General Fund					
Salaries	1,740,396	1,816,992	2,009,087	1,997,445	2,119,063
Fringe Benefits	505,293	561,164	706,189	651,086	750,731
Student Help	21,501	10,227	14,077	11,441	20,420
CSSM	275,692	243,945	235,258	230,784	267,304
Equipment	25,749	42,926	19,648	24,271	14,416
Scholarships					
	2,568,631	2,675,254	2,984,259	2,915,027	3,171,934
Development Funds					
Salaries	4,829	8,967	18,531	19,563	21,500
Fringe Benefits	659	1,112	4,095	3,924	4,752
Student Help	156				
CSSM	78,584	156,535	214,180	155,283	168,687
Equipment	29,006	115,924	18,770	19,293	39,337
Scholarships	13,600	15,350	19,977	18,887	20,390
	126,834	297,888	275,553	216,950	254,666
Research Funds					
Salaries	385	4,750			
Fringe Benefits	73	934			
Student Help		3,676	102		
CSSM	12,845	4,660	4,099	2,897	8,295
Equipment			2,963	515	4,554
Scholarships					
	13,303	14,020	7,164	3,412	12,849
Total Funding					
Salaries	1,745,610	1,830,709	2,027,618	2,017,008	2,140,563
Fringe Benefits	506,025	563,210	710,284	655,010	755,483
Student Help	21,657	13,903	14,179	11,441	20,420
CSSM	367,121	405,140	453,537	388,964	444,286
Equipment	54,755	158,850	41,381	44,079	58,307
Scholarships	13,600	15,350	19,977	18,887	20,390
	2,708,768	2,987,162	3,266,976	3,135,389	3,439,449

Table 6. Pharmacy Practice Expenditures by Funding Source

	Actual 91-92	Actual 92-93	Actual 93-94	Actual 94-95	Budget 95-96
General Fund					
Salaries	530,146	590,254	701,642	720,971	780,397
Fringe Benefits	152,536	192,692	243,151	231,898	271,947
Student Help			26		
CSSM					
Supplies	14,339	11,393	5,008	5,760	6,597
Travel					
Faculty/Staff (dev)	20,459	15,566	14,185	18,222	18,934
Student Supervision	10,871	14,916	14,845	13,555	17,833
Contractual Services					
Professional Fees	53,125	37,250	32,500	44,300	45,150
Other	17,083	16,820	16,490	15,405	16,183
Maintenance&Repairs	274	470	412	780	638
Equipment	6,940	13,533	1,023	3,008	548
Scholarships					
	805,773	892,894	1,029,282	1,053,899	1,158,227
Development Funds					
Salaries					
Fringe Benefits					
Student Help					
CSSM					
Supplies	386	393	378	1,285	927
Travel					
Faculty/Staff (dev)	75		408	694	912
Student Supervision					
Contractual Services					
Professional Fees	260	700			
Other	80	75		488	
Maintenance&Repairs					
Equipment					
Scholarships	2,850	2,700	3,200	2,000	2,000
	3,651	3,868	3,986	4,467	3,839
Total Funding					
Salaries	530,146	590,254	701,642	720,971	780,397
Fringe Benefits	152,536	192,692	243,151	231,898	271,947
Student Help	0	0	26	0	0
CSSM					
Supplies	14,725	11,786	5,386	7,045	7,524
Travel					
Faculty/Staff (dev)	20,534	15,566	14,593	18,916	19,846
Student Supervision	10,871	14,916	14,845	13,555	17,833
Contractual Services					
Professional Fees	53,385	37,950	32,500	44,300	45,150
Other	17,163	16,895	16,490	15,893	16,183
Maintenance&Repairs	274	470	412	780	638
Equipment	6,940	13,533	1,023	3,008	548
Scholarships	2,850	2,700	3,200	2,000	2,000
	809,424	896,762	1,033,268	1,058,366	1,162,066

Travel Budget

Instructional travel accounts for a significant component of the pharmacy practice department's budget. As can be seen from the most recently completed academic year's expenditures, instructional travel accounted for approximately 33.4% of the non-salary budget. This represents total travel costs incurred in instruction of both B.S. courses as well as those of the Pharm.D. program. Currently, efforts are underway to utilize distance learning technology to reduce travel costs of the program. Relocation of the program to facilities with teleconferencing capacity may positively impact travel expenditures.

Professional Development

Attendance at state and national seminars and symposia is encouraged through the provision of a \$700.00 travel allowance for each faculty member. Use of the stipend is restricted to meeting attendance and funds unused at the completion of each academic year cannot be accrued by the faculty member. Professional development funding is not provided to adjunct faculty although complimentary registration is provided for some College of Pharmacy continuing education programs and discounts are available through the university's bookstore.

Library Facilities (Drug Information Resources)

On-Campus Facilities

The Health Science Library (HSL) opened in the Fall of 1992, essentially replacing the pharmacy reading room which had provided the majority of drug information resources for on campus use since its establishment in 1973. The HSL is located in the west campus area and is generally considered quite accessible by on-campus faculty and students. Services are readily available to off campus faculty and the librarian managing the HSL has expressed a sincere desire to integrate the services provided in the new facility with those available off-campus at clinical sites. The HSL contains 20,000 volumes of monographs, approximately 400 journal subscriptions, and microforms previously housed in three different collections on campus.

Services available to students and faculty through the HSL are similar to those offered in the Timme Library; reference assistance, bibliographic instruction and interlibrary loans.

Off-Campus Facilities

The off-campus location of the Pharm.D. program and the decentralized location of clinical clerkship sites has necessitated development of substantial affiliations with the medical libraries at host institutions. In all

locations where faculty members are located, the medical librarians are very accommodating and supportive. Student access is essential; generally, the Pharm.D. students are provided the same level of support as medical students and residents. All libraries provide on-line searching through a variety of medical information programs including Medlars, Dialog, MEDLINE, and BRS. Journal subscriptions range from 250 to 500 titles at each institution and reference holdings are substantial at each site. Subscriptions include both general medical journals as well as specialty journals reflective of the institutions specialty focus.

The Pharm.D. program relies primarily on the library and drug information resources of the HSL and the drug information service located at Bronson Methodist Hospital. A collaborative arrangement has been established which provides access to approximately 500 journals and over 5000 titles. A wide-range of databases are available for on-line searches. Resources of the drug information center focus on therapeutic uses of drugs, dosing, side effects, stability, interactions, investigational uses and availability of new drugs. Utilization of the drug information center is broad-based with physicians, residents and other health care providers frequently requesting information. As a result of the extensive resources available and the level of utilization, the drug information center, in conjunction with the medical information library, has become an integral component of the Pharm.D. program.

Faculty Activities

As previously discussed on page 15 of this report, a summary of scholarly activities for the last two academic years is contained in Appendix B. The faculty are involved at both a state and national level through membership in a wide range of professional organizations. Publications are increasing in frequency and invited presentations are commonplace. In addition to the recognized scholarly activities, the pharmacy practice faculty are also responsible for provision of clinical services at their site of practice. These responsibilities are often extensive and very time consuming. *Curriculae vitae* of faculty directly involved in Pharm.D. instruction are contained in Appendix D.

Enrollment, Recruitment, Retention

Graduates of the program receive the Pharm.D. degree; Students in the track-in curriculum or entry-level program receive only the Pharm.D. degree. A recent statewide survey of practicing pharmacists found the average annual salary of a baccalaureate-level practitioner to be \$51,304 while that of a Pharm.D.-level practitioner was \$54,910. A similar difference was noted among practitioners with 0-2 years of experience; baccalaureate-level practitioners with less than two years experience average salary was \$50,019 while the salary of a similar group of Pharm.D.-level practitioners was \$51,955 (personal

communication Charles Spaulding, February, 1996) Of 26 graduates to this point, 19 have pursued residency or fellowship training following completion of the Pharm.D. program. Many of these post-doctoral positions are recognized nationally. Those graduates not pursuing post-graduate training have generally returned to practice in positions with increased clinical responsibilities. Examples from each graduating class are included below:

Class of 1992

Residency/Fellowship

Steven Martin

Pharmacokinetics Critical Care Fellowship
The University of Illinois Hospital, Chicago, IL

Dina Cheiman

Drug Information Residency
Brigham and Woman's Hospital, Boston, MA

Kathy Diener

Oncology Residency
M.D. Anderson Hospital, Houston TX

Class of 1993

Thomas Dowling

Clinical Residency
University of Maryland Hospital, Baltimore, MD

Nicole Soganich-Hoover

General Residency
Bronson Methodist Hospital, Kalamazoo, MI

Class of 1994

Janice Seccia

General Residency
Salt Lake City Veterans Affairs Medical Center,
Salt Lake City, UT

Jodi Slywka Ikens

Pharmacy Practice Residency
University of Minnesota Hospitals, Minneapolis, MN

Amy VanWormer Benko

Pharmacy Practice Residency
Harper Hospital, Detroit, MI

Class of 1995

Kimberly Javor

Drug Information Residency
Eli Lilly and Company, Indianapolis, IN

Nathan Kanous II

Primary Care Residency
William S. Middleton Memorial Veterans Hospital
Madison, WI

Steven Johnson

Pharmacy Practice Residency
Hospital of the University of Pennsylvania
Philadelphia, PA

Enrollment in the program is limited to twelve, full-time students each year. Students enrolled in the extended track program are considered as 0.5 students, thus overall enrollment may extend beyond 12. A limit of 18 total students per year has been generally accepted.

Admission data below summarizes application and enrollment trends observed in the program.

Table 7. Summary of Application, Admission, and Enrollment Data

	1990	1991	1992	1993	1994	1995
Total Applicants	6	7	13	19	14	23
Total Accepted	6	6	6	11	4	13
Track-in	0	2	3	6	0	7
Post-B.S.	6	4	3	5	4	6
Refused Acceptance	0	0	3	2	5	0
Withdrew	0	0	3	4	1	6
Denied Admission		1	1	2	4	4

Recruitment

Administrative and faculty members of the college have taken a very active role in the recruitment of internal and external candidates for the Pharm.D. program. Internally, the track-in option is discussed in various classes throughout the first professional year with students. Discussion at this point in the curriculum is critical as students select the accelerated track, which is required for the track-in Pharm.D. curriculum in the winter semester of the professional first year. Meetings are also scheduled for students in their first and second professional years to discuss, in detail, various aspects of clinical practice, the Pharm.D. degree in contrast to the B.S. degree, and specific aspects of the Pharm.D. program in the College of Pharmacy. During the clinical clerkship, students that display enthusiasm and ability are identified by the clinical faculty and counseled to consider the Pharm.D. program. To this point, internal recruitment has been difficult. It is speculated that students may initially be interested primarily in the baccalaureate degree and that is why they chose FSU. It is also recognized that the accelerated track within the baccalaureate curriculum is grueling and may discourage students for continuing onward. (refer to section entitled *Actions Taken and Future Prospects*)

Directed efforts in external recruitment have been ongoing for several years. The assistant dean of academic affairs, or a designee, often attend career-day programs conducted at surrounding colleges and

universities. Interest in both the baccalaureate and the Pharm.D. program is high among students in general science curricula. Recognizing the interest among pharmacy practitioners in the post-B.S. Pharm.D. program, the college has begun recruitment efforts at professional meetings of the Michigan Society of Hospital Pharmacists and the Michigan Pharmacists Association. These meetings have generated interest in the program, particularly the extended track option. The college is also represented annually at the American Society of Health-Systems Pharmacists Midyear Clinical Meeting. A forum is conducted in which all Pharm.D. programs in the United States are invited to participate. The audience includes baccalaureate students and practicing pharmacists interested in continuing or adding to their education. This national exposure provides an opportunity to promote the program among a wide range of professionals.

The college participates in all activities conducted by the university to attract students. The Autumn Adventure has been very effective in informing high-school and pre-pharmacy students of the college's programming and advances occurring in the profession.

Retention

With the start of the 1995-96 academic year, a total of 46 students had been or were enrolled in the program. Three students have left the program prior to graduation; one as a result of academic difficulty and two for personal reasons. This high level of retention is consistent with that seen in the baccalaureate program and compares very favorably with a national five-year attrition rate of 12.2% for baccalaureate and Pharm.D. programs combined.

Because of the off-campus location of the Pharm.D. program, student involvement with on-campus organizations is reduced. This is also the result of the non-traditional status of many of the program's students. Pharm.D. students are not routinely involved in college committees. It is evident that a concerted effort to increase the involvement of Pharm.D. candidates in the existing organizations and committees of the college would facilitate articulation between the baccalaureate and Pharm.D. program.

A member of the pharmacy practice department is assigned as an advisor to each Pharm.D. candidate. The advisor is involved with the student throughout both the first and second year of the program and plays a substantial role in assisting the student with selection of clinical clerkships. The advisor is also involved if academic difficulty is encountered or when other issues pertaining to the student's continuation in the program arise.

Effectiveness of the Program

Curriculum

Course requirements leading to the Pharm.D. degree are listed in Appendix I for both entry-level or post-baccalaureate programs. As can be seen in either case, specific courses of the Pharm.D. curriculum total 71 semester credits. Clinical clerkships comprise 40 semester credit hours of the program with ten, 4 credit clerkships required. Students may also opt for an extended-track schedule which allows up to four academic years for completion of the program requirements. This extended-track is intended to allow a baccalaureate-level practitioner to complete the Pharm.D. curriculum with only moderate disruption of existing responsibilities. Scheduling of courses is blocked, allowing consolidation of coursework to only two or three days, weekly. Clerkships require full-time participation on the part of the student, but may be scheduled in intervals to allow for continuation of practice responsibilities. The extended-track has been offered for two years and currently, four students are officially designated in the track. It should also be noted that students in the normal course sequence and in good academic standing may transfer to the extended tract option.

In addition to the listed curricular requirements, students must demonstrate completion of a minimum of 200 hours internship in community pharmacy practice. A student unable to complete the required 200 hours as an intern may register for a community-practice externship and credit will be granted through the College of Pharmacy. Because of financial and scheduling considerations, students are strongly urged to complete the required community-practice experience as an intern.

The following academic regulations have been developed specifically for the Pharm.D. students:

1. A student whose grade point average (GPA) is less than 2.70 for any given semester will be placed on academic probation for the next semester. A student who fails to achieve a GPA of more than 2.70 for each of two consecutive semesters may be dismissed from the College of Pharmacy.
2. Each course, didactic and experiential, in the Pharm.D. curriculum must be completed with a grade of "C" (GPA 2.00) or greater. Students performing below this level will be required to reschedule and repeat the course or clerkship.
3. In the event of poor academic performance, didactic courses may be repeated once. (Also refer to the following statement *Failed Clinical Clerkship*)
4. Failure of a course or clerkship while in the Pharm.D. program will result in academic probation for the student regardless of existing GPA. Failure of two clerkships will result in dismissal from the college.
5. A student who is on academic probation may be dismissed at the end of that probationary semester, it, upon recommendation of the faculty and in the opinion of the dean, the student's performance does not warrant continuation.
6. Students who are dismissed from the College of Pharmacy as a result of poor academic performance may appeal the action to the dean.

Failed Clinical Clerkship

In the event that a student fails a required clerkship, the student will be placed at an alternate site, if possible. A failed elective rotation may be replaced with a different elective rotation.

A student dismissed by a preceptor (faculty or adjunct faculty member) for inappropriate behavior will be required to complete the clerkship at a later date following review by the assistant dean and appropriate faculty members.

Failure of a course or clerkship while in the Pharm.D. program will result in academic probation for the student regardless of existing GPA. Failure of two clerkships will result in dismissal from the college.

Inappropriate behavior on a clerkship may result in failure of the clerkship and/or dismissal from the Pharm.D. program.

In all cases, scheduling of remedial clerkships will be based on faculty and site availability.

The current curriculum was implemented in 1990 with minor modification in 1993 upon semester conversion. In addition to the scheduling changes necessitated by semester conversion, Principles in Clinical Pharmacy 1 and 2 were developed to replace part-time externship and clerkship experiences contained in the entry-level curriculum. The Principles in Clinical Pharmacy sequence also became part of the required coursework for post-baccalaureate students.

Assessment of the existing curriculum is facilitated through the use of the educational outcomes established by the Center for the Advancement of Pharmaceutical Education Advisory Panel on Educational Outcomes which were specifically developed for use by pharmacy faculty in revising and assessing curriculums. The document identifies six educational outcomes that may be used to evaluate the currency of the present curriculum. Each outcome is listed below with courses in the curriculum linked to the outcome.

**Table 8. Evaluation of Existing Curriculum Based on
AACP Adopted Educational Outcomes**

Educational Outcome	Courses Principally Responsible
Provide pharmaceutical care to individual patients	Patient Communications Pathophysiology and Applied Therapeutics Principles in Clinical Pharmacy Clinical Toxicology Advanced Clinical Pharmacokinetics Clinical Clerkships
Develop and Manage Medication Distribution and Control Systems	Administrative Science for Pharmacy Clinical Clerkships
Manage the Pharmacy	Administrative Science for Pharmacy
Manage Medication Use Systems	Administrative Science for Pharmacy Study Design and Literature Evaluation Pathophysiology and Applied Therapeutics Clinical Clerkships
Promote Public Health	Pathophysiology and Applied Therapeutics Principles in Clinical Pharmacy
Provide Drug Information and Education	Study Design and Literature Evaluation Clinical Biostatistics Patient Communications Clinical Seminar Clinical Clerkships

The coverage of the listed curricular outcomes by the identified courses is indicative of the currency of the curriculum.

Quality Of The Program

The Pharm.D. program was fully accredited in January, 1994, following completion of a self-study and accreditation team visit in the Fall of 1993. Formal accreditation is routinely delayed until the program's first class has graduated. Prior to the accreditation, the Pharm.D. program was granted candidate status which provides graduates with all the benefits of graduation from a fully accredited program. Thus, the program was fully accredited at the earliest point possible and has maintained accreditation since that point. Two interim reports have been prepared since accreditation and have been favorably received by the American Council on Pharmaceutical Education.

The program's soundness and quality are evidenced in several ways. Regularly, students in the final year of the program are placed at adjunct clerkship sites which are recognized nationally such as the Milliard Fillmore Hospital in Buffalo, New York and the M.D. Anderson Cancer Center in Houston, Texas. Student evaluations are always high and preceptor's comments very complimentary. Many of the students entering the program are licensed pharmacists; thus, passage of the licensure examination is an incomplete indicator of program quality. However, all entry-level graduates have successfully completed the National Association of Boards of Pharmacy licensure exam. More indicative of the quality of the program is the ability of graduates to secure positions in post-doctoral residencies or fellowships. To this point, 19 of the program's 26 graduates have been pursued post-graduate training, many at nationally recognized institutions a listed previously. Additionally, five graduates are faculty members in other colleges of pharmacy.

As the program's enrollment is currently limited to approximately 12, students on an individual basis are assessed frequently by all faculty members. Academic concern for a student may result from poor preparation for discussion in class, from incomplete assignments or from marginal performance on course examinations. Student performance is carefully evaluated by the program coordinator and faculty advisors and corrections implemented with the student. Thus, the individualized approach which is inherent in the Pharm.D. program facilitates both thorough and constant assessment of each student and appropriate interventions to correct suboptimal performance.

Quality of instruction is a continuing concern of the faculty and the dean. Since the program's inception, the dean has met regularly, each semester, with students enrolled in the first year of the program. This informal discussion has led to the implementation of many changes in the program and has been a very useful method for improving instruction in the program. Comments are relayed to faculty members in a constructive manner and revisions quickly implemented. More specific course evaluations are routinely conducted by course coordinators at the conclusion of each semester. Additionally, evaluations are

conducted throughout the semester in the Pathophysiology and Applied Therapeutics courses. This allows for specific, evaluative comments to be provided to individual instructors in the course. The evaluations are conducted in a timely manner in order to facilitate more detailed student comments. Students prepare an evaluation of each clerkship at its conclusion. The evaluations are utilized by the faculty to enhance the learning environment for subsequent students. Near the conclusion of the program, a meeting with graduating students is conducted by the assistant dean of pharmacy practice. The intent of the meeting is to completely review the program from the students' perspective. A detailed summary of the meeting is prepared and distributed to all pharmacy practice faculty members. Specific areas of improvement are identified and corrective measures implemented. Due both to the youth of the program and the necessity to ensure that the curriculum is sound and contemporary, evaluation on both a formal and informal basis is focused upon. The various evaluative methods are complementary and have fueled significant efforts in both revision and refinement of the curriculum and its delivery.

Strengths and Weaknesses of the Program

The Pharm.D. program's principle strengths include four elements. 1) The students. A rigorous admission process has been utilized to select each class. Through a complete review of previous academic records and submitted letters of recommendation and, most importantly, personal interviews, a very select group of highly motivated students has been admitted. The students have brought both professional and cultural diversity to the program. Their preparation and enthusiasm for pharmacy practice has impressed employers and created an excellent reputation for the program within the profession. 2) The faculty. Conscientious instruction throughout the program characterizes the faculty effort in the Pharm.D. program. Significant levels of overload have been incurred by the faculty involved in the program to ensure that students are well-prepared for clinical clerkships and practice. Students receive individualized instruction on clerkships and benefit greatly from the diverse practice experiences maintained by the faculty. Because all pharmacy practice faculty must maintain a clinical practice site, students are instructed not only by a faculty member, but also by a role model. This contributes greatly to the professionalization which occurs in the program. 3) The clinical sites and adjunct clinical sites. The College of Pharmacy has established a network of clinical sites at mid-sized teaching hospitals throughout the state. Many affiliated institutions provide practice opportunities and much needed off-campus support for pharmacy practice faculty members. At such host institutions, the faculty member is well integrated into the pharmacy department's activities and often is responsible for provision of clinical services. Adjunct clinical sites provide clinical instruction precepted by members of the pharmacy department's staff. Often, the focus of clerkships precepted by adjunct faculty is very specialized and not an area of specialization by members of the pharmacy practice faculty. At all affiliated sites, instruction is recognized as an essential element of the pharmacy department's mission and both faculty and students are very well-received. Placement of

pharmacy practice faculty members overlaps, for the most part, with the Michigan State University College of Human Medicine and College of Osteopathic Medicine clinical program. The Michigan State program relies as well upon the use of mid-sized teaching hospitals at several sites throughout the state. Collaboration between the two programs is facilitated through this arrangement and an interdisciplinary approach to medicine is demonstrated to the students. The use of a variety of health-care institutions provides a very broad view of practice models to students; although the travel necessitated by such an arrangement is often recognized as an obstacle by students, they are quick to identify the advantages that exposure to a wide range of practice sites brings with it. 4) Constant assessment and refinement of the curriculum. Because of its youth, the Pharm.D. program is in many ways, treated as a prototype. This has resulted in a great deal of evaluation and refinement as the program matures from year to year, preventing the development of "curricular inertia". Many of the modifications made to this point have had a very positive influence upon the program.

Four areas constitute the program's most significant weaknesses. 1) Logistics. Although discussed as a strength above, the off-campus arrangement of the program brings with it a unique logistical problems for faculty and students. Currently, instruction is accomplished through lecture/discussion with faculty members traveling from campus as well as clinical sites to the Kalamazoo facility. This results in a significant expenditure of both time and money. Distributive learning technologies are being investigated to minimize travel expenditures. Such technologies may also be used to link clinical sites and allow for on-site instruction throughout the program. To complete the clerkship requirements, students are required to relocate to various clinical sites. Housing is generally available at all sites. However, the inconvenience of moving several times can affect students' level of achievement. Efforts are made to develop a clerkship schedule which minimizes relocation for the students. 2) Limited enrollment. The current enrollment cap of twelve, full-time students may limit the ability of students to progress, in the track-in curriculum, to the Pharm.D. program. To this point, interest in the track-in curriculum has been limited; however, student interest may be restricted simply because of the perceived level of competition. Based on 1993-94 national data, 23.9% of all professional degrees awarded (i.e. first professional degrees as well as post-B.S. Pharm.D. degrees) were Pharm.D. degrees. Based on existing enrollment caps, only 8.8% of the college's graduates are, or have the potential to be, Pharm.D.-level graduates. The current level of Pharm.D. graduates is below national averages and may indicate an inappropriate predominance of baccalaureate-level graduates. 3) Articulation with the baccalaureate program. The baccalaureate program represents a potential source of candidates for the Pharm.D. program. Yet, poor articulation between the two programs may limit the interest of students to progress into the Pharm.D. curriculum. Recent discussions have identified several potential reasons. i) Student costs. The continuation of studies for two additional years may not be feasible for many students. Completion of the B.S. program allows for earlier entry into the profession without two additional years of graduate-level tuition. ii) The entry-level track requires

completion of one summer of studies in the first professional year. The accelerated curriculum allows for either early graduation in the baccalaureate program or for entry into the Pharm.D. program in the third professional year. The accelerated track forces completion of five consecutive semesters of studies without a break; many students consider an additional two years of rigorous study in the Pharm.D. program unreasonable. iii) A biased admission process. In professional year one, students are only admitted into the baccalaureate program. It is felt that many students intending to complete a Pharm.D. degree prefer direct admission into a Pharm.D. program. They are unwilling to accept the uncertainty which accompanies the two-step, track-in Pharm.D. admission process with admission first to the baccalaureate program and admission into the Pharm.D. program occurring only in the second professional year. The college's admission committee is currently reviewing revision of the admission process which would allow for direct entry, in professional year one, into the Pharm.D. program. Both admission policy and curriculum must be reviewed to enhance student interest in the track-in option. iv) Lack of clinical exposure. Many of the track-in students have had only minimal prior exposure to clinical practice. This creates significant differences between experienced post-B.S. students and the track-in students and necessitates modification of teaching style. 4) Programmatic resources. Current physical resources in the first year of the Pharm.D. program are at their limit. Additional instructional facilities are being explored which will accommodate the current enrollment levels and allow for future growth. Instructional demands, both didactic and clinical, have exceeded the capacity of the existing faculty. Loss of two faculty positions as a result of fiscal restructuring has been exacerbated through the interim conversion of an additional faculty position into the assistant dean of pharmacy practice position. Instructional overload has been incurred by most pharmacy practice and basic science faculty members involved in the program. Development of additional courses in the program has been greatly limited as additional instructional load represents overload. The increasing level of instructional responsibility also impacts negatively upon clinical instruction as less time may be devoted to clinical practice and preceptorship of clerkship students. Adjunct clinical instruction has been necessitated to instruct baccalaureate and Pharm.D. clerkships. Although comprising less than ten percent of all baccalaureate-level clerkships, approximately 25% of all Pharm.D.-level clerkships have been precepted by adjunct faculty. Of increasing concern is the ability to continue to recruit adjunct faculty to precept clerkship without payment of a professional fee. Although currently not a problem, it would be unwise to presume clerkships will continue to be precepted without payment. Growth in the Pharm.D. program with continued enrollment levels in the baccalaureate program cannot be considered without additional faculty or further development of adjunct clerkship sites and use of adjunct faculty.

Actions Taken and Future Prospects

Assessment of Actions Taken

Several minor curricular modifications have been implemented to correct weaknesses within the program since it began in 1990. The required part-time clerkships and externships in the track-in curriculum have been deleted and replaced with the principles in clinical pharmacy course sequence which is required for both track-in students and post-B.S. students. The pathophysiology and therapeutics sections have been fully integrated in the Pathophysiology and Applied Therapeutics course; this has greatly improved the organization of the course. An extended track curriculum has been made available to students to allow for non-traditional students to return for an advanced degree and yet maintain at least part-time employment. Four specialty clerkships have been developed and approved by the faculty to enhance the breadth of clinical experiences for students. Clerkship requirements have also been revised to reflect contemporary practice, with increased emphasis in ambulatory care. Additionally, several clinicians trained in specialty areas have been added to the faculty while other existing faculty members have developed expertise in specialty areas. In contrast to the initial two years of the program, all required clerkships are instructed by full-time faculty members while several elective clerkships remain under the preceptorship of adjunct faculty.

Future Measures Needed To Enhance The Program

Academic pharmacy is currently faced with unprecedented challenges. From within, the controversy surrounding the appropriate entry-level degree continues. The most recent iteration of The Proposed Revision of Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree. January 15, 1996 calls for adoption in June, 1997, of a curriculum which "provide(s) sufficient content for the achievement of professional competencies necessary to the general practice of pharmacy and to satisfy educational requirement for licensure as a pharmacist, and should meet the requirements of the institution for the Pharm.D. degree." Implementation of such revision brings with it a significant increase in the level of support required by the College of Pharmacy. It has been estimated that conversion to the Pharm.D. as the sole professional degree would require an additional \$1.5 million annually for a class of 100 students. It has also been estimated that the additional costs may be covered through graduate-level tuition and the additional year of studies.

Development of several nationwide, non-traditional, post-B.S. Pharm.D. programs in anticipation of conversion to the entry-level Pharm.D. degree has brought with it significant competition for post-B.S. students. Such nationwide programs often rely heavily upon distributive learning technologies which the College of Pharmacy is only now beginning to incorporate into its instructional offerings. However, if developed rapidly and with insight, distributive instructional technologies, when combined with the existing network of clinical sites, could provide an outstanding system for delivery of non-traditional programming across the state.

External challenges to academic pharmacy and to the pharmacy profession are both encouraging and disquieting. The rapidity of change in healthcare has potential for great impact upon the pharmacy profession. Encouraging is the movement toward pharmaceutical care and recognition of the pharmacist as an important member of the healthcare team uniquely qualified to provide expertise in the prevention and management of disease. This recognition validates the enhanced educational goals of the Pharm.D. degree and mandates that all graduates of contemporary programs are able to participate on an interdisciplinary basis in the care of patients. No longer will distribution of medications be an endpoint in pharmacy practice. Rather, development of pharmacotherapeutic regimens, monitoring of the regimen and demonstration of improved outcomes will be the responsibility of the practicing pharmacist. Facilitating this transition is the use of technology and technicians in meeting the traditional distributive roles of pharmacy.

The transition to an increased use of technology and technicians in meeting more traditional responsibilities and increasing responsibilities in patient outcomes for the practicing pharmacist brings with it uncertainty regarding future manpower demands. As detailed in the labor market analysis, projections call for a reduction of 20-25% in the number of pharmacy schools by the year 2005. Yet those same projections clearly identify the need for pharmacists that are well-prepared to deliver pharmaceutical care. Furthermore, it is suggested that reductions be distributed evenly to accommodate the underserved areas. In contrast, various professional organizations have predicted an increase in the demand for pharmacists in a wide range of practice areas and have developed projections which predict a 13% increase to manpower demand for pharmacists from 1995 to 2005.

Thus, a clear vision of the future level of demand for graduates is not possible. It is apparent, however, that the level of competency expected to be possessed by practicing pharmacists will increase. The delivery of pharmaceutical care, and not the distribution of medications, will be the principle role of the pharmacist in healthcare. Therefore, it seems prudent that the College of Pharmacy develop a plan of transition which facilitates the implementation of a curriculum consistent with evolving accreditation standards and which emphasizes the unique strengths of the college, particularly the developed network of statewide clinical sites. In addition, such a curricular plan must provide for enrollment flexibility. Drastic cuts in enrollment present the potential for significant declines in tuition revenue and, most importantly, may precipitate a significant shortage of practitioners within the state. However, failure to reduce enrollment to appropriate levels, should the predictions for declining demand for pharmacists be realized, would create an oversupply of doctoral-level trained pharmacists unable to secure employment. Of equal importance to the development of a contemporary curriculum will be the development of a method to accurately gauge practitioner needs within the state, recognizing the inherent difficulties. The recently formed state Joint

Commission of Pharmacy Practice, a group composed of representatives from each of the colleges of pharmacy in the state, the Michigan Pharmacists Association and the Michigan Board of Pharmacy, may be of great assistance in such an endeavor.

Section 2: Graduate and Student Survey

In developing independent survey instruments for graduates and current students in the Pharm.D. program, it was obvious that the surveys would be very similar. Both graduates and students would be asked to evaluate similar characteristics of the program. Therefore, it was decided to merge the two sections, utilize a common survey instrument and analyze the results together. A total of 43 surveys were distributed; 26 to graduates of the program and 17 to students currently in either the first or second year. Twenty-nine surveys, 18 from graduates and 11 from students were returned for a 67% response rate

Baccalaureate-level coursework was evaluated by all participants. It was felt that both baccalaureate and doctoral level courses must be evaluated in order to examine the track-in program. Several areas within the curriculum were identified in which additional emphasis is needed were identified. Those areas include: Biostatistics, Communications, and Pharmacotherapeutics. The identification of these areas may reflect inadequate preparation for the doctoral-level courses included in the Pharm.D. curriculum. It may also reflect the perceived importance of these areas among Pharm.D. students and graduates. It is important to note that Clinical Biostatistics and Study Design and Literature Evaluation were also identified as having “too little emphasis” in the Pharm.D. program. Most baccalaureate-level courses were identified as receiving the “right amount of emphasis.” Pharmaceutics was identified as receiving “too much emphasis”. Although not clearly identified, Pharmacy Practice Lab and Sociopharmacy were both identified by about one-third of the respondents as “receiving too much emphasis.”

A total of 8 credit hours of electives are required in the first two years of the track-in program. Students completed a narrow range of electives; primarily Toxicology, Selected Topics in Pathophysiology, Selected Topics in Pharmacology and Chemical Carcinogens. Most respondents felt that the electives should be packaged to focus on practice specialties. As discussed in Section 1 of this report, direct admission into the Pharm.D. program may facilitate development of a “clinical track” of electives which students would be directed to throughout the first two years of the program.

Within the Pharm.D. curriculum, three didactic courses were identified as receiving inadequate emphasis; Study Design and Literature Evaluation, Biostatistics and Physical Assessment. Curricular refinements which reflect these inadequacies must be implemented. Discussions are underway to place Study Design and Literature Evaluation in Winter semester to allow Clinical Biostatistics to provide needed prerequisite understanding of statistics which may then be applied to literature evaluation in the following semester. Identification of Physical Assessment as an inadequacy identifies further need for development of the Principles in Clinical Pharmacy course which contains a Physical Assessment module taught by adjunct

faculty. An increase in the class-time dedicated to this topic may be possible and will be explored. Administrative Science was felt by 60% of the respondents to receive too much emphasis in the curriculum.

Student and graduate perceptions of various aspects of the Pharm.D. program were surveyed. Classroom facilities were the most notable deficiency, with an overall ranking of “fair”. In addition, computer support was evaluated as “fair”. As discussed in Section 1, the College of Pharmacy has had several discussions with MSU/KCMS to explore the potential for relocation of the program to the University Medical and Health Sciences Center. Discussions have been very positive and it is hoped that relocation will occur as early as the next academic year. All other areas evaluated were ranked as “good” or “excellent” through either mean or mode analysis. Strengths of the program, as perceived by students and graduates, were: quality of instruction in coursework, opportunities for interaction with faculty, quality of students in the program, professional competence of the faculty, attitude of the program director toward students and overall quality of the College of Pharmacy.

Based on responses received, it would appear that graduates feel best prepared to practice in the areas of Community Practice, Institutional Practice and Academia. Lack of preparation for practice in Managed Care, Marketing/Sales, Industry and Administration was perceived by the graduates. These perceptions are consistent with the goals of the program and the curricular goals advanced by the American Association of Colleges of Pharmacy which identify a “generalist” practitioner as the appropriate goal of a Pharm.D. curriculum. However, the lack of preparation for practice in Managed Care cannot be disregarded; it is anticipated that managed care will dominate health care in the near future and this deficiency must be assessed.

The achievement of curricular goals (see Section 1) was evaluated by program graduates. In general, most graduates agreed that program goals had been met. However, a predominance of neutrality or disagreement was seen in two goal areas. Thirty-five percent of graduates disagreed that “the program gave me knowledge of experimental design and statistical methodology to enable me to critically evaluate drug literature”. Fifty percent of graduates were neutral toward or disagreed with the statement: “the program prepared me to integrate psycho-social and economic aspects of patient care and health care policy into professional practice.” Also noteworthy is the fact that 33% of graduates were neutral or disagreed with the statement: “the program prepared me to assume limited prescribing and patient care management functions under appropriate supervision and carefully developed protocols.”

Overall, 44% of the responding graduates rated the program as excellent. Fifty percent ranked the program as good, while only one respondent (6%) ranked the program, overall, as fair. Thus, although significant areas of deficiency were identified, the program, as assessed by its graduates, is sound and highly regarded.

A complete compilation of survey results follows.

College of Pharmacy

Curriculum Study

The Doctor of Pharmacy Program Review Panel has been formed through the University's Academic Senate to assess the Doctor of Pharmacy program in light of the University's Mission Statement. To this end, the Program Review Panel is conducting a survey to obtain your comments regarding the Doctor of Pharmacy program. Program design and support as well as course content and sequencing are evaluated in this evaluation process.

The results of the survey will help the College faculty and administration as well as the University evaluate accurately the effectiveness of the Doctor of Pharmacy program in providing you with the educational background and practical experience that you will need to succeed in your chosen sector of the profession of pharmacy.

The focus of this survey is course content.

Please respond to the survey to assist the Review Panel in this evaluative process. Follow the directions for each section; ensuring that only those areas which pertain to you are completed. Answer on the basis of your own experiences.

Instructions: Please place all answers directly on the survey booklet. Do not place your name on the booklet as all responses will be handled with the strictest confidentiality.

Survey Response

Responses to this survey are indicated by a series of three numbers preceding each specific question. The first of the sequence indicates the response of current Pharm.D. students, the second, the response of the graduates, the third reflects the total.

Demographic Information

1. Current status in the College of Pharmacy:

- 0/0/0 (A) Professional Year Three
 1/0/1 (B) Professional Year Four
 10/0/10 (C) Post-Baccalaureate Year One
 0/0/0 (D) Post-Baccalaureate Year Two
 0/18/18 (E) Alumni (Graduate)

2. Which Doctor of Pharmacy track are you enrolled in?

- 5/4/9 (A) Entry-level Pharm.D.
 6/5/11 (B) Post Baccalaureate Pharm.D.

3. When did you receive your first practical experience in pharmacy (i.e. work in a pharmacy?)

- 8/10/18 (A) Prior to admittance to the College of Pharmacy
 0/4/4 (B) Professional Year One
 1/1/2 (C) Professional Year Two
 1/2/3 (D) Professional Year Three
 0/1/1 (E) Professional Year Four

4. During the academic year, how many hours did you work as an intern or pharmacist?

- 4/2/6 (A) 0
 2/4/6 (B) Less than 10 hours
 2/3/5 (C) 10 to 15 hours
 1/3/4 (D) 15 to 20 hours
 1/6/7 (E) More than 20 hours

Questions 5 and 6 should be completed by graduates only.

5. List any post-doctoral educational and/or certification processes completed.

- *Pharmacy Practice Residency*
- *ASHP-Accredited Residency*
- *FDA Adverse Drug Reaction Program and ASCPT - Clinical Pharmacology Review Course*
- *Doctor of Pharmacy*
- *None*
- *Pharmacy Practice Residency*
- *Pharmacy Practice Residency*
- *Residency - Pharmacy Practice and Graduate Research/Graduate School (2 yrs)*
- *Pharmacy Practice Residency, University of Minnesota Hospital & Clinic and Primary Care Residency, University of Minnesota Hospital & Clinic*
- *2-year Post-Doctorate Fellowship Training and BCPS*
- *ASHP-Accredited Pharmacy Practice Residency (completed 6-30-95)*

6. List current position as well as previous positions held since graduation.

- *Pharmacy Practice Resident (7-1-94 to 6-30-95) and Assistant Professor, Pharmacy Practice, Creighton University (8-95 to present)*
- *Assistant Professor, University of Illinois College of Pharmacy*
- *Resident (2 years) and Temporary Staff Pharmacist at University of Minnesota*
- *Decentralized Pharmacist*
- *Clinical Pharmacist/Clinical Instructor, University of Michigan; Adjunct Assistant Professor, Ferris State University; Clinical Pharmacist, Harper Hospital; Hematology/Oncology Resident, University of Texas MD Anderson Cancer Center; and Adjunct Assistant Professor, University of Houston*
- *Graduate Student/Teaching Fellow (current); Staff Pharmacist, Veterans Affairs Medical Center (current/part-time); and Resident, Pharmacy Practice (1993-94)*
- *Pharmacy Practice Resident*
- *Staff Pharmacist (hospital)*
- *Residency*
- *Current Position - Resident*
- *Clinical Pharmacist*
- *Drug Information Resident*
- *Primary Care Specialty Pharmacy Resident, William S. Middleton Memorial Veterans Hospital, Madison, WI*
- *General Residency*
- *Director of Clinical Directives; Hospital ICU Pharmacist; and Hospital Staff Pharmacist*
- *Clinical Coordinator*
- *Clinical Pharmacy Specialist - Critical Care*
- *Currently Clinical Pharmacist (6 months) and Team Leader of Clinical Services; Staff Pharmacist (4 months); and Clinical Pharmacist (6 months)*
- *Staff Pharmacist at HomeHealth Care Agency; On-Call Pharmacist for Retail and Small Hospital; currently Staff Pharmacist at approximately 300 bed Hospital*

Pharmacy Curriculum

All respondents must complete questions 7 thru 107, where applicable.

Please indicate the response (1,2,3 or 4) which you believe best describes the emphasis (coverage) given to each of the following courses/topic areas in the Baccalaureate pharmacy curriculum or courses you completed prior to admission to the Doctor of Pharmacy program.

	emphasis is too little		emphasis is right amount		emphasis is too much		does not apply	
Baccalaureate Requirements (B.S. Degree)								
7. Introduction to Pharmacy	0/1/1	A	9/10/19	B	1/3/4	C	0/1/1	D
8. Pharmaceutical Calculations	2/1/3	A	8/14/22	B	0/0/0	C	0/0/0	D
9. Pharmaceutics	0/0/0	A	3/5/8	B	6/9/15	C	1/1/2	D
10. Pharmacy Management	3/2/5	A	5/10/15	B	2/3/5	C	0/0/0	D
11. Biochemistry	1/0/1	A	7/15/22	B	2/0/2	C	0/1/1	D
12. Biostatistics	4/10/14	A	4/5/9	B	1/0/1	C	1/1/2	D
13. Microbiology/Immunology	2/2/4	A	8/13/21	B	0/0/0	C	0/1/1	D
14. Anatomy & Physiology	3/3/6	A	4/11/15	B	0/0/0	C	3/2/5	D
15. Communications	8/2/10	A	0/10/10	B	1/2/3	C	1/2/3	D
16. Introduction to Drug Action	0/1/1	A	10/12/22	B	0/1/1	C	0/1/1	D
17. Advanced Composition	0/4/4	A	9/8/17	B	0/1/1	C	1/2/3	D
18. Drug Literature Retrieval/Eval	3/4/7	A	6/8/14	B	1/1/2	C	0/2/2	D
19. Pharmacokinetics	4/6/10	A	6/9/15	B	0/0/0	C	0/0/0	D
20. Medicinal Chemistry	0/1/1	A	8/14/22	B	2/1/3	C	0/0/0	D
21. Pharmacology	2/3/5	A	7/13/20	B	1/0/1	C	0/0/0	D
22. Practice Lab (Prescription Lab)	1/1/2	A	5/10/15	B	4/5/9	C	0/0/0	D
23. Nonprescription Medications (OTCs)	6/2/8	A	3/11/14	B	1/0/1	C	0/3/3	D
24. Diagnostics/Laboratory Assessment	2/7/9	A	7/9/16	B	1/0/1	C	0/0/0	D
25. Jurisprudence	1/4/5	A	8/10/18	B	1/1/2	C	0/1/1	D
26. Sociopharmacy	0/0/0	A	7/5/12	B	3/6/9	C	0/5/5	D
27. Pharmacotherapeutics	6/8/14	A	3/8/11	B	1/0/1	C	0/0/0	D
28. Clinical Externship	0/1/1	A	5/12/17	B	0/0/0	C	3/2/5	D
29. Clinical Clerkship	1/2/3	A	4/10/14	B	0/1/1	C	3/1/4	D
30. Other (specify) pharmacy insurance, formularies	1/0/1	A		B		C		D
30. Other (specify) case study approach to pharmacotherapy	0/1/1	A		B		C		D
31. Other (specify) managing a pharmacy	1/0/1	A		B		C		D

	emphasis is too little		emphasis is right amount		emphasis is too much		does not apply	
Doctor of Pharmacy Courses (Pharm.D. Degree)								
<i>Didactic Courses</i>								
32. Physical Assessment	5/10/15	A	2/6/8	B	4/1/5	C	0/0/0	D
33. Study Design and Literature Eval.	6/9/15	A	5/7/12	B	0/1/1	C	0/0/0	D
34. Clinical Toxicology	3/2/5	A	5/12/17	B	2/4/6	C	1/0/1	D
35. Pathophys/Applied Therapeutics	1/1/2	A	7/16/23	B	1/1/2	C	2/0/2	D
36. Clinical Seminar	0/0/0	A	8/18/26	B	1/0/1	C	2/0/2	D
37. Clinical Biostatistics	4/13/17	A	3/4/7	B	2/1/3	C	2/0/2	D
38. Administrative Sci.for Pharmacy	0/2/2	A	5/3/8	B	5/10/15	C	1/2/3	D
39. Patient Communications	1/1/2	A	7/15/22	B	2/2/4	C	1/0/1	D
40. Adv.Clinical Pharmacokinetics	1/6/7	A	10/11/21	B	0/0/0	C	0/1/1	D
<i>Clerkships</i>								
41. Ambulatory Care	0/2/2	A	2/13/15	B	0/0/0	C	6/2/8	D
42. Addiction Medicine	0/0/0	A	1/4/5	B	0/0/0	C	7/14/21	D
43. Cardiology	0/0/0	A	2/9/11	B	0/0/0	C	6/9/15	D
44. Clinical Research	1/6/7	A	1/3/4	B	0/0/0	C	6/9/15	D
45. Critical Care	0/1/1	A	2/13/15	B	0/0/0	C	6/4/10	D
46. Drug Information	0/3/3	A	2/15/17	B	0/0/0	C	6/0/6	D
47. Emergency Medicine	0/2/2	A	2/2/4	B	0/0/0	C	6/14/20	D
48. Geriatric Medicine	0/2/2	A	2/3/5	B	0/1/1	C	6/12/18	D
49. Infectious Diseases	0/1/1	A	2/14/16	B	0/0/0	C	6/3/9	D
50. Internal Medicine I	0/1/1	A	2/17/19	B	0/0/0	C	6/0/6	D
51. Internal Medicine II	0/1/1	A	2/17/19	B	0/0/0	C	6/0/6	D
52. Long-Term Care/Consulting	0/2/2	A	1/0/1	B	0/0/0	C	7/16/23	D
53. Neonatology	0/0/0	A	2/3/5	B	0/0/0	C	6/15/21	D
54. Nutrition	0/1/1	A	2/13/15	B	0/0/0	C	6/4/10	D
55. Oncologic Diseases	0/2/2	A	2/7/9	B	0/0/0	C	6/9/15	D
56. Pediatrics	0/0/0	A	2/16/18	B	0/1/1	C	6/1/7	D
57. Pharmacokinetics	0/2/2	A	2/16/18	B	0/0/0	C	6/0/6	D
58. Psychiatry	0/0/0	A	2/11/13	B	0/6/6	C	6/0/6	D
59. Pulmonary Medicine	0/0/0	A	2/8/10	B	0/0/0	C	6/10/16	D
60. Institutional Clerkship	0/0/0	A	1/5/6	B	0/6/6	C	7/7/14	D

Professional Elective Requirement Baccalaureate-level Courses*(Questions 61 thru 86 apply only to those students completing undergraduate studies at FSU)*

Which of the following Baccalaureate-level elective courses did you complete?

Course	did complete	did not complete	Course	did complete	did not complete
61. Adv. Community Pharmacy Management	0/0/0 A	7/10/17 B	71. Intro. To Plant Cell Culture	0/0/0 A	7/10/17 B
62. Adv. Institutional Pharmacy	0/1/1 A	6/9/15 B	72. Natural Product Toxins	0/1/1 A	7/9/16 B
63. Health Care Systems	0/0/0 A	6/10/16 B	73. Advances in Natural Product Research	0/0/0 A	7/10/17 B
64. Pharmaceutical Marketing	0/0/0 A	6/10/16 B	74. Instrumental Analysis	0/1/1 A	7/9/16 B
65. Health Care Systems	0/0/0 A	7/10/17 B	75. Selected Topics in Biochemistry	2/0/2 A	6/10/16 B
66. Manufacturing Pharmacy	0/2/2 A	7/9/16 B	76. Special Topics in Medicinal Chemistry	2/2/4 A	5/8/13 B
67. Product Development I & II	3/0/3 A	5/10/15 B	77. Chemical Carcinogens	4/1/5 A	3/10/13 B
68. Chemical Kinetics/Product Stability	0/0/0 A	7/10/17 B	78. Pharmacy and Geriatric Health	1/1/2 A	6/9/15 B
69. Adv. Pharmacokinetics	1/3/4 A	6/8/14 B	79. Selected Topics in Pathophysiology	6/5/11 A	1/5/6 B
70. Computer Appl in Pharmacy	1/1/2 A	6/9/15 B	80. Toxicology	5/7/12 A	3/4/7 B
			81. Selected Topics in Pharmacology	2/3/5 A	5/8/13 B

82. The quantity of professional electives required in the track-through curriculum is:

- 6/1/7 (A) Insufficient
 3/8/11 (B) Adequate
 0/0/0 (C) Excessive
 0/5/5 (D) Does not apply

83. How would you assess the availability of professional electives?

- 0/2/2 (A) Readily available
 2/5/7 (B) Available
 7/5/12 (C) Limited availability
 0/0/0 (D) Have not taken any
 0/2/2 (E) Does not apply

84. Where did you obtain advice regarding the selection of electives?

- 2/2/4 (A) Other students
 1/3/4 (B) Faculty/Dean's Office
 3/3/6 (C) Course Descriptions
 2/2/4 (D) No advise, took what courses were available
 0/2/2 (E) Does not apply

85. How satisfied were you with the advice you obtained?
- 1/3/4 (A) Very satisfied
4/6/10 (B) Satisfied
1/1/2 (C) Not satisfied
2/4/6 (D) Not applicable
86. Should the professional electives be packaged so as to focus on practice specialties?
- 7/9/16 (A) Yes
1/4/5 (B) No
0/1/1 (C) Does not apply

Are there Other Content Areas that You Feel Should be Added to the Required Courses?

(Please List Below)

Baccalaureate-Level Courses

- *Within the management courses, I feel there needs to be more emphasis on insurance, formularies, drug purchasing. The OTC section is very limited. I think it should be kept in therapeutics, but also put in back as an elective.*
- *More clinical courses should be available as electives, so students who are interested in the Pharm.D. program can be more prepared.*
- *It would be nice if some electives were added to the B.S. program that track-through Pharm.D. students could take to be applied as credit towards Pharm.D.*
- *More pathophysiology and therapeutics which apply to pharmacy practice more so than subjects i.e. med. chem. pharmaceuticals, and biochemistry. More patient communication application.*
- *Less pharmaceuticals; updated (current) microbiology; additional communication course.*
- *Problem-oriented/case study approach to pharmacotherapy (introduce this at 1st and 2nd year level)*
- *More therapeutics*
- *Implement more patient communications into the overall curriculum. Place students in the student health center throughout the baccalaureate program. Additionally, assign students clinical case studies immediately upon entry into the College of Pharmacy. This will expose them earlier to clinical problem solving and will provide a framework within which to study the other courses in the curriculum.*
- *Kinetics should include "real life" examples.*
- *Patient counseling.*
- *More physical assessment; computer skills/class (preparing slides/seminar)*

Doctor of Pharmacy Courses

- *Some type of homeopathic medicine course/alternative medicine.*
- *Advanced stats as elective. At least two quarters (?semesters) of pharmacokinetics should be taught. Advanced concepts/modeling/study design should be included or at least addressed.*
- *Expand the ambulatory experience to include different subspecialties i.e. asthma clinic, diabetes clinic, rheumatoid clinic, anticoagulation clinic. Expand the acute care rotation: Make at least one month mandatory (other colleges have an acute care core rotation = 4 months).*
- *Pharmacoeconomics*
- *Pharmacoeconomics, managed care*
- *Publishing research articles or review articles.*
- *Study design and administration. Course content needs to reflect more of current practice--possibly using instructory experience in specific areas.*
- *Clinical research--actually complete a study.*
- *It is imperative that doctoral level pharmacists be fully trained in physical assessment. Also, increase the level of application of biostatistics.*
- *Emphasis with each rotation during clinical should be "case-discussion" format. Eliminate the formal presentation and make each month a more "learning-friendly" format and not "trial by fire." For the research presentation--emphasis should be placed on working with one or more faculty for guidance and support to completion of a uniform presentation.*
- *More practical information on statistics.*
- *Pharmaceutical analysis (drug assays, metabolite assays and such issues)*
- *I think there should be more patient assessment--quantity and quality.*
- *Current/updated toxicology; 2nd semester pharmacokinetics*
- *Toxicology should be different than the B.S. toxicology elective and either drop it or make it different and more applicable and recent information. Add a class on ambulatory care and applications of it (maybe in place of toxicology!)*
- *The toxicology should be different than that in B.S. school. This is especially true because if you took Tox. in B.S. program, you already paid for it. Why pay for the same course at a higher \$/credit hour?*
- *I'm not sure yet.*

General Programmatic Perceptions

Please evaluate the following areas:

	Poor	Fair	Good	Excellent	Not Applicable
87. Fairness of grading in courses	2/0/2 A	3/4/7 B	6/12/18 C	0/2/2 D	0/0/0 E
88. Quality in instruction in coursework	0/0/0 A	4/2/6 B	6/11/17 C	1/4/5 D	0/0/0 E
89. Opportunities for interaction with faculty	1/0/1 A	3/0/3 B	3/7/10 C	4/11/15 D	0/0/0 E
90. Organization of the curriculum	1/0/1 A	4/2/6 B	6/14/20 C	0/1/1 D	0/0/0 E
91. Quality of students in the program	1/0/1 A	1/2/3 B	5/13/18 C	3/3/6 D	0/0/0 E
92. Classroom facilities	7/5/12 A	3/6/9 B	1/7/8 C	0/0/0 D	0/0/0 E
93. Opportunities for formal student evaluation of instruction	2/1/3 A	5/3/8 B	4/9/13 C	0/5/5 D	0/0/0 E
94. Professional competence of faculty	0/0/0 A	0/3/3 B	3/8/11 C	8/7/15 D	0/0/0 E
95. Attitude of Program Director toward students	0/0/0 A	0/4/4 B	3/6/9 C	7/8/15 D	0/0/0 E
96. Advising and career counseling	4/2/6 A	2/3/5 B	3/7/10 C	1/6/7 D	1/0/1 E
97. Quality of computer support	2/4/6 A	4/9/13 B	4/5/9 C	0/0/0 D	0/0/0 E
98. Overall quality of the College of Pharmacy	0/0/0 A	2/1/3 B	7/11/18 C	1/6/7 D	0/0/0 E

In which specialty area do you expect to practice? (Choose only one response from the following two groups and record your response in either question 99 or 100)

99.

- 0/2/2 (A) Community Practice
 8/10/18 (B) Institutional Practice
 0/1/1 (C) Managed Care
 0/0/0 (D) Marketing/Sales
 1/2/3 (E) Industry/Research

100.

- 0/0/0 (A) Administration
 2/4/6 (B) College Faculty
 0/0/0 (C) Undecided

Questions 101 thru 117 should be completed by graduates only. Please consider the following practice options and evaluate your preparation for practice in each area

	Poor	Fair	Good	Excellent	Not Applicable
101. Community Practice	1 A	4 B	7 C	4 D	2 E
102. Institutional Practice	0 A	1 B	8 C	9 D	0 E
103. Managed Care	5 A	9 B	2 C	0 D	2 E
104. Marketing/Sales	10 A	4 B	1 C	0 D	3 E
105. Industry/Research	6 A	6 B	5 C	1 D	0 E
106. Administration	4 A	8 B	6 C	0 D	0 E
107. College Faculty	1 A	1 B	8 C	8 D	0 E

Achievement of Curricular Goals

	Agree	Neutral	Disagree	Not Applicable
108. The Pharm.D. curriculum prepared me to serve as an authoritative information resource in pharmacotherapy	18 A	0 B	0 C	0 D
109. The Pharm.D. program prepared me to design a therapeutic regimen based on patient-specific information, including establishing a therapeutic endpoint, selecting appropriate drug therapy, and establishing an appropriate dosage regimen.	18 A	0 B	0 C	0 D
110. The Pharm.D. program enabled me to use pharmacokinetic principles and integrate them with other patient parameters to develop dosage regimens.	14 A	3 B	1 C	0 D
111. The Pharm.D. program prepared me to establish and expand a patient's database through interpretation of drug history, medical history, physical examination and progress notes.	16 A	2 B	0 C	0 D
112. The Pharm.D. program prepared me to obtain detailed drug histories and to use obtained information in therapeutic/diagnostic decision making.	17 A	1 B	0 C	0 D
113. The Pharm.D. program prepared me to independently monitor and assess therapeutic and adverse effects of drug therapy through selection and evaluation of physical and laboratory parameters.	15 A	2 B	0 C	0 D
114. The Pharm.D. program gave me the knowledge of experimental design and statistical methodology to enable me to critically evaluate drug literature.	7 A	4 B	7 C	0 D
115. The Pharm.D. program prepared me to integrate psychosocial and economic aspects of patient care and health care policy into professional practice.	9 A	7 B	2 C	0 D
116. The Pharm.D. program prepared me to assume limited prescribing and patient care management functions under appropriate supervision and carefully developed protocols.	11 A	4 B	2 C	1 D

117. Overall, I would grade the level of my professional preparation for advanced contemporary pharmacy practice as (circle one):

(8) A
(excellent)

(9) B

(1) C
(fair)

(0) D

(0) E
(unacceptable)

118. The Doctor of Pharmacy program's greatest strengths include:

- *A majority of the clinical staff are very knowledgeable and effective in their teachings. I think it is preparing us very well for the future (e.g. MUE project, Seminar I)*
- *Pharmacotherapeutic course helps to bring everything together. It gives us a great understanding of drug tx and disease states.*
- *Faculty is committed and has good expertise in skills and teaching methods in general with a few minor exceptions.*
- *Professors who are knowledgeable in their fields (at least some professors)*
- *Strong emphasis on therapeutics*
- *Therapeutics course (though pathophysiology part needs work!); clinical seminar*
- *The diverse group of professionals that educate us*
- *Instructors who incorporate case studies into the lecture. The therapeutics class is good-needs some improvement but, overall good. I like when speakers from the "real world" come and tell us about practice in a clinical situation.*
- *Clinical faculty & staff; earnest program director; part-time program developing*
- *Knowledgeable faculty; accessible faculty; courses are pertinent to my desired practice; program is flexible*
- *Low student to faculty ratio (lots of one-on-one); program director really cares about program, students, and success of a new program*
- *Contact time/discussions with clinical faculty on rotations; quality of clinical faculty (personal and professional); ability to produce excellent clinical practitioners*
- *Excellent patho/therapeutic lectures by clinical faculty; variety and selection of rotations*
- *Pathophysiology; relationship with The Upjohn Company*
- *Commitment to excellence; individual attention*
- *Great opportunities/choices—clerkships in different sites; organization of the clerkships and didactic courses; opportunities for interaction with faculty*
- *The diversity of clinical practice sites; the pathophysiology instructors; the individualized attention/small class size*
- *Excellent therapeutics program; small class size; one-to-one preceptors*
- *Class size; therapeutics course; clinical seminar course*
- *The wide variety of topics covered in therapeutics; Toastmasters seminar; knowledgeable faculty*
- *Dedication of the faculty to the students; wide variety of clerkship site (including out of state); greatest emphasis on therapeutics with M.D.'s teaching the pathophysiology; clinical faculty*
- *#109 above says it all, clinical faculty; the many possible clerkship rotation sites; focus on always trying to improve the program*

- **Clinical rotations (number of selections, content); pharmacotherapeutics (all). DON'T CHANGE THESE. THEY ARE GREAT THE WAY WE HAD THEM.**
- **Integration of pathophysiology with therapeutics; caliber of many of the instructors; wide variety of experiences in different practice settings and institutions.**
- **Teaching faculty!! Other staff (like Geri--very, very helpful)**
- **Individualized instruction; confidence regarding drug therapy; strong underlying knowledge base**
- **Small size; use of primary and secondary literature as teaching material**
- **Expected preparedness for therapeutics discussions and information given --excellent; personal interaction/case study with faculty--excellent; primary literature/therapeutics--excellent; housing with Bronson/nursing dorms made program affordable; variety of clinical sites/great exposure to systems and professionals; responsibility/individualization of program (clerkships); testing--essay (allows for applicability and promoted critical thinking)**

119. The Doctor of Pharmacy program's most significant weaknesses include:

- **Lack of practicing faculty at clerkship sites; geographic diversity--lack of central location; obvious lack of permanent leadership and faculty coordinator**
- **Poor understanding/applicability of biostats; housing (absence) with clinical sites/accommodations difficult to find/poor faculty support; poor support--seminar project**
- **Evaluation of drug/journal literature/practicing in acute care (inexperience in this area); clinical pharmacokinetic applications**
- **Program is very small so therefor opinions of one instructor about a student often become public knowledge**
- **Lack of research experience; emphasis on publication; pharmacokinetics; administration--include managed care and critical pathways; biostats--needed to be more practical**
- **Statistics, literature evaluation skills, management topics**
- **Some of the courses--kinetics, biostats; not research or study-design oriented**
- **Physical assessment; turn around time for exams**
- **Most preceptors did not round with student so there was not much role modeling; biostatistics/literature evaluation**
- **The biggest weakness is the lack of practical application of clinical information in the "real world." For example, as students we spend hours rounding with doctors when in reality, this is not the method of delivering drug information.**
- **Poor statistics class; bad classroom (ants)**
- **Physical assessment; the significant lack of promotions of the program outside the university and alumni list; the lack of professional exposure to clinical research**
- **Literature evaluation emphasis is too little; managed care/administration isn't strong enough**
- **Difficult parking at Bronson; no set housing at various sites**
- **Narrow-minded faculty who feel they have the market corned on knowledge; unbending schedule from faculty--obviously, they are unaware that not everyone lives within spitting distances of every site and classroom**

Doctor of Pharmacy Program

- *Too many basic scientists teaching PharmD. classes (i.e. pharmacokinetics, clin toxicology, biostats, study design); most of the professors were not familiar with “clinical” situations/cases*
 - *Computer availability for students; lack of research (clinical and basic) opportunities*
 - *Rotations all over the state; undergrad therapeutics course on campus should prepare the student more for the therapeutics course in the Pharm.D. program*
 - *Communication with students especially part-time; long turn around time to get exam results*
 - *Isn't affiliated with major hospital (location); clerkships not all local (?)*
 - *Lack of organization/communication; lack of resources (e.g. computers, library, etc.); time required to grade exams/duration of exams*
 - *Tests are not graded quickly. We do not really have a chance to go over the test with faculty. The schedule can change without checking with students first. The amount of reading material is outrageous. The length of exams are too long.*
 - *Lack of communication*
 - *Lack of effective communication; KCMS pathophysiology lectures and lack of testing to the material*
 - *Lack of effective communication between students and faculty*
 - *The time delay in grading exams; poor organization of some of the courses, excessive length of therapeutics exam; poor attitudes of certain professors; right now I would have to rate this Pharm.D. program as fair*
 - *Communicating with everyone is a challenge; distance and lack of central campus presents challenges with schedule; communication and interaction with instructors*
 - *Some of the courses should be combined into one course; 30-40% of some of the courses seems like filling the time with no useful information: example would be courses such as communication, administration, drug lit, and statistics*
 - *Lack of communication between faculty (including KCMS) and students; statistics, lit evaluation, toxicology, communications; specialists from KCMS—maybe this portion of exams should be pass/fail*
120. Suggestions for improvement in the delivery of education throughout the Doctor of Pharmacy program include:
- *Although impossible, it would be great if therapeutics tests could be taken on computer somehow. This would decrease “writing pains” and time. A person definitely should be hired to copy the readings for us. We all waste valuable time at the copy machine—**HOURS!***
 - *Continued work on the part of Dean Mathison and Dr. Durst to honestly try and solve problems stated at last meeting (1/31/96)*
 - *Weed out the bad KCMS instructors; better communicate the readings and objective to the students as far in advance as possible; this will allow for better preparation*
 - *Combine stats and drug lit evaluation and make course go over whole year; change teaching method in drug lit evaluation so there are more examples of lit; be more selective with KCMS lecturers and make tests of KCMS not worth so much when they don't test to the lecture and readings; better communication!*
 - *Lack of communication; biostatistics*
 - *Weekly or monthly updates to the students and faculty*

- *Time for instructors to go over exams; more classes with case presentations; do not have physicians who are not excited about teaching and are in a rush to get out of the classroom; a diagnostics class would be good in the Pharm.D. program*
- *Continued input and review of student's comments*
- *Update basic scientists; promote higher professionalism of students; more communication courses; better communication (Barb → students)*
- *Improve the rooms for lecture and exams*
- *Students need to understand what the doctor of pharmacy degree can do for their career earlier in the program; residencies aren't discussed nearly at all until the 4th year; suggest more "marketing" the lower level students (3rd year) and use job descriptions to illustrate what positions require advanced degrees*
- *User-friendly faculty--expand the clinical rotations, especially the psych and pharmacokinetics programs*
- *Improve the weakness previously stated*
- *Make it clear to all adjunct faculty (i.e. physicians, nurses) that doctor of pharmacy need expert skills in all areas to provide the high level of care they are capable of; maintain very high standards of candidates throughout the program*
- *Return exams sooner--have discussion sessions to go over answers; get someone from industry research to teach clinical research course*
- *Develop pharmacy rounds where students and preceptors round together; journal club*
- *Have a specialized professor for biostatistics and physical assessment; have tests returned within 1-2 weeks so we can learn from our mistakes and what we were thinking during the test*
- *Better teaching facilities including reliable computer equipment*
- *The delivery style in the Pharm.D. curriculum is unique and not offered to those with "washed down" Pharm.D. degrees. With few exceptions, I wouldn't change the delivery style or content--interactive is great*
- *More FSU lecturers, less physician lecturers*
- *Testing--consider essay--continue trying P.O. examinations; tailor physical assessment to "patient assessment" in relation/preparedness for primary care*
- *Expand (if possible) and improve efficiency of pathophys courses; design clear goals and objectives for each clinical clerkship; include peer evaluation of didactic and clerkship faculty; continue to use the literature as an important teaching tool; include problem-based learning method whenever possible*

121. Please use the space below for any additional comments. Identify the survey question your comment is related to.

- Although a distant (> 10 years) grad of the B.S. program, I did not comment on its curriculum. I think research and study methodology are important for providing well-rounded education to the post-graduate learner. A greater emphasis, if not additional time, should be spent in this area. The seminar series and Toastmasters program were excellent and have helped me immeasurably since graduation. They should be continued or even expanded. Extramural clerkship sites should be cultivated. This diversity nicely compliments the Ferris program.

Pharmacy

APRC 1995-1996

Section 2 of 4

- *Clinical clerkships: pharmacokinetics--problem resolved (new faculty) (applicability and structure--poor); drug information--need faculty specialty, trained in DI--problem resolved (new faculty)*
- *I feel prepared for my residency and am sure it will carry through for my job. I believe our Pharm.D. program was the reason for this.*
- *Appreciated opportunity to pursue clinical rotations in specialized areas in other states.*
- *General quality improvement: one of the best strengths of the program was the ability of clinical staff to listen to student issues. The largest weakness was the lack of response to these issues (examples: computers, ants, statistics, management). Focus on the student as both a product in the making and as a customer (we do, after all pay your salary) To some extent happier students make better products.*
- *It is very important that the administrators within the College of Pharmacy go out of their way to promote the programs at Ferris in an effort to attract the best candidates throughout the United States. They have produced an excellent portfolio of graduates but to maintain adequate enrollment, candidates cannot be expected to seek out Ferris. Conversely, Ferris must actively recruit candidates for their program.*
- *With the advent of increasing communication technology, it seems that telecommunications and satellite classrooms should be made available throughout western Michigan. Potentially minimal travel can be done by students except for actual clerkship and clinical hours.*
- *General comment: I would strongly encourage the clinical faculty to expose the students to areas of clinical research and possibly incorporate some basic research opportunities when the student has those interests.*
- *There have been occasions when announcements are made to the class on days when extended-track students are not there. Communication that needs to be made to the extended-track students is not always followed through. Faculty needs to be cognizant of their student's schedules.*
- *Being a part-time Pharm.D. student, I've been impressed with the excellent clinical staff (caring, professional, very accessible/knowledgeable), but very disappointed with the out-dated basic scientists. It would also be very desirable to have < required clerkships and more flexibility to choose to specific interests. Dr. Durst should be applauded for furthering Ferris.*
- *Course load is too excessive in certain areas and not proportionate to amount of time given to teach that area (e.g. study design and literature evaluation, therapeutics)*
- *More guidance would be appreciated with clerkship selection and career options. Maybe a class or seminar every month on current issues relating to pharmacy practice--kind of like an open forum session so the students know what's going on in the "real world" of pharmacy.*
- *The clinical toxicology is a duplicate of elective toxicology that is offered to the BS students. I feel I'm sitting through the same lectures except that I have paid twice the tuition this time. I don't think the school has the right to charge me \$1,200.00 to retake a course which I have already taken. I believe there are only three lectures that are different from the elective course and three lectures are not worth \$1,200.00 The course should either be different (totally) from the elective course or students who have already taken the elective toxicology should be given credit for it.*

- *I don't see how toxicology and patient communication class are going to benefit me in the future.*
- *Overall, this Pharm.D. program has provided me with the necessary skills for succeeding. However, one area that could have prepared me better is more practical experience with pharmacists in practice. Most of my experiences were with pharmacist that had limited practices secondary to busy schedules. What we need are pharmacists showing/teaching students how to communicate with other healthcare professionals and solve/identify potential problems. However, usually the case was doctors teaching pharmacy students!?*

Thank you for your assistance!

Section 3: Employer Survey

The survey was mailed to initial employers of 1994 and 1995 graduates. It was the opinion of the panel, that employers would find it difficult to evaluate an employee from earlier classes since the graduate may no longer be employed. This was highly likely due to the number of one-year residencies completed immediately upon graduation, with second positions following. Thus a total of 15 evaluations were mailed with nine returned for a response rate of 60%. It is obvious from the sample size that specific conclusions should be approached with caution. However, the following observations from the data are made. 1) Out of the total of 144 potential responses (i.e. 16 questions with 9 responses to each), 78 or 54.2% were “strongly agree” while another 45 or 31.3% were “agree”. Thus, 85.4% of the responses were positive reflections of the graduates of the program. 2) If the “unknown” responses are subtracted from the total responses, arguing that the employer could not answer the question because the particular skill was not evaluated in that position, the positive response percentage increases to 91.8% (123/134). 3) Only one response was marked “disagree” or “strongly disagree” reflecting (if the logic in item #2 is used) a 0.7% negative response. It is therefore reasonable to conclude that employers, based on the limited sample size, overwhelmingly view our graduates positively.

A complete compilation of survey results follows.

FERRIS STATE UNIVERSITY
Doctor of Pharmacy Program Employer Survey
(Survey results are indicated in parenthesis)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Unknown
1. Overall the graduate is well prepared for the position which he or she was recruited.	5 (6)	4 (2)	3	2	1	UK (1)
2. The graduate demonstrates leadership potential.	5 (6)	4 (2)	3 (1)	2	1	UK
3. The graduate demonstrates innovative and effective problem-solving in practice settings.	5 (3)	4 (5)	3 (1)	2	1	UK
4. The graduate demonstrates effective communication skills.	5 (5)	4 (2)	3 (2)	2	1	UK
5. Was the graduate well prepared to recognize and list important medical problems, disease states, symptoms or abnormal laboratory values requiring alteration or initiation of drug therapy?	5 (7)	4 (1)	3	2	1	UK (1)
6. Was the graduate well prepared to effectively educate patients and health care providers about the appropriate use of medications?	5 (5)	4 (3)	3 (1)	2	1	UK
7. Was the graduate well prepared to function as a member of the health care team?	5 (6)	4 (3)	3	2	1	UK
8. Was the graduate well prepared to serve as an authoritative information resource in pharmacotherapy?	5 (6)	4 (3)	3	2	1	UK
9. Was the graduate well prepared to design a therapeutic regimen based on patient-specific information, including establishing a therapeutic endpoint, selecting appropriate drug therapy, and establishing an appropriate dosage regimen?	5 (4)	4 (4)	3	2	1	UK (1)
10. Was the graduate well prepared to use pharmacokinetic principles and integrate them with other parameters to develop dosage regimens?	5 (6)	4 (2)	3	2	1	UK (1)
11. Was the graduate well prepared to establish and expand a patient's database through interpretation of drug history, medical history, physical examination and progress notes?	5 (6)	4 (1)	3	2	1	UK (2)
12. Was the graduate well prepared to obtain detailed drug histories and to use obtained information in therapeutic/diagnostic decision making?	5 (5)	4 (3)	3	2	1	UK (1)
13. Was the graduate well prepared to independently monitor and assess therapeutic and adverse effects of drug therapy through selection and evaluation of physical and laboratory parameters?	5 (5)	4 (2)	3 (1)	2	1	UK (1)

14. Was the graduate well prepared in the knowledge of experimental design and statistical methodology to enable them to critically evaluate the drug literature?	5 (1)	4 (4)	3 (1)	2 (1)	1	UK (2)
15. Was the graduate well prepared to integrate psycho social and economic aspects of patient care and health care policy into professional practice?	5 (2)	4 (5)	3 (2)	2	1	UK
16. Was the graduate well prepared to assume limited prescribing and patient care management functions under appropriate supervision and carefully developed protocols?	5 (5)	4 (3)	3 (1)	2	1	UK

Additional Comments:

- It is too early to appropriately access these skills. I'm satisfied that (Graduate) has all the potential and ability to assume leadership and competence in these areas--as expand and develop our practice.

- Our Ferris State Pharm.D. graduate is employed as a pharmacy practice resident. She is highly motivated, professional and well-prepared. Her skills have been substantially expanded through the independence and structure allowed in the residency. I and my fellow preceptors found her to be well above average in skill and preparation when compared to residents who were graduates of other programs.

- I have been very impressed with the caliber of the Ferris graduates.

- (Graduate) is an excellent product of your program. She is in the process of completing her drug information residency. She is very innovative and is very good on following through on projects. (Graduate) is also a great team player. I would recommend the continued enhancement of team-building skills within your program. (Graduate)'s knowledge of industry was lacking but with industry being her primary place of practice, she has adjusted and adapted quite well.

- (Referring specifically to question #14: This graduate, prior to enrollment in the Pharm.D. program, already had vast clinical skills. He was self-motivated and previously well-educated. Tragically, I can not say that the Pharm.D. program benefited this person much. He had excellent skills and knowledge before entering. (General comments): I will comment on the fact that pharmacy training, even at the Pharm.D. level, is woefully inadequate in statistics and experimental design. Since the interpretation of data and its transmission is an important role for pharmacists of the future, I believe that a deep, working knowledge of statistical methodology is long overdue. An entire year of linear regression, ANOVA, non-linear methods and non-parametrics would be a start. A general observation I have made is that many Pharm.D. level and almost all B. S. pharmacists have no practical and applied statistics skills. This lack of knowledge will keep us trapped in a world where we transmit other people's interpretations of data, rather than our own.

Section 4:
Student Evaluation of Program

Student evaluations of the Pharm.D. program are contained in Section 2: *Graduate and Student Survey*.

***Section 5:
Faculty Perceptions of
The Doctor of Pharmacy Program***

A 24 item instrument was developed to analyze College of Pharmacy Faculty perceptions surrounding the Pharm.D. program. Fifteen faculty members (a 56% response rate) returned responses, making it difficult to draw important conclusions from the data. The following five points, are discernible despite the paucity of responses. 1) Basic science and clinical faculty members see the Pharm.D. program as consistent with the mission of both the University and the College of Pharmacy. In addition, both groups recognize the quality of the program and feel it provides good preparation for entry into practice. 2) The faculty support the Pharm.D. program and feel that an expansion of enrollment is appropriate. Furthermore, the faculty believe that the College should move to an all Pharm.D. curriculum as will be required by the American Council on Pharmaceutical Education. 3) Members of the clinical faculty, more so than members of the basic science faculty, feel that there is a need to increase faculty resources to adequately support the current Pharm.D. program. The clinical faculty also see a greater level of support for the Pharm.D. program by the Dean of the College of Pharmacy and University Administration than do members of the basic science faculty. 4) The faculty felt the cost of the Pharm.D. program, as compared with other Pharm.D. programs, was not excessive. 5) The faculty feel that for the University to remain contemporary in pharmacy education and to retain its favorable reputation in the pharmacy profession, the College of Pharmacy must expand the doctor of pharmacy degree and maintain standards consistent with proposed accreditation standards.

A complete compilation of survey results follows.

The Pharm.D. Program Review Panel would appreciate your candid responses to the following questions.

Responses to this survey are indicated by a series of three numbers following each specific question. The first of the sequence indicates the response of the basic science pharmacy faculty, the second, the response of the clinical pharmacy faculty, the third reflects the total.

	Please specify your faculty status (<i>circle one</i>): Basic Science		Clinical			Strongly Disagree	Unknown
	Strongly Agree	Agree	Neutral	Disagree			
1. The FSU Pharm.D. program is consistent with the FSU mission statement.	5 (2/2/4)	4 (1/7/8)	3 (1/0/1)	2	1	UK(2/0/2)	
2. The FSU Pharm.D. program is consistent with the FSU College of Pharmacy mission statement.	5 (2/4/6)	4 (2/4/6)	3	2 (1/0/1)	1	UK(1/1/2)	
3. The Pharm.D. degree nationally will eventually replace the BS in pharmacy.	5 (3/5/8)	4 (3/2/5)	3 (0/1/1)	2	1	UK(0/1/1)	
4. The Pharm.D. degree from FSU is a quality degree comparable to the Pharm.D. offered by similar colleges of pharmacy.	5 (0/4/4)	4 (2/3/5)	3 (0/1/1)	2	1	UK(1/2/3)	
5. The FSU Pharm.D. program recruits and admits quality students.	5 (0/1/1)	4 (2/5/7)	3 (3/2/5)	2 (1/1/2)	1	UK	
6. To remain contemporary in pharmacy education FSU must offer the Pharm.D.	5 (4/9/13)	4 (2/0/2)	3	2	1	UK	
7. Without the Pharm.D. program, the reputation of FSU's College of Pharmacy will decline.	5 (4/7/11)	4 (2/1/3)	3	2	1	UK(0/1/1)	
8. There are presently enough FSU pharmacy faculty to adequately support the FSU Pharm.D. program.	5 (1/1/2)	4 (2/0/2)	3 (1/2/3)	2 (2/3/5)	1 (0/3/3)	UK	
9. The Ferris pharmacy faculty support the Pharm.D. program at Ferris.	5 (0/2/2)	4 (4/3/7)	3 (1/2/3)	2 (1/2/3)	1	UK	
10. The Ferris dean of pharmacy supports the Pharm.D. program at Ferris.	5 (0/2/2)	4 (1/3/4)	3 (0/2/2)	2 (2/2/4)	1 (3/0/3)	UK	
11. FSU upper administration supports the Ferris Pharm.D. program.	5 (0/0/0)	4 (1/2/3)	3 (0/1/1)	2 (3/2/5)	1	UK(2/4/6)	
12. The cost of the FSU Pharm.D. program is excessive when compared to the Pharm.D. program at similar colleges of pharmacy.	5 (1/1/2)	4	3 (0/1/1)	2 (2/5/7)	1 (1/0/1)	UK(2/2/4)	
13. The number of students in the FSU Pharm.D. program (<20/year) should be increased.	5 (1/3/4)	4 (3/3/6)	3 (2/0/2)	2 (0/2/2)	1	UK(0/1/1)	
14. FSU should convert to an all Pharm.D. program between now and the year 2000.	5 (1/2/3)	4 (3/4/7)	3 (2/1/3)	2 (0/1/1)	1	UK(0/1/1)	
15. FSU should continue to offer a post Baccalaureate Pharm.D.	5 (3/2/5)	4 (1/5/6)	3 (0/2/2)	2	1 (1/0/1)	UK(1/0/1)	
16. The Pharm.D. curriculum prepared our students to serve as an authoritative information resource in pharmacotherapy.	5 (1/2/3)	4 (0/7/7)	3 (1/0/1)	2	1	UK(4/0/4)	

17. The Pharm.D. program prepared out students to design a therapeutic regimen based on patient-specific information, including establishing a therapeutic endpoint, selecting appropriate drug therapy, and establishing an appropriate dosage regimen.	5 (0/3/3)	4 (1/6/7)	3 (1/0/1)	2	1	UK(4/0/4)
18. The Pharm.D. program enabled our students to use pharmacokinetic principles and integrate them with other patient parameters to develop dosage regimens.	5 (0/1/1)	4 (1/7/8)	3 (1/1/2)	2	1	UK(4/0/4)
19. The Pharm.D. program prepared our students to establish and expand a patient's database through interpretation of drug history, medical history, physical examination and progress notes.	5 (0/2/2)	4 (1/7/8)	3	2	1	UK(5/0/5)
20. The Pharm.D. program prepared our students to obtain detailed drug histories and to use obtained information in therapeutic/diagnostic decision making.	5 (0/1/1)	4 (1/8/9)	3 (1/0/1)	2	1	UK(4/0/4)
21. The Pharm.D. program prepared our students to independently monitor and assess therapeutic and adverse effects of drug therapy through selection and evaluation of physical and laboratory parameters.	5 (0/1/1)	4 (1/7/8)	3 (1/1/2)	2	1	UK(4/0/4)
22. The Pharm.D. program gave our students the knowledge of experimental design and statistical methodology to enable me to critically evaluate the drug literature.	5	4 (0/4/4)	3 (0/4/4)	2 (2/0/2)	1	UK(4/1/5)
23. The Pharm.D. program prepared our students to integrate psycho social and economic aspects of patient care and health care policy into professional practice.	5	4 (0/4/4)	3 (1/3/4)	2 (1/0/1)	1	UK(4/2/6)
24. The Pharm.D. program prepared our students to assume limited prescribing and patient care management functions under appropriate supervision and carefully developed protocols.	5	4 (1/7/8)	3 (1/2/3)	2	1	UK(4/0/4)

As succinctly as possible identify any weaknesses and strengths that you perceive in the Ferris Pharm.D. program.

- Strengths: intense work on communication skills; one-on-one faculty:student involvement in teaching, advising, precepting; variety of sites/experiences available.

Weaknesses: distance between sites; overwork of all faculty involved; no permanent administrative structure, therefor many things slip through the cracks; faculty never at full strength; we always interview late, therefor students have made decisions; poor recruiting nationally and locally (within FSU and state)

- The lack in numbers of qualified clinical faculty and, possibly, clinical sites precludes the program's ability to include a larger number of students.

- Strengths: therapeutics; pharmacokinetics; faculty

Weaknesses: decentralized program (mostly a problem for students in clerkships); maturity level of many students

- Major problems: cost of Pharm.D. program; difficulty for track-ins (i.e. early decision, summer school, etc).

Strengths: one-on-one faculty/student teaching experience (i.e. faculty spend alot of time with each student)

- Strengths: Pharmacotherapy/physio. course; kinetics course; clerkship experiences.

Weaknesses: geographical dispersion; communication problems; lack of physical assessment

- Solid pathophysiology and therapeutics; weakness: limited research exposure

Weaknesses: financial resources; B.S. faculty support; physical environment

Strengths: pathophysiology; variety in clerkship selection

- Track-in students are more like six year single degree Pharm.D. than post-BS Pharm.D. programs—I believe further training (residency/fellowship) is needed to enable them to succeed in high level clinical positions or to assume limited prescribing.

- Lack of an independent project. Not tied close enough to Big Rapids and basic scientists. Underfunded. Too disperse—should be Grand Rapids-based at the Applied Technology Center.

- No real track-in program that presents a real advantage for our BS students; so we give them no good reason to enter our program. We used to have a track-in but someone in their lack of wisdom killed it.

- Weakness: distance—basic science people need to travel to participate in program which also limits their availability to students. Lack of appropriately trained faculty for some course offerings.

Strengths: class size limit of 12 yields low student/faculty ratio. Curriculum should be re-evaluated.

Section 6:
Advisory Committee Perceptions of
The Doctor of Pharmacy Program

Protracted discussions have occurred regarding formation of an Advisory Committee to the College of Pharmacy which would provide guidance for both the baccalaureate and Pharm.D. programs. At this point in time, a list has been developed of potential members of the advisory board. Existing candidates do not represent all areas of practice and additional nominees are being considered. The specific responsibilities of the Advisory Committee have not been identified nor has a clear understanding of how the committee will interact with the existing committee structure of the College been developed. It is recognized by faculty and administration that the input of such an Advisory Committee may be very helpful in guiding the College through the next several years.

Section 7: Labor Market Analysis

The profession of pharmacy has traditionally been one in which the demand for pharmacists exceeds the supply. The U.S. Department of Health and Human Services Eighth Report to Congress in 1991 regarding Health Personnel in the U.S. indicated that there would be a demand for 17-42% more pharmacists in the year 2020 over the year 1990. NACDS (National Association of Chain Drugstores) has projected a 30% increase in the demand for pharmacists in the year 2010 vs. 1990.

However, more recent data reflecting the arrival of managed care presents a much different scenario. The U.S. Department of Labor reported that in 1994, 10% of all new jobs were in the health care sector, down from 25% in 1990.

As mentioned earlier, dramatic and sobering projections were recently issued by the Pew Health Professions Commission, in November, 1995. The Commission projects a surplus of 40,000 pharmacists secondary to the automation and centralization of drug dispensing. They recommend reducing the number of pharmacy schools by 20-25% by the year 2005. They also recommend that colleges of pharmacy focus their education toward clinical pharmacy, system management, and working with other health care providers. This report suggests that there will be a demand for more highly trained pharmacists, albeit fewer in number. According to Jann Hinkle, Director of Student Affairs for the APhA (American Pharmaceutical Association), "the lesson in the Pew Report is that there is an important role for pharmacists who are trained to provide pharmaceutical care, that the need for pharmacists' traditional dispensing services will shrink and that the profession and schools and colleges of pharmacy have taken steps to implement the necessary changes."

In anticipation of the increased demand for more clinically educated pharmacists, ACPE issued a Declaration of Intent to develop accreditation standards for a single professional curriculum in pharmacy which leads to the Pharm.D. degree. As discussed earlier, the second revision of this declaration was recently released which clearly reiterates ACPE's intent to accredit only Pharm.D. programs with the adoption of the new standards. The implementation date is not specified, however public discussion will end this year with final standards expected to be released shortly thereafter.

A number of schools and colleges of pharmacy have responded to the initial Declaration by implementing, or developing plans to implement, the Pharm.D. as their only professional degree.

Recent data reported by AACCP demonstrate a notable increase in the number of colleges offering the Pharm.D. degree as the only entry-level degree (see table 11). As discussed earlier, striking increases in the number of students enrolled in Pharm.D. programs, particularly post-B.S. Pharm.D. programs, were also identified in the report. This trend is expected to continue particularly as more colleges of pharmacy implement entry-level Pharm.D. programs in response to the forthcoming accreditation ACPE standards. A survey conducted in May, 1995, by AACCP indicates that 75% of 48 schools and colleges of pharmacy currently offering the B.S. degree are committed to adopting the Pharm.D. degree as their entry level degree prior to the year 2000. The increased enrollment in post-B.S. Pharm.D. programs by practicing pharmacists who recognize the necessity of practicing at a more sophisticated level in a more demanding health care environment will also continue.

**Table 9. Professional Degrees at US Colleges of Pharmacy:
Enrollment, Degrees Offered, Degrees Awarded**

Degree	1992 (Number of Colleges)	1994 (Number of Colleges)	% Change
Pharm.D. Degree			
offered as first degree	47	52	+11%
only degree	15	27	+80%
offered as a post-B.S. degree	52	59	+13%
B.S. degree only			
	28	24	-14%
Enrollment			
B.S. programs	25,284	25,653	+1.5%
Pharm.D. programs	6,235	7,700	+23%
post-B.S. Pharm.D. programs	602	2,450	+307%
Degrees Awarded			
B.S.	5,897	6,145	+4%
Pharm.D.	1,216	1,359	+12%
post-B.S. Pharm.D.	286	575	+101%

Section 8:
Evaluation of Facilities and Equipment

Facilities and equipment resources of the program are completely reviewed in Section 1 - *Instructional Resources*. Section 2 of this report also discusses facility resources of the program.

Section 9: Curriculum Evaluation

The Pharm.D. curriculum is outlined in detail in Section 1 - *Effectiveness of the Program*. In addition, Appendix I contains the curricular outlines for the track-in curriculum as well as the post-B.S. curriculum. Furthermore, evaluation of the curriculum by students, graduates, employers and faculty is contained in Sections 2, 3 and 5 respectively.

Section 10:
Enrollment Trends over the Past Five Years

Enrollment trends are discussed in Section 1, *Enrollment, Recruitment and Retention* and summarized in Table 7 “Summary of Application, Admission and Enrollment Data”.

Section 11:
Program Productivity/Cost

Program Costs

Productivity data collected from academic years 1993-94 and 1994-95 are presented for the University and the College of Pharmacy in Tables 10 and 11. All course prefixes for the College of Pharmacy are included and for comparison, the ten highest and ten lowest ranking course prefixes for the University are also included. The course prefixes are further subdivided into course levels. The increased cost for upper level courses which comprise the Pharm.D. program undoubtedly result from the enrollment limit placed upon the program. It is also important to recognize that the apparent inefficiency in those courses identified by the PHPR prefix is an accounting aberration; the majority of courses identified by the PHPR prefix are clinical clerkships in the baccalaureate and Pharm.D. program and designated as "practicum" for accounting purposes. This designation fails to account for the extensive contact hours involved in clerkship instruction.

**Table 10. Student Credit Hours(SCH), Full Time Equated Faculty (FTEF) and SCH/FTEF
Aggregated by Course Prefix within College and Department
(Office of Institutional Studies)**

Course Description	Course Prefix	Course Level¹	Teaching Cost Per Credit Hour
1. Social Sciences	SSCI	U	\$827.39
2. Manufacturing Engineering Technology	MFGE	L	\$492.65
3. Allied Health Science	CAHS	L	\$462.10
4. Education	EDUC	G	\$425.46
5. Insurance	INSR	U	\$420.33
6. Dental Technology	DTEC	L	\$387.49
7. Photography	PHOT	L	\$361.51
8. <i>Pharmacy Administration</i>	<i>PHAD</i>	<i>G</i>	<i>\$359.61</i>
9. Technical & Professional Communication	TCOM	U	\$318.95
10. Civil Engineering Technology	CETM	L	\$308.98
31. <i>Pharmacy Practice</i>	<i>PHPR</i>	<i>G</i>	<i>\$212.12</i>
66. <i>Pharmaceutics</i>	<i>PHAR</i>	<i>U</i>	<i>\$152.93</i>
100. <i>Pharmacology</i>	<i>PHCL</i>	<i>U</i>	<i>\$111.21</i>
106. <i>Pharmaceutical Chemistry</i>	<i>PHCH</i>	<i>U</i>	<i>\$106.88</i>
126. <i>Pharmacology</i>	<i>PHCL</i>	<i>G</i>	<i>\$ 82.19</i>
134. <i>Pharmacy Practice</i>	<i>PHPR</i>	<i>U</i>	<i>\$ 73.88</i>
157. Advertising	ADVG	L	\$ 46.42
158. History	HIST	L	\$ 45.78
159. Business	BUSN	L	\$ 45.46
160. Physical Education	PHED	U	\$ 42.07
161. Recreation Management & Leisure Studies	RMLS	L	\$ 42.06
162. <i>Pharmacy Administration</i>	<i>PHAD</i>	<i>U</i>	<i>\$ 41.91</i>
163. Professional Tennis Management	PTMG	L	\$ 41.76
164. Sociology	SOCY	L	\$ 41.19
165. Health Care Systems Administration	HCSA	L	\$ 39.01
166. Hospitality Management	HSMT	U	\$ 35.67

¹ - L - 100 and 200 level courses
 U - 300 and 400 level courses
 G - 500 and above level courses

**Table 11. Ranked Listing of Program Teaching Costs per Student Credit Hours
1993-94 Data
(Teaching Costs Include Fringe Benefits)**

Program Name and Degree	Credit Hours	Total Teaching Cost	Total Teaching Cost/Cr Hrs
1. Career & Tech Educ/Career & Tech Instr MS	32	\$12,418.93	\$388.09
2. Career & Tech Educ/Postsec Admin MS	32	\$11,821.00	\$369.41
3. <i>Pharmacy/Add-on Pharm.D. (Yrs 6 & 7)</i>	71	\$25,878.06	\$364.48
4. Career & Tech Educ/Human Res Dev MS	31	\$11,081.63	\$357.47
5. Career & Tech Educ/Admin Cert MS	32	\$10,625.14	\$332.04
6. Dental Technology AAS	63	\$18,706.58	\$296.93
7. Printing Technology AAS	76	\$19,537.38	\$257.07
8. <i>Pharmacy/Track-in Pharm.D. (Yrs 3 4 5 & 6)</i>	149	\$35,754.15	\$240.77
9. Automotive Machine Technology AAS	72	\$15,504.51	\$215.34
10. Optometric Technician AAS	63	\$12,345.77	\$195.96
41. <i>Pharmacy BS</i>	94	\$13,270.05	\$141.93
112. Pre-Criminal Justice AA	63	\$ 5,751.40	\$ 91.29
113. Applied Biology BS	123	\$11,079.62	\$ 90.08
114. Pre-Optometry AS	101	\$ 8,971.17	\$ 88.82
115. Liberal Arts	60	\$ 5,309.81	\$ 88.50
116. Pre-Mortuary Science AS	66	\$ 5,826.65	\$ 88.28
117. Pre-Dentistry AS	62	\$ 5,460.48	\$ 88.07
118. Radiography AAS	82	\$ 6,808.78	\$ 83.03
119. Pre-Pharmacy AS	64	\$ 5,312.54	\$ 83.01
120. CJ/Law Enforcement Specialist BS (Yrs3&4)	64	\$ 5,309.54	\$ 82.96
121. Hospitality Management BS (Yrs 3&4)	69	\$ 5,588.06	\$ 80.99

Complete productivity and cost data may be found in Appendices E, F, G, and H.

Section 12: Conclusions

Ferris State University has been long recognized as a provider of highly competent and professional pharmacy practitioners. Whether in community practice, hospital practice or a myriad of other practice settings, Ferris Pharmacy graduates have always distinguished themselves, and the small cadre of graduates of the Pharm.D. program have continued that tradition. The University's Mission Statement states "Ferris educates its students to be employable and capable of professional growth and further, to contribute to their profession and to a constantly changing global society." It is specifically change, in both professional responsibilities and in accreditation standards, which validates the current Pharm.D. program and mandates its future growth. In order for the College of Pharmacy to prepare qualified practitioners, it must provide contemporary curricula which ensure that graduates possess the required knowledge and competencies to meet current professional expectations with the ability to adapt to future expectations.

It is obvious that the University and College, through growth of the existing Pharm.D. program, can provide a unique program which utilizes the College's well developed network of clinical sites throughout the state. Through such a network, the state's medically underserved areas will be better served. Students will be provided advanced instruction yet, at the same time, be able to appreciate the challenges which remain in providing health care in a state as diverse as Michigan. The College has the opportunity to develop a program which will be recognized for its ability to prepare students for practice in a variety of typical practice environments, rather than the atypical environment so often found in a large University-based Medical Center.

The program has generated moderate interest among practitioners considering completion of a post-B.S. Pharm.D. and among baccalaureate students, considering the track-in curriculum option. However, the level of interest has, to this point, not exceeded the capacity of the program. It is reasonable to expect that demand by practitioners and students will increase as expectations upon the profession of pharmacy are increased and accreditation standards evolve. Enrollment in Pharm.D. programs is increasing on a national level and it is reasonable to expect a similar trend in this state. Demand for graduates plays a significant role in student interest. As has been discussed in this report, it is expected that demand will increase for pharmacists capable of providing pharmaceutical care. Current demand for graduates of the Pharm.D. program is strong. They have been able to secure positions of national stature in both residencies and fellowships as well as in clinical practice. The projections of the Pew Health Professions Commission does not identify whether the oversupply of pharmacists will occur among highly trained clinicians or among more distributive oriented practitioners; however, it could be logically assumed that those with advanced clinical skills may be less affected by the projections.

Instruction in the Pharm.D. program is of high quality as evidenced by both the student/graduate survey and the employer survey. The faculty were identified most positively of all the program's components by both students and graduates and the quality of instruction was ranked on average as "good" by respondents. Overall, graduates ranked the program between "excellent" and "good". It was clear from the survey that several areas must be modified in the existing curriculum. Emphasis in Physical Assessment, Study Design and Literature Evaluation, and Clinical Biostatistics must be increased in the Pharm.D. curriculum. Further development of the curriculum is limited by existing levels of overload for members of the Clinical Faculty and some Basic Science Faculty. Currently, most clinical faculty members provide instruction well beyond the established didactic teaching load. These expanded responsibilities have severely compromised the clinical activities of the faculty and threaten the quality of clinical instruction provided to Pharm.D. and baccalaureate students. Expansion of the program will necessitate a careful study of resources needed, in particular, the need for additional faculty members.

The network of clinical sites throughout the state is a significant strength of the program. Each site is developed to ensure that clinical instruction is facilitated for Pharm.D. and baccalaureate students. To maximize the potential this "multi-center" arrangement may bring to the Pharm.D. program, distributive learning technologies must be put in place to facilitate communication between the sites. Innovative curricular development could be entertained when clinical sites are linked through telecommunication technology.

Each site provides adequate medical and drug information support to the Pharm.D. students and the Drug Information Center in Kalamazoo complements the services offered on-site. Senescence of the existing resources in the Drug Information Center mandates development of an annual operating budget for the Center to allow for updating of resources. Students and graduates rated the classroom facilities "fair" in the survey. As discussed, alternatives to the existing facilities are being pursued and it is anticipated that a significant improvement in facilities can be effected by the next academic year.

It is clear that the current doctor of pharmacy program is costly based on program teaching costs or student credit hour costs. The post-B.S. curriculum was the third most expensive program based on 1993-94 data and the graduate level courses contained in the program were significantly more costly than those of the baccalaureate curriculum. Although to some extent reflective of the individualized instruction received by students in the program, these figures are also reflective of the program's enrollment cap of approximately twelve students. There is every reason to believe that increasing enrollment will increase efficiency of the program. The initial program may be thought of as a prototype; implemented with the intention of both further curricular development and increases in enrollment. It is also recognized that the

track-in Pharm.D. curriculum is about one-third less costly than the post-B.S. curriculum. As discussed in Section 1, enhancement of the articulation between the baccalaureate and Pharm.D. program is critical to increase track-in candidates and efficiency of the program. It must be recognized also that although significantly more costly than many of the programs listed, a graduate level tuition schedule approximately double the tuition of undergraduate programs, thus offsetting many of the additional programmatic costs.

The Pharm.D. program has been supported effectively by the College's administration. Expansion of the program will require significantly more administrative activity. University resources must be secured for growth of the program. In addition, adjunct resources must also be developed and aligned to support the program. This is especially challenging. As the profession develops clinically there is, initially, a paucity of experienced practitioners who can provide adjunct instruction to students. Furthermore, the changing health care environment creates uncertainty regarding available resources. It is then obvious that future growth of the Pharm.D. program as mandated in the most recent proposed revision of accreditation standards will require potentially enormous expenditures of administrative effort to secure resources from the University and the professional community.

Section 13: Recommendations

After thorough review of the information contained in this report, the Program Review Panel makes the following recommendations:

- 1) That the Pharm.D. program be enhanced to allow for the conversion to the entry level Pharm.D. curriculum as outlined in the most recent proposed revision of accreditation standards of ACPE. Immediately, resources should be provided to allow for increased enrollment to a level more consistent with national data.
- 2) That the College of Pharmacy develops a plan for transition to the entry level Pharm.D. program which outlines the curriculum, tuition costs, and resources required which will ensure that the existing level of instruction and overall quality of the program is not compromised. Additionally, the plan should specify a timeline for the transition. It is also felt that a post-B.S. curriculum be maintained to meet the educational needs of practicing pharmacists.
- 3) That the College of Pharmacy, working with other institutions, including the other colleges of pharmacy, and organizations in the state, evaluates the manpower demand for pharmacists and establishes appropriate program enrollment guidelines.
- 4) That the College of Pharmacy develops a system which links the existing clinical sites through distributive learning technology.
- 5) That the College of Pharmacy improves the articulation between the existing baccalaureate and Pharm.D. programs. During the transition to an entry-level Pharm.D. curriculum, it will be critical to enhance track-in enrollment in the Pharm.D. program.
- 6) That the College of Pharmacy takes immediate action to evaluate weaknesses in the curriculum perceived by students and graduates and that the Kalamazoo site be further developed to include adequate classroom resources through alternative affiliations.

Overall, the Program Review Panel is pleased with the level of success achieved by the Pharm.D. program in only five years. Evaluations by students, graduates and employers are very positive. The Panel feels that the program is consistent with both the University's and College's Mission Statement. It is felt that the existing program will provide an excellent framework from which to develop an entry level program and the Panel encourages the College, with the assistance of the University, to begin the transition process immediately.

Appendix

PROGRAM REVIEW PANEL EVALUATION FORM

Program Doctor of Pharmacy

Instructions: Circle the number which most closely describes the program you are evaluating.

1. Student Perception of Instruction

Average Score 4.0 n=6

5	4	3	2	1
---	---	---	---	---

Currently enrolled students rate instructional effectiveness as extremely high

Currently enrolled students rate the instructional effectiveness as below average

2. Student Satisfaction with Program

Average Score 3.7 n=6

5	4	3	2	1
---	---	---	---	---

Currently enrolled students are very satisfied with the program faculty, equipment, facilities, and curriculum

Currently enrolled students are not satisfied with program faculty, equipment, facilities, or curriculum

3. Advisory Committee Perceptions of Program

Average Score 3.0 n=2

5	4	3	2	1
---	---	---	---	---

Advisory committee members perceive the program curriculum, facilities, and equipment to be of the highest quality

Advisory committee members perceive the program curriculum, facilities, and equipment needs improvement

4. Demand for Graduates

Average Score 4.7 n=6

5	4	3	2	1
---	---	---	---	---

Graduates easily find employment in field

Graduates are sometimes forced to find positions of their field

5. Use of Information on Labor Market

Average Score 3.8 n=6

5	4	3	2	1
---	---	---	---	---

The faculty and administrators use current data on labor market needs and emerging trends in job openings to systematically develop and evaluate the program

The faculty and administrators do not use labor market data in planning or evaluating the program

6. Use of Profession/Industry Standards

Average Score 4.5 n=6

5	4	3	2	1
---	---	---	---	---

Profession/industry standards (such as licensing, certification, accreditation) are consistently used in planning and evaluating this program and content of its courses

Little or no recognition is given to specific profession/industry standards in planning and evaluating this program

7. Use of Student Follow-up Information

Average Score 4.2 n=6

5	4	3	2	1
---	---	---	---	---

Current follow-up data on completers and leavers are consistently and systematically used in evaluating this program

Student follow-up information has not been collected for use in evaluating this program

8. Relevance of Supportive Courses

Average Score 3.3 n=5

5	4	3	2	1
---	---	---	---	---

Applicable supportive courses are closely coordinated with this program and are kept relevant to program goals and current to the needs of students

Supportive course content reflects no planned approach to meeting needs of students in this program

9. **Qualifications of Administrators and Supervisors** Average Score 4.5 n=6

5	4	3	2	1
---	---	---	---	---

All persons responsible for directing and coordinating this program demonstrate a high level of administrative ability

Persons responsible for directing and coordinating this program have little administrative training and experience

10. **Instructional Staffing** Average Score 2.3 n=6

5	4	3	2	1
---	---	---	---	---

Instructional staffing for this program is sufficient to permit optimum program effectiveness

Staffing is inadequate to meet the needs of this program effectively

11. **Facilities** Average Score 2.5 n=6

5	4	3	2	1
---	---	---	---	---

Present facilities are sufficient to support a high quality program

Present facilities are a major problem for program quality

12. **Scheduling of Instructional Facilities** Average Score 2.5 n=5

5	4	3	2	1
---	---	---	---	---

Scheduling of facilities and equipment for this program is planned to maximize use and be consistent with quality instruction

Facilities and equipment for this program are significantly under-or-over-scheduled

13. **Equipment** Average Score 3.1 n=6

5	4	3	2	1
---	---	---	---	---

Present equipment is sufficient to support a high quality program

Present equipment is not adequate and represents a threat to program quality

14. Adaption of Instruction

Average Score 4.3 n=6

5	4	3	2	1
<p>Instruction in all courses required for this program recognizes and responds to individual student interests, learning styles, skills, and abilities through a variety of instructional methods (such as, small group or individualized instruction, laboratory or "hands on" experiences, credit by examination)</p>			<p>Instructional approaches in this program do not consider individual student differences</p>	

15. Adequate and Availability of Instructional Materials and Supplies

Average Score 3.0 n=6

5	4	3	2	1
<p>Faculty rate that the instructional materials and supplies as being readily available and in sufficient quantity to support quality instruction</p>			<p>Faculty rate that the instructional materials are limited in amount, generally outdated, and lack relevance to program and student needs</p>	

Appendix A. Unit Action Plan for the College of Pharmacy Fiscal Year 1996

GOAL 1: Develop and implement a strategic planning process which is compatible with that being developed by the University

MAJOR ACTIVITIES AND PROCESSES

- A complete restructuring of College of Pharmacy committee bylaws to include a permanent Strategic Planning Committee.

EXPECTED OUTCOMES

- College of Pharmacy approval of a revised committee bylaws document which:
 - a) defines committees
 - b) delineates committee charges and functions
 - c) ensures accountability

INDICATORS/SOURCES

- Annual committee reports

REPORTING PROCESS

- Reports submitted to College of Pharmacy faculty and administration, Office of Academic Affairs

RESOURCE REQUIREMENTS

- None

Appendix A. Unit Action Plan for the College of Pharmacy Fiscal Year 1996 (continued)

GOAL 2: Educate competent practitioners of pharmaceutical care. [BG 1 & 2]

MAJOR ACTIVITIES AND PROCESS

- Develop a recruitment/admission process which will select students possessing the skill and knowledge necessary to succeed.
- Refine College curricula based on a contemporary view of current practice needs with consideration of future practice needs.

EXPECTED OUTCOMES

- Achieve and maintain adequate pools of qualified applicants.
- Revised admissions criteria to prioritize and admit applicants.
- Demonstration of a high retention rate among academically acceptable students.
- Demonstration of successful completion of National Licensure Examination (NABPLEX).
- Formation of a College of Pharmacy Advisory Council.
- Develop curricular goals of proposed single-degree Pharm.D. program while enriching existing B.S. and Pharm.D. programs.
- Develop in each student a commitment to the profession.
- Develop recommendations regarding "non-traditional" programming for pharmacy degree.

INDICATORS/SOURCES

- Applicant numbers, GPAs, ACT scores; Dean's Office
- Admissions criteria including the PCAT utilized to admit this year's class. Consider direct admission into the Pharm.D. program; Admissions Committee.
- Retention rate data base of academically qualified students; Dean's Office
- NABPLEX pass/fail data (NABP), graduate employer survey (Curriculum Committee), graduate survey (Curriculum Committee).
- Advisory board input to Curriculum Committee.
- New goal statements of proposed single-degree Pharm.D. (Single-degree Steering Committee).
- Student professional organizational membership; College data.
- Report on "non-traditional" programming with recommendations; Department of Pharmacy Practice.

REPORTING PROCESS

- Reports submitted to College of Pharmacy faculty and administration.

RESOURCE REQUIREMENTS

- Additional faculty FTEs as required.
- Staff support

Appendix A. Unit Action Plan for the College of Pharmacy Fiscal Year 1996 (continued)

GOAL 3: Maintain American Council on Pharmaceutical Education's (ACPE) accreditation without provision [BG 2 & 3]

MAJOR ACTIVITIES AND PROCESSES

- Continue to address ACPE accreditation report and resultant programmatic/academic changes in preparation for 1997 self-study.
- Contribute to pharmaceutical medical and educational knowledge through faculty development.

EXPECTED OUTCOMES

- Ensure compliance with ACPE faculty-staffing mandates.
- Implement a permanent administrative structure in the College.
- Determination of feasibility of conversion to a single degree.
- In conjunction with University assessment guidelines, identification and utilization of outcomes assessment data for achievement of programmatic effectiveness and efficiency.
- Continue to develop experiential sites for both the B.S. and Pharm.D. programs.
- Increase in student/faculty collaborative research and scholarly activity.

INDICATORS/SOURCES

- Identify and fill faculty positions; ACPE documents; College data.
- Identify and fill administrative positions; ACPE documents; College data.
- Submitted feasibility report; Single-degree Steering Committee.
- Assessment instrument(s) administered; various College committees.
- Sites added: Externship Director
- Preparation and review of grant proposals; Scholarly Activity Coordinating Committee.

REPORTING PROCESS

- Reports to College faculty and administration, Office of Academic Affairs, ACPE.

RESOURCE REQUIREMENTS

- Additional FTEs as identified.
- Internal funding such as Beacon Endowment, Timme Faculty Development Grants, etc.; external funding.

Appendix B. Summary of the Faculty Scholarly Activity

1994-95

- Dr. Norwood Neumann co-authored an article entitled "Effects of Long-term Administration of Ivermectin and Milbemycin Oxime on Circulating Microfilariae and Parasited Antigenemia In Heartworm Prophylaxis in Dogs."
- Dr. Lucy Ngoh co-authored an article entitled "The Effect of Visual Aids and Advanced Organizers on Improving the Use of Antibiotic in Rural Cameroon" and was published in the 1994 issue of *Medicines: Meaning and Contexts*.
- Dr. Joan Rider co-authored an article entitled "*In vivo* Interaction of Ketoconazole and Sucralfate in Healthy Volunteers" which was published in the February, 1994 issue of *Antimicrobial Agents and Chemotherapy*.
- Dr. Joan Rider was elected president-elect of the Western Michigan Society of Hospital Pharmacists for 1994-95.
- Dr. Joan Rider authored an article entitled "Treatment of Seizure Disorders" published in the October, 1994, issue of *Drug Store News*.
- Dr. Adnan Dakkuri participated in the 1994 Pharmaceutical Research and Manufacturers of America Coordinated Industry Program for Pharmacy Faculty.
- Dr. Ronald Jacoby presented a talk entitled "Antioxidant Nutrients: Vitamins A, C, E, and Beta-Carotene & Selenium" at the Michigan Pharmacists Association Upper Peninsula Division Fall Seminar in September, 1994.
- Dr. Ronald Jacoby presented a talk entitled "Antioxidant Nutrients: Vitamins A, C, E, and Beta-Carotene and Selenium" at the Mid-America College Health Association 26th Annual Meeting in October, 1994.
- Dr. Robert Krueger was appointed Associate Editor of the *International Journal of Pharmacognosy*.
- Ms. Karen Moore was presented the annual Pharmacists Helping Pharmacists (PHP) Council's Award which recognizes outstanding assistance to the efforts of PHP.
- Dr. John Pearson presented a talk entitled "Modern Higher Education, More Than Teaching and Research - The Realities of Collegial Governance" at the Merrillville Graduate Symposium in October, 1994.
- Dr. John Grunden authored an article entitled "Augmented Digoxin Concentrations with Carvedilol Dosing in Mild-Moderate Heart Failure" which was published in the August, 1994, issue of the *American Journal of Therapeutics*.
- Dr. Robert Krueger presented a poster entitled "Characterization and Regulation of a Dihydrobenzophenathridine Oxidase from Elicited *Sanguinaria Canadensis* Cell Cultures" at the Keystone Conference in January, 1995
- Dr. Mary Richardson presented a poster entitled "Medications Use in a Community Based Octogenerian Population" at the Gerontological Society of America meeting in November, 1994.
- Dr. Mary Richardson participated as a panel member for discussion of MDPPS with other representatives from other colleges of pharmacy at the Michigan Nurses Association Meeting.
- Dr. Adnan Dakkuri was the recipient of the MAGB Distinguished Faculty Award.
- Drs. DeYoung and Dettloff were elected to full membership in the American College of Clinical Pharmacy.

Appendix B. Summary of the Faculty Scholarly Activity (continued)

- Dr. Charles Spaulding co-authored an article entitled “The 33rd Annual Economic Survey: Number of Years in Practice Does Not Necessarily Correspond to Increased Wages for All Practice Settings.” Which was published in the February, 1995, issue of Michigan Pharmacists Journal.
- Dr. Jaculin Harden passed the Specialty Certification Examination in Nutrition Support Pharmacy Practice and has been granted certification by the Board of Pharmaceutical Specialties.
- Dr. Jana Jirak presented a workshop entitled “Improving Pharmaceutical Care for the Low Literacy Patient” at the Michigan Pharmacists Association Interim Meeting held in Dearborn, Michigan in February, 1995.
- Dr. Robert Krueger was the featured author for the January Biotech Update continuing education feature in American Pharmacy. His article was entitled “Ribozymes: RAN as a Therapeutic Agent.”
- Dr. Robert Krueger gave a presentation at the Michigan Pharmacists Association Interim Meeting in Dearborn, Michigan, in February, 1995, entitled “You are What You Eat: Food Based Natural Products and Cancer Prevention.”
- Dr. Lucy Ngoh gave a presentation entitled “OBRA ‘90 Counseling Requirements: Bridging the Gap for Patients with Low Literacy Skills” at the Michigan Pharmacists Interim Meeting in Dearborn, Michigan, in February, 1995.
- Dr. Joan Rider published a continuing education lesson entitled “Diabetes Update” for Pharmat, Inc.
- Dr. Joan Rider gave a presentation at the Michigan Pharmacists Association Interim Meeting held in Dearborn, Michigan, in February, 1995, entitled “*Helicobacter Pylori*: Its Role in Peptic Ulcer Disease.”
- Dr. G. Robert DeYoung, together with colleagues at Saginaw Cooperative Hospitals, Inc. Had an abstract of their study entitled “Transnasal Butorphanol versus Oral Acetaminophen with Codeine for the Treatment of Acute Musculoskeletal Pain.” Accepted for presentation at the Society for Academic Emergency Medicine in Houston, Texas, in May, 1995.
- Dr. Robert Krueger had an article entitled “Ribozymes: RNA as a Therapeutic Agent” published in the January, 1995, Biotechnology Update Section of American Pharmacy.
- Dr. Richard Dettloff authored a chapter in the Critical Care Module of the Pharmacotherapy Self Assessment Program entitled “Multiple Organ Dysfunction Syndrome” in June 1995.
- Drs. Ed Hengesh, Ron Jacoby and Ian Mathison were invited chapter authors to the 4th edition of Foye’s Principles of Medicinal Chemistry. The chapters are entitled “Drugs Affecting Sugar Metabolism.” “Volatile Anesthetics” and “Structural Features and Pharmacologic Activity” respectively.

Appendix B. Summary of the Faculty Scholarly Activity (continued)

1993-94

- Dr. Richard Dettloff had an article entitled "Vasopressor-Resistant Hypotension Following a Massive Ingestion of Theophylline" published in the June, 1993, issue of *Annals of Pharmacotherapy*.
- Dr. Richard Dettloff gave a presentation entitled "New Developments in the Treatment of Cardiovascular Disease" to the KCMS medical students and residents in June, 1993, in Kalamazoo, Michigan.
- Dr. Richard Dettloff gave a presentation entitled "Contemporary Considerations in the Pharmacotherapy of Cardiovascular Disease" at the Zustiak Symposium in September, 1993, in Ann Arbor, Michigan.
- Dr. G. Robert DeYoung gave a presentation entitled "Neuropharmacology Update: Focus on Migraines" at the Zustiak Symposium in September, 1993, in Ann Arbor, Michigan
- Dr. Stephen Durst gave a presentation entitled "Recent Advances in Pharmacotherapy of Parkinson's Disease and Alzheimer's Disease at the Zustiak Symposium in Ann Arbor, Michigan, in September, 1993.
- Dr. Marc Neinhuis gave a presentation entitled "Oral Antibiotic Update" at the Zustiak Symposium in September, 1993, in Ann Arbor, Michigan.
- Dr. John Jameson and Dr. Joan Rider gave a poster presentation entitled "The Effect of Haldol Decanoate on Water Handling" at the American College of Clinical Pharmacy Annual Meeting in Reno, Nevada, in August, 1993.
- Dr. Robert Krueger will be developing a 2-hour continuing education program for the June, 1994, *Drug Store News for the Pharmacist*
- Dr. Charles Spaulding had an article entitled "Performance Appraisal" published in the Fall, 1993, edition of *Pharmacy News*.
- Dr. Jana Jirak co-authored an article entitled "Factors Contributing to Volunteer Practitioner-Faculty Vitality" which was published in the Winter, 1993, issue of *American Journal of Pharmaceutical Education*,
- Dr. Lucy Ngoh gave a podium presentation entitled "Design and Development of Visual Aids for Patients with Low Literacy Skills in Special Populations. A View from Rural Cameroon, Africa" at the American Pharmaceutical Association's 141st Annual Meeting and Exposition held March, 1994, in Seattle.
- Dr. Charles Spaulding had an article entitled "Study Finds that Female Pharm.D's Earn Less than Male Pharmacists with Bachelor's Degrees" published in the February, 1994, issue of the *Michigan Pharmacists Journal*.
- Drs. G. Robert DeYoung, Graham Glynn, Marc Nienhuis and Joan Rider made a presentation entitled "New Drug Update" at the 41st Annual Pharmacy Seminar, Big Rapids, in April, 1994.

Appendix C. University and College Committee Assignments 1995-96

College Committees

Pharmacy Council (Chosen by seniority group):

Pharmacy Practice	Richard Dettloff
Pharmaceutical Chemistry	Ronald Jacoby
Pharmacology	Graham Glynn
Pharmacy/Pharmacy Administration	Kim Hancock
Administration	Stephen Durst
	Ed Hengesh
	Jana Jirak
	Ian Mathison

Committees by Specialty Group:

Committee	Pharmacy	Pharmacy Administration	Pharmaceutical Chemistry	Pharmacology	Pharmacy Practice	Administration
Admissions	Dakkuri	Ngoh	Lovsted	Hult	Straley	Hengesh
Awards	Hancock	Ngoh	Krueger	Durian	Smith	Mathison
Continuing Education	McMullen	Ngoh	Krueger	Durian	Ross	Moore
Curriculum	Dakkuri	Spaulding	Lovsted	Durian	DeYoung	Hengesh
Faculty Evaluation	McMullen	Spaulding		Neumann	Rider	
Library	Moore	Spaulding	Jacoby	Glynn	Grunden	Mathison
Sabbatical	McMullen	Ngoh	Slywka	Neumann	Holt	

Committees at Large:

Computer Committee:

Graham Glynn, Ronald Jacoby, John Pearson, Charles Spaulding,
Craig Straley

Single Degree Study Committee:

Stephen Durst, Graham Glynn, Jaculin Harden, Diane Holt, Richard Hult,
Mary Richardson, Gerald Slywka

Good and Welfare

Geri Kienitz, Norwood Neumann

Appendix C. University and College Committee Assignments 1995-96 (continued)

Rank and Promotion/Merit (by specialty group):

Pharmacy Practice	Joan Rider (1995-97)
Pharmaceutical Chemistry	Gerald Slywka (1995-97)
Pharmacology	Richard Hult (1995-97)
Pharmacy	Karen Moore (1994-96)
Pharmacy Administration	Charles Spaulding (1995-97)
Administration	Stephen Durst, Jana Jirak

Tenure Committee (All tenured bargaining unit members):

A. Dakkuri, B. Durian, S. Durst, E. Hengesh, D. Holt, R. Hult, R. Jacoby,
J. Jameson, R. Krueger, E. Lovsted, K. Moore, N. Neumann, J. Pearson,
J. Rider, M. Ross, G. Slywka, C. Spaulding, C. Straley

University Committees

Committee	Representative
Academic Policy and Standards Committee	Ken McMullen
Academic Senate	Gerald Slywka/John Jameson
Academic Senate Appointment to the University-Wide Substance Abuse Task Force	G. Robert DeYoung
Arts and Lecture Committee	Robert Krueger
Athletic Advisory Committee	Gerald Slywka
Faculty Research Committee	Graham Glynn
Ferris Distinguished Teacher Award Committee	Graham Glynn
International Education Committee	Lucy Nghoh
Library/Historical/Archival Committee	Ben Durian
Professional Development Committee	John Jameson
Student Life Committee	Kim Hancock
Summer Semester Study Committee	Elise Lovsted

**Appendix D. *Curricula Vitae* of Faculty Directly
Involved with the Doctor of Pharmacy Program**

CURRICULUM VITAE
Richard W. Dettloff, B.S., Pharm.D., BCPS
March 1996

BUSINESS ADDRESS

Bronson Methodist Hospital
Department of Pharmacy
252 East Lovell
Kalamazoo, Michigan 49007
Office: (616) 341-7805
Digital Pager: (616) 630-5079
FAX: (616) 341-7861

HOME ADDRESS

3790 Pinto Drive
Kalamazoo, Michigan 49004
(616) 385-9968

Social Security Number

367-84-1359

EDUCATION and TRAINING

July 1991 to
June 1992

Henry Ford Hospital
Detroit, Michigan
Clinical Pharmacy Resident

September 1989
to June 1991

University of Cincinnati
Cincinnati, Ohio
Doctor of Pharmacy

September 1984
to June 1989

Ferris State University
Big Rapids, Michigan
Bachelor of Science in Pharmacy

PROFESSIONAL EXPERIENCE

July 1992 to
Present

Ferris State University
College of Pharmacy
Big Rapids, Michigan
Assistant Professor of Clinical Pharmacy
Clinical Site: Borgess Medical Center,
Kalamazoo, Michigan

Didactic Responsibilities:

Bachelor of Science Program

Course Coordinator: B.S. Pharmacotherapy

Subjects Taught: Drug-Induced Diseases

Aminoglycoside P'kinetics

Fluids/Electrolytes

Thromboembolic Diseases

Epilepsy

PROFESSIONAL EXPERIENCE (cont'd)

Doctor of Pharmacy Program

Doctor of Pharmacy Program Coordinator

Subjects Taught: Fluids/Electrolytes

Acid/Base Disturbances

Critical Care Therapy

Hyperlipidemia

Stress Ulcer Prophylaxis

Clinical Responsibilities:

Bachelor of Science Program

Internal Medicine Clerkship

Doctor of Pharmacy Program

Internal Medicine Clerkship

Critical Care Clerkship

Emergency Medicine Clerkship

College Committee Responsibilities:

Academic year 1995-1996:

Strategic Plan Implementation Committee

Pharmacy Council

Doctor of Pharmacy Program Review Committee

December 1994 to
Present

Ferris State University

College of Pharmacy

Big Rapids, Michigan

Consultant Pharmacist Certificate Program Faculty

Modules Taught: Hypertension/Angina;

Fluids/Electrolytes

January 1994 to
Present

Kalamazoo Psychiatric Hospital

Kalamazoo, Michigan

Drug Utilization Review Consultant

June 1993 to
Present

Western Michigan University

Kalamazoo, Michigan

Co-Course Coordinator

Physician Assistant Pharmacology

PROFESSIONAL EXPERIENCE (cont'd)

July 1995 to
Present

Michigan State University
College of Human Medicine
Dept. of Pharmacology and Toxicology
Lansing, Michigan
Adjunct Instructor

May 1988 to
September 1989

Saint Mary's Health Services
Grand Rapids, Michigan
Pharmacy Intern and Staff Pharmacist

CLINICAL RESEARCH

June 1995

"Weight-Based Heparin Dosing in the Obese Population." Borgess Medical Center/Bronson Methodist Hospital; Kalamazoo, Michigan.

March 1995

"Antihypertensive and Lipid-Lowering to Prevent Heart Attack Trial (ALLHAT)." National Heart, Lung, and Blood Institute; Kalamazoo, Michigan.

May 1994

"National Survey of Sedative and Paralytic Drug Usage Patterns in the Intensive Care Unit Setting." Borgess Medical Center; Kalamazoo, Michigan.

August 1991

"Using Decision Analysis to Assess the Cost-Effectiveness of HA-1A Monoclonal Antibody for Gram-negative Sepsis." Henry Ford Hospital; Detroit, Michigan. Great Lakes Residency Conference; Chicago, Illinois.

November 1990

"Quinidine and the Pharmacokinetics of Genetically Determined Hepatic Oxidative Drug Metabolism." (Co-Investigator) University of Cincinnati Medical Center; Cincinnati, Ohio.

RESEARCH GRANTS

January 1994

"Enhancement of Clerkship Educational Experiences Through Distance Learning Interventions." (\$40,000); Submitted to AACP for Grant Awards for Pharmacy Schools (GAPS).

November 1990

"Quinidine and the Pharmacokinetics of Genetically Determined Hepatic Oxidative Drug Metabolism" (\$500); Received from The Upjohn Company.

PUBLICATIONS

Dettloff RW and Durst SW. Contemporary Issues in the Management of Hyperlipidemia. Continuing Education Credit. American Council on Pharmaceutical Education (program #028-000-95-018-H01).

Sprague JE, Oberlander RA, Dettloff RW, et al. The Entry Level Pharm.D. Degree--Truly Doctoral? AACP Newsletter, June 1995.

Dettloff RW. Multiple Organ Dysfunction Syndrome. Critical Care Module; Pharmacotherapy Self-Assessment Program (PSAP) 2nd ed., 1995.

Dettloff RW, Touchette MA, Zarowitz BJ. Vasopressor-resistant hypotension following a massive ingestion of theophylline. *Ann Pharmacother* 1993;27:781-784.

PROFESSIONAL PRESENTATIONS

February 1996

"Contemporary Case Discussions in Cardiovascular Pharmacotherapy." Michigan Pharmacists Association Annual Convention and Exposition, Dearborn, Michigan.

September 1995

"Intravenous Fluid Therapy and Electrolyte Balance." Michigan Pharmacists Association, Upper Peninsula Fall Seminar, Escanaba, Michigan.

PROFESSIONAL PRESENTATIONS (cont'd)

- July 1995 "Sedation, Analgesia, and Neuromuscular Blockade in the ICU." Critical Care Grand Rounds, Battle Creek Health Systems; Battle Creek, Michigan.
- June 1995 "Beta-blockers, ACE Inhibitors, And Calcium Channel Antagonists." Cardiac Rehabilitation Support Group, Borgess Medical Center; Kalamazoo, Michigan.
- June 1995 "Interpreting and Dispensing Medication Orders." Michigan Pharmacists Association Licensure Review; Lansing, Michigan.
- March 1995 "Contemporary Management of Hyperlipidemia." Southwestern Michigan Pharmacists Association; Kalamazoo, Michigan.
- October 1994 "Current Therapy of Asthma." Bay County Pharmacists Association; Bay City, Michigan.
- August 1994 "Current Management of Hypertension." Michigan Pharmacists Association, Annual Convention; Boyne Highlands, Michigan.
- May 1994 "Hypertension Update." Continuing Education Seminar, Ferris State University; Grand Rapids, Michigan.
- December 1993 "Current Management of Hypertension." Southwestern Michigan Pharmacists Association; Kalamazoo, Michigan.
- November 1993 "Current Management of Hypertension." West Shore Pharmacist Association; Ludington, Michigan.

PROFESSIONAL PRESENTATIONS (cont'd)

- September 1993 "New Trends in the Pharmacotherapy of Hypertension and Congestive Heart Failure." The 1993 Zustiak Symposium; Ann Arbor, Michigan.
- April 1993 "New Trends in Asthma." Annual Pharmacy Seminar, Ferris State University, Big Rapids, Michigan.
- February 1993 "Meeting the Needs of the Asthma Patient-- A Pharmacologic Update." The Michigan Society for Respiratory Care, Winter Conference; Cedar, Michigan.
- December 1992 "Current Management of Hyperlipidemia." Wayne State University, Division of Continuing Medical Education, Coronary Artery Disease Symposium; Southfield, Michigan.
- November 1992 "Antihypertensive-Induced Morbidity." Michigan State Medical Society, Annual Meeting; Dearborn, Michigan.
- September 1992 "Recent Advances in the Therapy of Osteoarthritis." Kalamazoo Arthritis Foundation; Kalamazoo, Michigan.
- February 1992 "Cholesterol Education Program for Professionals." Michigan Pharmacist Association, Interim Meeting; Dearborn, Michigan.
- INVITED LECTURES**
- February 1996 "Pain Management in the Elderly." Kalamazoo Center for Medical Studies/Michigan State University, Orthopedics Residency Conference; Kalamazoo, Michigan.

INVITED LECTURES (cont'd)

- October 1995 "Hypertension Pharmacotherapy."
Kalamazoo Center for Medical
Studies/Michigan State University, Primary
Care Interdisciplinary Module; Kalamazoo,
Michigan.
- August 1995 "Cardiovascular Update." Kalamazoo Center
for Medical Studies/Michigan State
University, Primary Care Conference;
Kalamazoo, Michigan.
- May 1995 "Pharmacology Review." Advanced Cardiac
Life Support Certification; Hillsdale
Community Medical Center; Hillsdale,
Michigan.
- March 1995 "Pharmacology Review." Advanced Cardiac
Life Support Certification; Borgess Medical
Center, Kalamazoo, Michigan.
- December 1994 "Pitfalls of NSAID Use." Kalamazoo Center
for Medical Studies/Michigan State
University, Primary Care Conference;
Kalamazoo, Michigan.
- December 1994 "Pharmacology Review." Advanced Cardiac
Life Support Certification; Borgess Medical
Center, Kalamazoo, Michigan.
- November 1994 "Hypertension Pharmacotherapy."
Kalamazoo Center for Medical
Studies/Michigan State University, Primary
Care Interdisciplinary Module; Kalamazoo,
Michigan.
- September 1994 "Pharmacology Review." Advanced Cardiac
Life Support Certification, Borgess Medical
Center; Kalamazoo, Michigan.

INVITED LECTURES (cont'd)

- August 1994 "Single-Daily Aminoglycoside Dosing." Department of Pharmacy, Borgess Medical Center; Kalamazoo, Michigan.
- May 1994 "Pharmacologic Management of Hypertensive Crisis." Kalamazoo Center for Medical Studies/Michigan State University, Internal Medicine Conference; Kalamazoo, Michigan.
- May 1994 "Theophylline Overdose." Kalamazoo Center for Medical Studies/Michigan State University, Emergency Medicine Conference; Kalamazoo, Michigan.
- March 1994 "Pharmacology Review." Advanced Cardiac Life Support Certification, Borgess Medical Center; Kalamazoo, Michigan.
- February 1994 "Avoiding Drug-Drug Interactions." Medical Informatics Grand Rounds, Borgess Medical Center; Kalamazoo, Michigan.
- December 1993 "Sedation in the Critically Ill." Department of Pharmacy, Borgess Medical Center; Kalamazoo, Michigan.
- November 1993 "Cyclic Antidepressant Overdose." Kalamazoo Center for Medical Studies/Michigan State University, Emergency Medicine Conference; Kalamazoo, Michigan.
- November 1993 "Flumazenil: A Benzodiazepine Antagonist." Kalamazoo Center for Medical Studies/Michigan State University, Internal Medicine Conference; Kalamazoo, Michigan.

INVITED LECTURES (cont'd)

October 1993

"Hypertension Pharmacotherapy."
Kalamazoo Center for Medical
Studies/Michigan State University, Primary
Care Interdisciplinary Module; Kalamazoo,
Michigan.

October 1993

"Disorders of Fluid and Electrolyte
Balance." Kalamazoo Center for Medical
Studies/Michigan State University, Internal
Medicine Clerkship; Kalamazoo, Michigan.

June 1993

"Cardiovascular Pharmacotherapy Update."
Kalamazoo Center for Medical
Studies/Michigan State University, City Wide
Conference; Kalamazoo, Michigan.

April 1993

"Cyclic Antidepressant Overdose."
Kalamazoo Center for Medical
Studies/Michigan State University, Internal
Medicine Conference; Kalamazoo, Michigan.

March 1993

"Drug Therapy in the Elderly." Kalamazoo
Center For Medical Studies/Michigan State
University, Family Medicine Grand Rounds;
Kalamazoo, Michigan.

November 1992

"Pharmacologic Management of Hypertensive
Crisis." Kalamazoo Center for Medical
Studies/Michigan State University,
Cardiology Conference; Kalamazoo, Michigan.

JOURNAL REVIEWER/REFEREE

Harvey Whitney Books Company
The Annals of Pharmacotherapy

PROFESSIONAL AFFILIATIONS

American College of Clinical Pharmacy
American Society of Health Systems Pharmacists
Western Michigan Society of Hospital Pharmacists
Michigan Pharmacists Association
*Membership Committee
Society of Critical Care Medicine

HONORS AND AWARDS

June 1991 Sandoz Pharmaceuticals Corporation
Pharm.D. Award, University of Cincinnati.
September 1989 Graduate Studies Scholarship (2 years),
University of Cincinnati.
May 1989 Dr. Robert A. Zustiak Memorial Award,
Ferris State University.
May 1987 Rho Chi Academic Achievement Award, Ferris
State University.

CERTIFICATION

September 1992 Board Certified Pharmacotherapy
Specialist, Board of Pharmaceutical Specialties.
October 1991 Advanced Cardiac Life Support Provider,
American Heart Association.

STATE LICENSURE

Michigan

CURRICULUM VITAE

G. Robert DeYoung, Pharm.D.
Blodgett Memorial Medical Center
Department of Pharmacy
1840 Wealthy SE
Grand Rapids, MI 49506
Phone: (616) 774-5264

EDUCATION

University of Washington
Seattle, WA
Degree: Doctor of Pharmacy
1990-1992

Ferris State University
Big Rapids, MI
Degree: Bachelor of Science, Pharmacy
Degree conferred with Distinction
1987-1989

Michigan State University
East Lansing, MI
1984-1987

PROFESSIONAL TRAINING AND EXPERIENCE

Assistant Professor, Clinical Pharmacy and
Clerkship Coordinator Grand Rapids
Ferris State University
Big Rapids, MI
1995-present

Assistant Professor, Clinical Pharmacy and
Clerkship Coordinator Saginaw Site
Ferris State University
Big Rapids, MI
1992-1995

Clinical Instructor
Department of Family Practice
College of Human Medicine, Michigan State University
East Lansing, MI
1993-present

Adjunct Instructor
School of Nursing
University of Michigan/Hurley Medical Center
Flint, MI
1992-1994

Clinical Pharmacy Residency American Society of Hospital Pharmacists Accredited University of Washington and Harborview Medical Centers Seattle, WA	1990-1992
Lecturer, Pharmacotherapeutics University of Washington, School of Pharmacy Seattle, WA	1992
Lecturer, Pharmacology (Nurse Practitioner) University of Washington, School of Nursing Seattle, WA	1992
Staff Pharmacist Metropolitan Hospital Grand Rapids, MI	1990

LICENSURE AND CERTIFICATION

Licensed Pharmacist, State of Michigan (# 5302027249)	1990-present
Board Certified Pharmacotherapy Specialist Board of Pharmaceutical Specialties	1993-present

TEACHING

PHPR 531: Pathophysiology and Applied Therapeutics I

- Overview of Antineoplastics, 1992-present
- Principles of Chemotherapy, 1992-present
- Leukemia Pharmacotherapy, 1992 and 1994
- Pathophysiology and Pharmacotherapy of Hodgkin's and Non-Hodgkin's Lymphomas, 1992, 1994-present
- Pathophysiology and Pharmacotherapy of Breast Cancer, 1992-present
- Pathophysiology and Pharmacotherapy of Lung Cancer, 1992-present
- Pathophysiology and Pharmacotherapy of Colon Cancer, 1992-present
- Pathophysiology and Pharmacotherapy of Prostate Cancer, 1992-present
- Management of Cancer Pain, 1992-present
- Supportive Care of the Cancer Patient (Hypercalcemia, Nausea/Vomiting, SVC, etc.) 1992-present
- Pathophysiology and Pharmacotherapy of Ovarian Cancer, 1992
- Pathophysiology and Pharmacotherapy of Testicular Cancer, 1992

PHPR 532: Pathophysiology and Applied Therapeutics II

- Pharmacotherapy of Fungal Infections, 1992-1995
- Pharmacotherapy of Neutropenic Fever, 1992-1995
- Pathophysiology and Pharmacotherapy of Headache, 1994-present

PHCH 510: Chemotherapeutics

- Microbiology Review, 1994-present
- Pharmacotherapy of Fungal Infections, 1993-present
- Introduction to Antineoplastic Pharmacotherapy, 1993-present
- Breast Cancer, 1993-present

PHPR 520: Clinical Clerkship, 1992-present

PHPR 600/601: Internal Medicine Clerkship I/II, 1992-present

PHPR 652: Oncologic Disease Clerkship, 1992-1995

PHCL 520: Pharmacotherapeutics

- Nausea and Vomiting, 1992
- Pain Management, 1992

PHAR 460: Advanced Pharmacokinetics

- Clinical Pharmacokinetics of Antiepileptics, 1992

OTC Drugs

- Topical Anti-infectives, 1992

AWARDS, HONORS, AND APPOINTMENTS

Commissioner-

Michigan Occupational Health Standards Commission
Appointed by Governor John Engler, Term: 1993-1996

Sandoz Pharmaceuticals Doctor of Pharmacy Award
(academic achievement and contribution to health care)

Robert P. Zustiak Memorial Award
(excellence in clinical pharmacy)

Rho Chi Award for Academic Excellence

PUBLICATIONS AND PRESENTATIONS

PUBLICATIONS:

Wolford R, Kahler J, Mishra P, DeYoung R, Vasilenko P. A Prospective Comparison of Transnasal Butorphanol and Acetaminophen with Codeine for the Relief of Acute Musculoskeletal Pain. Acad Emer Med (in press).

DeYoung GR, Black DJ. Antibiotics in Neutropenia- A Basic Bibliography. Hospital Pharmacy. January 1993.

DeYoung GR, Vetter P, Kradjan WA. The Ambulatory Treatment of COPD. The Journal of Pharmacy Practice 5:204-216, 1992.

DeYoung GR. Macrolides, Motilin, and the Migrating Motor Complex: The New Pharmacology of Erythromycin. Drug Therapy Topics Newsletter, August 1992.

POSTER PRESENTATIONS:

Witt DM, DeYoung GR, Ensign R, et al. Computerized Randomization of Clinical Trials. 1992 ASHP Midyear Clinical Meeting, Orlando, FL.

DeYoung GR, Black D, McDonnell N, et al. Single versus Multiple Dose Ondansetron for the Prevention of Cisplatin-Induced Nausea and Vomiting. 1991 ASHP Midyear Clinical Meeting, New Orleans, LA.

SEMINARS AND INVITED LECTURES

1995 "A Practical Approach to the Management of Pain." Internal Medicine Noon Conference, Kalamazoo Center for Medical Studies. (11/95)

"Clinical Psychopharmacology." Department of Psychiatry (PSC 608), Michigan State University, College of Human Medicine, Saginaw Cooperative Hospitals, Inc. 5 hour series presented 5 times each year. (1992- 1995)

"Commonly Used Drugs in the ICU." Department of Medicine (MED 628), Michigan State University, College of Human Medicine, Saginaw Cooperative Hospitals, Inc. presented 5 times each year. (1994-1995)

"Antimicrobial Therapy". Michigan State University, College of Human Medicine, Core Competency Lectures. (1993-1995)

“Managing Drug Interactions: A Basic Principles Approach.” OB/GYN Grand Rounds (8/95), Internal Medicine Grand Rounds (9/95), Saginaw Cooperative Hospitals, Inc.

“New Agents in the Treatment of Depression.” Medicine Grand Rounds. Pontiac General Hospital. Pontiac, MI (2/95)

“The Pharmacotherapy of Depression.” Family Practice Noon Conference. Saginaw Cooperative Hospitals, Inc. Saginaw, MI (2/95)

“Oral Antibiotic Update.” Huron County Medical Association. Bad Axe, MI (1/95)

1994 “Considerations in the Pharmacotherapy of Hypertension.” Tri-Cities Pharmacy Association, Bay Valley Resort. Bay City, MI (12/94)

“Diuretic Resistance: Mechanisms and Management.” Internal Medicine Grand Rounds. Saginaw Cooperative Hospitals, Inc. Saginaw, MI (11/94)

“A Rational Approach to Antidepressant Pharmacotherapy.” Michigan Pharmacist Association, Annual Meeting, Boyne, MI. (8/94)

“The Pharmacotherapy of Pain.” VA Medical Center Medicine Grand Rounds. Saginaw, MI (7/94)

“New Approaches to the Management of Pain.” Surgery Grand Rounds. Saginaw Cooperative Hospitals, Inc. Saginaw, MI (7/94)

“Pharmacokinetic and Pharmacodynamic Considerations in Antibiotic Therapy.” St. Luke’s Hospital, Department of Pharmacy, Saginaw, MI. (6/94)

“Innovations in the Treatment of Fungal Infections.” VA Medical Center Medicine Grand Rounds. Saginaw, MI (6/94)

“User’s Guide to Oral and Parenteral Antibiotics.” Emergency Medicine Grand Rounds. Saginaw Cooperative Hospitals, Inc. Saginaw, MI. (5/94)

“Opioids, Adjuvants, and Co-Analgesics.” Bay County Pharmaceutical Association, Bay City, MI. (5/94)

“Antineoplastics Update.” Spring Seminar, Ferris State University College of Pharmacy. (4/94)

“Myths and Realities in Pain Management.” Internal Medicine Grand Rounds. Saginaw Cooperative Hospitals, Inc. Saginaw, MI. (2/94)

- 1993 "Fungal Infections in Primary Care." Medical Staff Grand Rounds, Bad Axe Hospital, Bad Axe, MI. (12/93)
- "Approach to Drug Overdose." Internal Medicine Noon Conference. Saginaw Cooperative Hospitals, Inc. (11/93)
- "Pharmacokinetic and Pharmacodynamic Considerations in Antibiotic Therapy." Internal Medicine Grand Rounds (6/93), Surgery Grand Rounds (7/93). Saginaw Cooperative Hospitals, Inc. Saginaw, MI.
- "Principles of Chemotherapy-Lecture Series." St. Luke's Hospital Oncology Nursing Staff. Saginaw, MI (5/93)
- Coordinator and Moderator, "Evolving Therapeutic Strategies in Acute Myocardial Infarction." Tri-City Pharmacists Continuing Education Program. (5/94)
- "Use and Abuse of Chemical Restraints in the Elderly." Alzheimer's Disease Conference. Cadillac, MI. (4/93)
- "Case Studies in Community Acquired Pneumonia." Michigan Society for Respiratory Care. Traverse City, MI. (2/93)
- "Advances in Anticoagulant Monitoring." Family Practice Grand Rounds, Saginaw Cooperative Hospitals, Inc. Saginaw, MI. (1/93)
- "Antifungal Agents: Expanding Therapeutic Options." Internal Medicine Grand Rounds/Family Practice Grand Rounds, Saginaw Cooperative Hospitals, Inc. Saginaw, MI. (1/93, 4/93)
- 1992 "The New Macrolide Antibiotics." Clinical Pharmacy Symposium, Seattle, WA. (6/92)
- "Ondansetron Clinical Trials." Chemotherapy Symposium, Kirkland, WA. (5/92)
- 1991 "The Effects of Protein Binding on Antibiotic Activity." Graduate Student Seminar, University of Washington. (10/91)
- "The Pharmacology and Therapeutic Use of Potassium-Channel Openers." Graduate Student Seminar, University of Washington. (2/91)

JOURNAL REVIEWER/REFEREE:

Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy
(1992-present)
The Annals of Pharmacotherapy (1992-present)
American Journal of Hospital Pharmacy (1992- present)
Hospital Pharmacy (1995-present)

PROFESSIONAL AFFILIATIONS

- American College of Clinical Pharmacology 1995-present
- American College of Clinical Pharmacy 1991-present
- American Association of Colleges of Pharmacy 1992-94,
1995-present
- American Society of Hospital Pharmacists 1991-1994
- Michigan Pharmacists Association 1992-1994
- American Society for Microbiology 1991-1994

COMMITTEE SERVICEFerris State University:

- College of Pharmacy Curriculum Committee 1995-present
- University Wide Substance Abuse Task Force 1995-present
- Ferris Faculty Association Executive Board 1995-present
- Faculty Search, Department of Clinical Pharmacy 1993-present
- College of Pharmacy Ad Hoc Committee on Committees 1995
- College of Pharmacy Curriculum Committee (Non-voting Member) 1994
- College of Pharmacy Admissions Committee 1993
Co-Coordinator, PharmD Admissions
- College of Pharmacy Continuing Education Committee (alternate) 1992

Saginaw Cooperative Hospitals, Inc.:

- Antimicrobial Sub-Committee 1993-1995
- Institutional Review Board 1994-1995

Curriculum Vitae

Stephen W. Durst, Pharm.D., BCPS

Pharmacy Department
Bronson Methodist Hospital
252 E. Lovell Street
Kalamazoo, MI 49007
(616) 341-8845

College of Pharmacy
Ferris State University
220 Ferris Drive
Big Rapids, MI 49307-2740
(616) 592-2337

(residence)
3190 St. Anthony Drive
Portage, MI 49002
(616) 329-2546

Birthdate: 12/25/56 Social Security Number: 374-66-0586

Current Position:	Interim Assistant Dean, Pharmacy Practice Associate Professor College of Pharmacy Ferris State University	1993-
Professional Experience:	Associate Professor, Pharmacy Practice College of Pharmacy Ferris State University	1990-
	Instructor/Course Co-coordinator Physician Assistant Program Western Michigan University Kalamazoo, Michigan	1990-
	Pharmacotherapy Consultant Kalamazoo Psychiatric Hospital Kalamazoo, Michigan	1992-
	Assistant Professor, Pharmacy Practice College of Pharmacy Ferris State University	1986-1990
	Staff Pharmacist The University of Michigan Medical Center Department of Pharmacy Practice Ann Arbor, Michigan	1984-1986
	Staff Pharmacist Martz and Shapley Pharmacy Big Rapids, Michigan	1981-1989

Education:	Doctor of Pharmacy The University of Michigan College of Pharmacy Ann Arbor, Michigan	1984-1986
	Baccalaureate-Pharmacy Ferris State University College of Pharmacy Big Rapids, Michigan	1975-1981
Honors/Awards	Rho Chi Honor Society - Alpha Chapter The University of Michigan College of Pharmacy	
	Rho Chi Honor Society - Beta Mu Chapter Ferris State University College of Pharmacy	
	Merck Human Health Award - 1992	
Certification:	Board Certified Pharmacotherapy Specialist Board of Pharmaceutical Specialties	
Licensure:	Michigan License # 024679	
Membership:	American College of Clinical Pharmacy American Society of Health-care Pharmacists Michigan Pharmacists' Association Western Michigan Society of Hospital Pharmacists	
Selected Presentations:	<i>"Antiarrhythmic Update"</i> Michigan Pharmacists' Association Annual Meeting - August, 1994	
	<i>"Curricular Development"</i> Michigan Pharmacists' Association Interim Meeting - February, 1994	
	<i>"Combination Antiarrhythmic Therapy"</i> Medical Grand Rounds Coldwater Community Hospital - April, 1993	
	<i>"Antimicrobial Resistance in the ICU"</i> Michigan Society of Respiratory Therapists Annual Meeting - February, 1993	
	<i>"Psychopharmacotherapy in the Long-Term Care Facility"</i> Northern Ohio Consultant Pharmacist Association December, 1992	

**Selected
Presentations
(continued):**

"NSAID-induced Gastropathy"
Southwestern Michigan Pharmacists' Association
September, 1992

"Mechanisms of Antimicrobial Resistance"
Regional Scientific Session
Merck and Company - June, 1992

"Contemporary Psychopharmacotherapy Considerations"
Southwestern Michigan Pharmacists' Association
February, 1992

"Antihypertensive Agents - A Pharmacologic Review"
VanBuren/Kalamazoo County Physicians
October, 1991

"Antimicrobial Resistance in the ICU"
Mecosta County Medical Association
May, 1991

"Considerations in the Treatment of Parkinson's Disease"
Michigan Pharmacists' Association
Interim Meeting - February, 1991

References: *Available upon request*

CURRICULUM VITAE

Jaculin L. Harden

GENERAL INFORMATION:

Home Address: 785 Adaway SE
Grand Rapids, MI 49546
(616) 682-0786

Business Address: Blodgett Memorial Medical Center
Department of Pharmacy
1840 Wealthy S.E.
Grand Rapids, MI 49506
(616) 774-5262
Pager: (616) 480-1558

Licensure: Michigan

PROFESSIONAL EXPERIENCE

1995 - Present **Advanced Cardiac Life Support Provider**
Western Michigan Critical Care
Grand Rapids, MI

1995 - Present **Instructor**
College of Nursing
Grand Valley State University
Allendale, MI

1993 - Present **Assistant Professor, Clinical Pharmacy**
College of Pharmacy
Ferris State University
Big Rapids, Michigan

1991 - 1993 **Part-time Decentralized Staff Pharmacist**
Ohio State University Hospitals
Columbus, Ohio

1990 - 1991 **Clinical Coordinator**
Blodgett Memorial Medical Center
Grand Rapids, Michigan

1990 - 1991 **Adjunct Faculty**
Ferris State University
Big Rapids, Michigan

1988 - 1990 **Clinical/Staff Pharmacist**
Blodgett Memorial Medical Center
Grand Rapids, Michigan

EDUCATION

1991 - 1993

Doctor of Pharmacy
The Ohio State University
Columbus, Ohio

1984 - 1988

Bachelor of Science in Pharmacy
Ferris State University
Big Rapids, Michigan

PROFESSIONAL CERTIFICATION

Board Certified Nutritional Support Pharmacist
Advanced Cardiac Life Support

PROFESSIONAL AFFILIATIONS

American Association of Colleges of Pharmacy
American Society of Parenteral and Enteral Nutrition
Western Michigan Society of Hospital Pharmacists

PUBLICATIONS

Harden JL, Kemp L, Mirtallo J. Femoral Catheters Increase Risk of Infection in Total Parenteral Nutrition Patients. NCP 1995;10:60-66.

Kemp L, Burge J, Choban P, Harden J, Mirtallo J, Flancbaum L. The Effect of Catheter Type and Site on Infection Rates in Total Parenteral Nutrition Patients. JPEN 1994;18:71-74.

Kemp L, Choban P, Mirtallo J, Burge J, Flancbaum L, Harden J. Effect of Catheter Type and Site on Infection Rate in Total Parenteral Nutrition Patients. Scientific Poster presented at A.S.P.E.N. Clinical Congress February 14, 1993.

Fehr SE, Harden JL, Reed MC. Michigan Hospital Pharmacy Services Survey. Journal Michigan Pharmacist 1991;29:102-104.

Melby MJ, Finelli LR, Harden JL, Rietscha WJ. Novel Program For Inservice Medical Education. Am J Hosp Pharm 1989;46:1769 (Letter).

Melby MJ, Reed MC, Harden JL. Michigan Hospital Pharmacy Services Survey. Journal Michigan Pharmacist 1990;28:96-98.

Chatas C, Harden J, Melby M, Pratt G, Reed M. Michigan Hospital Pharmacy Services Directory 1989. Distributed to Michigan hospital pharmacies as a service of the Professional and Legal Affairs Committee of the Michigan Society of Hospital Pharmacists.

PRESENTATIONS

"Nutritional Support in the Intensive Care Unit" presented at Internal Medicine Grand Rounds on February 8, 1996

"Advances in Enteral Nutritional Support" presented to the Michigan Society of Hospital Pharmacists Annual Meeting on October 5, 1995

"New Drug Update: Cardiovascular, Respiratory, and Gastrointestinal Agents" presented at the Ferris State University College of Pharmacy Spring Seminar on April 18, 1995

"Treatment of Nosocomial Pneumonia in the Critically Ill Patient" presented to the West Michigan Chapter of the American Association of Critical Care Nurses on February 7, 1994

"Determining Energy Expenditure of Critically Ill Patients using Indirect Calorimetry vs. the Harris-Benedict Equation" presented to the Ohio State University College of Pharmacy faculty and Doctor of Pharmacy candidates on May 6, 1993

"TPN vs. EN in the Brain-Injured Patient: Is There a Difference in Outcome?" presented to the Ohio State University Hospital pharmacists January 27, 1993 as a continuing education seminar

"Nutrition Support in Critical Care" presented at the fall 1990 critical care conferences at Blodgett Memorial Medical Center as a series of eight lectures

"Hyperalimentation in the Critically Ill Patient" presented at the "Critical Nutrition in the 90's" conference June 5, 1990 sponsored by the West Michigan Chapter of the American Association of Critical Care Nurses

CURRICULUM VITAE

NAME: RICHARD LEE HULT
TITLE: Professor of Pharmacology
ADDRESS: College of Pharmacy
Ferris State University
Big Rapids, MI 49307

PERSONAL:

DATE and PLACE OF BIRTH: July 23, 1945, Grand Rapids,
Michigan

UNIVERSITY EDUCATION:

- 1) Oregon State University, Corvallis, OR 97331
August, 1974 - September, 1976, Ph.D.
(Pharmacology and Toxicology)-June, 1977

Thesis Title: "Intracellular pH and the Uptake of
Carcinostatic Drugs by Selected
Experimental Tumors."

Major Professor: Robert E. Larson

- 2) Oregon State University, Corvallis, OR 97331
September, 1971 - July, 1974, M.S. (Pharmacology
and Toxicology)-June, 1975

Thesis Title: "A Comparison of the Effect of pH
Change Upon the Uptake of 5-
Fluorouracil into Rat Liver and
Walker 256 Carcinoma Slices."

Major Professor: Robert E. Larson

- 3) Ferris State University, Big Rapids, MI 49307
September, 1963 - June, 1968, B.S. in Pharmacy-
June, 1968

PROFESSIONAL:

EMPLOYMENT:

- 1) July, 1992 - present; Professor of Pharmacology,
College of Pharmacy, Ferris State University, Big
Rapids, MI 49307
- 2) September, 1982 - June, 1992; Associate Professor
of Pharmacology, School of Pharmacy, Ferris State
University, Big Rapids, MI 49307
- 3) September, 1976 - August, 1982; Assistant
Professor of Pharmacology, School of Pharmacy,
Ferris State University, Big Rapids, MI 49307

- 4) September, 1971 - June, 1976; Teaching Assistant, Department of Pharmacology and Toxicology, Oregon State University, Corvallis, OR 97331

PROFESSIONAL AFFILIATIONS:

- 1) American Association of Colleges of Pharmacy, 1978

LICENSURE: R.Ph., State of Michigan, 1969 - present

HONOR SOCIETIES AND FRATERNAL ORGANIZATIONS:

1. Phi Eta Sigma - National Freshman Men's Honorary Society, 1964
- 2) Rho Chi - National Pharmacy Honorary Society, 1967
- 3) Phi Delta Chi - National Pharmacy Professional Fraternity, 1965
- 4) Phi Lambda Sigma - National Pharmacy Leadership Society, 1987

TEACHINGS RESPONSIBILITIES:

- 1) Oregon State University: 1971 - 1976
 - a. PHC 412 - Laboratory; a basic toxicology laboratory for undergraduate pharmacy students.
 - b. PHC 531 - 537; Advanced Pharmacology and Toxicology, Team taught by both faculty and graduate students with subject matter distributed by selected topics. 5 terms.
 - c. PHC 411 - Cancer chemotherapy section for a basic pharmacology course in the pharmacy curriculum - 8 lectures.
 - d. PHC 432 - Immunology and Virology sections of an undergraduate pharmacy course in biological products - 15 lectures.
- 2) Ferris State University: 1992 - present
 - a. PHCL 320 - Introduction to Drug Action (credits 3+0)
 - b. PHCL 420 - Pharmacology Laboratory (credits 0+1)
 - c. PHCL 422 - Pharmacology II (credits 3+0)
 - d. PHCL 510 - Clinical Toxicology (credits 2+0)

e. PHCL 526 - Toxicology (credits 2+0)

RESEARCH/CREATIVE AND SCHOLARLY ENDEAVORS:

PUBLICATIONS:

- 1) Brandell, M. E., Brandell, R. R., and Hult, R. L., "Pharmacology and the Aging System," in Communication Behavior and Aging: A Source Book for Clinicians edited by Shadden, B. B., Williams and Wilkins, Baltimore, 1987.
- 2) Brandell, M. E., Brandell, R. R., and Hult, R. L., "Drugs and Ototoxicity," Hearing Instruments 39: 41-42, 1988.

PUBLICATIONS IN PREPARATION:

- 1) "Acute Acetaminophen Toxicity: Mechanism of Action and Treatment" with Dr. Gerald Slywka.

GRANTS RECEIVED:

- 1) "Autonomic Pharmacology Tutorial" Ferris State University
Timme Center Instructional Assistant Grant, 1990-91 - \$1500

PRIOR GRANT ACTIVITY:

- 1) "Restructuring of PHG-428: Therapy with Biological Regulators, to a Principally Self-Paced Course" Co-Investigator: Robert J. Krueger, Ferris State University Educational Innovation Grant, 1978 - \$1920
- 2) Submitted: "PHG 426 - Biotechnologically Derived Products" Ferris State University Professional Development Grant, 1990-91 - \$1500, Co-investigator: Dr. Robert Krueger

CURRICULUM VITAE

JOHN PETER JAMESON

Work Address

715 Xavier Hall
Saint Mary's Health Services
200 Jefferson SE
Grand Rapids, MI 49503
Phone: 616-774-6655

Home Address

4848 Aleda SE
Kentwood MI, 49508
Phone: 616-534-8578

EDUCATION AND CREDENTIALS

- | | |
|---------------|--|
| 1993- Present | Fellow in the American Society of Hospital Pharmacists |
| 1991-Present | Certified Pharmacotherapy Specialist (BCPS) by the Board of Pharmaceutical Specialties |
| 1990 | ASHP Research and Education Foundation Anticoagulation Clinic Traineeship Program |
| 1980-1982 | Doctor of Pharmacy, College of Pharmacy, University of Minnesota, Minneapolis, Minnesota |
| 1975-1979 | Bachelor of Science, Pharmacy, High Distinction, Ferris State University, Big Rapids, Michigan |

POSITIONS HELD

- | | |
|----------------|--|
| 1993-Present | Professor of Clinical Pharmacy, Ferris State University, Big Rapids, Michigan |
| 1993-Present | Pharmacotherapy Consultant, HHS |
| 1992 - Present | Preceptor, Grand Rapids Family Practice Residency, Grand Rapids, Michigan |
| 1992-Present | Adjunct Assistant Professor, Department of Family Practice, College of Human Medicine, Michigan State University, East Lansing, Michigan |
| 1982-Present | Clinical Pharmacist, Saint Mary's Health Services, Grand Rapids, Michigan |
| 1995 | Visiting Professor, Universiti Sains Malaysia, School of Pharmacy, Masters in Clinical Pharmacy Program(March 15- April 15) |

POSITIONS HELD (Cont'd)

1995 & 1986	Adjunct Assistant Professor of Health Sciences, Grand Valley State University, Grand Rapids, Michigan
1987-1993	Associate Professor of Clinical Pharmacy, Ferris State University, Big Rapids, Michigan
1987-1988	Fulbright Fellow and Senior Lecturer, Department of Pharmacy, School of Medicine, University of Zimbabwe, Harare, Zimbabwe
1982-1987	Assistant Professor of Clinical Pharmacy, Ferris State University, Big Rapids, Michigan
1984-1985	Pharmacology Instructor, Mercy Central School of Nursing, Grand Rapids, Michigan

PROFESSIONAL ACTIVITIES

1990-Present	<p>Ferris State Ambulatory Care Faculty, Saint Mary's Health Services:</p> <ul style="list-style-type: none"> ● Course Coordinator, Doctor of Pharmacy Advanced Clinical pharmacokinetics course (1993-1995) ● Developed an anticoagulation clinic ● Preceptor for Family Practice Residency ● Pharmacotherapy Consultation Service for ambulatory patients ● Developed an ambulatory rotation in the Family Health Center for baccalaureate level pharmacy students ● Developed an ambulatory rotation for Doctor of Pharmacy students with participation in the Family Health Center, Lentini Health Center Internal Medicine Clinic
1990-Present	<p>Externship Coordinator, (1/4 time), College of Pharmacy, Ferris State University</p> <ul style="list-style-type: none"> ● Recruited new externship sites ● Visited sites and dealt with preceptor problems ● Provided preceptor education ● Scheduled externship and resolved conflicts ● revised institutional portion of the externship manual

PROFESSIONAL ACTIVITIES (Cont'd)

- 1982-1990 Ferris State Clinical Site Coordinator, Saint Mary's Hospital;
Developed the following programs:
- Pharmacokinetic Consultation Service
 - Rounding service with Internal Medicine, Family Medicine, Pulmonary, and Nephrology.
 - Pharmacology Teaching Rounds, Family Medicine
 - Nutrition Support Service
 - Certification course in aminoglycoside pharmacokinetics
- 1993-Present Reviewer for Clinical Pharmacy
- 1991-Present Reviewer for Annals of Pharmacotherapy (DICP)
- 1988-Present Reviewer for Pharmacotherapy
- 1987-1988 Reviewer for Central African Journal of Medicine
- 1987-1988 As Senior Lecturer, University of Zimbabwe:
- Provided pharmacokinetic consults for Central Hospitals and Clinics
 - Supervised/provided drug and poison information for all of Zimbabwe (24 hours/day)
 - Served on the committee to revise the Essential Drug List in Zimbabwe (EDLIZ)
 - Ward rounds at the two Harare Central Hospitals

HONORS AND AWARDS

- 1994 Best Paper, Residency Faculty Category, Michigan Family Practice Research Day
- 1987 Fulbright Grant Recipient (Lecturer, University of Zimbabwe)
- 1987 Honorary President of Zimbabwe Pharmacy Students Association
- 1978-Present Member of Rho Chi Honorary Fraternity

ORGANIZATIONAL MEMBERSHIPS

American Society of Hospital Pharmacists

American College of Clinical Pharmacy

Ambulatory Care Practice and Research Network

Western Michigan Society of Hospital Pharmacists

1991-1992 Past President

1990- 1991 President

1988-1989 President Elect

1983-1986 Executive Board

Christian Pharmacists Fellowship International

Pharmacists Against Drug Abuse (Zimbabwe, 1987-1988)

COMMITTEES**College of Pharmacy: Abridged List**

1995 to 1997	Faculty Senate Representative
1994 to 1995	Beacon Endowment Committee
1994 to 1995	Scholarly Activities Coordinating Committee
1994 to 1995	Pharmacy Practice Council
1992 to 1995	Faculty Recruitment / Interview Committee
1993 to 1994	Curriculum Committee
1992 to 1993	Alternate, Curriculum Committee
1988 to 1991	Pharmacy Council
1989 to 1991	Rank and Promotion Committee
1989 to 1990	Pharm.D. Implementation Committee
1989 to 1990	Pharm.D Admissions Committee
1989 to 1990	Rank and Promotion Revision Committee
1989 to 1990	Tenure Policy Revision Committee
1984 to 1986	Continuing Education Committee (Chairman)

Saint Mary's Hospital

1993 to Present	Academic Detailing Task Force
1990 to 1994	Multi disciplinary Research Task Force
1982 to Present	Pharmacy and Therapeutics Committee Resource Person

PUBLICATIONSRefereed Publications

Jameson JP, VanNoord G, Vanderwoud K. Impact of a pharmacotherapy consultation on cost and outcome of drug therapy. *Journal of Family Practice* 1995;41: 469-472

Rider JM, Mauger TE, Jameson JP, Notman DJ. Water handling in patients receiving haloperidol decanoate. *Annals of Pharmacotherapy* 1995;29:663-666

Jameson JP and Lewis JA. "Two point versus three point method for early individualization of aminoglycosides." *DICP, Annals of Pharmacotherapy* 1991;25:635-636

Jameson JP, Kasilo O, and Froese EH. "Pharmacy Practice in Zimbabwe. *DICP, Annals of Pharmacotherapy*, " 1991; 25:302-305

Jameson JP and Munyika A. "Theophylline Pharmacokinetics in Black Zimbabwean Males." *Therapeutic Drug Monitoring* 1990;12:54-58

Matzke GR, Jameson JP, Halstenson CE. "Gentamicin disposition in young and elderly patients with various degrees of renal function." *Journal of Clinical Pharmacology* 1987;27(3)216-20

Toscano JP and Jameson JP. "Comparison of Four Single-Point Phenytoin Dosage Prediction Techniques Using Computer-Simulated Pharmacokinetic Values." *Clinical Pharmacy* 1986;5:396-402

Presented Papers and Abstracts

Jameson J, VanNoord G, and Vanderwoud K. The Impact of a Pharmacotherapy Consultation on Cost and Outcome of Medical Therapy. *Michigan Family Practice Research* Day XVII. May 19, 1994. East Lansing, Michigan

Jameson J, VanNoord G, and Vanderwoud K. The Impact of a Pharmacotherapy Consultation on Cost and Outcome of Medical Therapy. *Society of Teachers of Family Medicine Annual Meeting*, May 1-4, 1994, Atlanta, Georgia

Rider J, Mauger T, Notman D, Duemler R, Jameson J. The effect of haldol decanoate on water handling. *American College of Clinical Pharmacy Annual Meeting*. August 15-18, 1993, Reno, Nevada (Presented by Dr. Rider)

Jameson JP and Munyika A. "Therapeutic Drug Monitoring in a Developing Country." Poster Presentation. 49th International Congress of Pharmaceutical Sciences of F.I.P., Munich, West Germany, September 4-9, 1989

Jameson JP and Munyika A. "Theophylline Pharmacokinetics in Zimbabweans." Oral Presentation. 49th International Congress of Pharmaceutical Sciences of F.I.P., Munich, West Germany, 4-9 September, 1989

PUBLICATIONSPresented Papers and Abstracts (Cont'd)

Houston S, Jameson J, Lessing C. "Antibiotic Use in Central Hospitals of A Developing Country." XIIth International Congress for Tropical Medicine and Malaria. 18-23 September, 1988, Amsterdam, The Netherlands (presented by Dr. Houston)

Matzke GR, Jameson JP, Halstenson CE. "Gentamicin Pharmacokinetics in the Elderly." Clinical Pharmacology and Therapeutics 1983;33:258 (presented by Dr. Matzke)

Non-Refereed Publications

Kibel MA and Jameson JP. "A Fool's Guide to Cephalosporins (letter) Drug Intelligence and Clinical Pharmacy 1988;22:81-82

Mutangadura MT, edited by Jameson JP. "Proper Drug Use in Pediatrics." National Therapeutic Drug Bulletin in Zimbabwe, Issue No. 12, April, 1988

Jameson JP. "Therapeutic Drug Monitoring: Clinical use of Anticonvulsants." National Therapeutic Drug Bulletin in Zimbabwe, Issue No. 10, December, 1987

Jameson JP. "Therapeutic Drug Monitoring: Clinical use of Gentamicin." National Therapeutic Drug Bulletin in Zimbabwe, Issue No. 9, August, 1987

Jameson JP. "Therapeutic Drug Monitoring: An Overview." National Therapeutic Drug Bulletin in Zimbabwe, Issue No. 8, May, 1987

GRANTS

- 1995 \$1600 Ten County Diabetes Outreach Network, education program for pharmacists with Dr. Joan Rider
- 1993 \$500 Saint Mary's Health Services Research Committee. Effect of haldol decanoate on water handling. Dr. Joan Rider, primary investigator.
- 1991 \$7870 Doran Foundation, The Impact Of A Pharmacotherapy Consultation On The Cost And Outcome Of Medical Therapy.
- 1991 \$1500 Michigan State University, College of Medicine, The Impact Of A Pharmacotherapy Consultation On The Cost And Outcome Of Medical Therapy.
- 1991 \$970 Upjohn Company, Impact of a Pharmacotherapy Consultation On The Cost and Outcome of Medical Therapy
- 1989 \$300 Timme Foundation Travel Grant, Poster and Oral Presentation at the 49th International Congress of Pharmaceutical Sciences of F.I.P., Munich, West Germany
- 1988 \$4000 Research Board, University of Zimbabwe, Theophylline Pharmacokinetics in Black Zimbabweans.

PRESENTATIONS

- 1995 Taming the Information Jungle: What to Read and How to Read It. Universti Sains Malaysia, Kelantan Branch
- Cardiovascular Drug Interactions. West Michigan Nursing Home Consultants, Grand Rapids, Michigan
- Drug Landmines in Dentistry . Cadillac Dental Associates, Cadillac, Michigan
- Anticoagulation Monitoring, Nurses for High Risk Home Care Services (MCS), Grand Rapids, Michigan
- Drug Landmines in Dentistry . Muskegon Community College Dental Continuing Education, Muskegon, Michigan
- Therapeutic Monitoring Outcomes: Pharmaceutical Care. Universti Sains Malaysia, Kelantan Branch, Kubang Kerian, Malaysia
- Taming the Information Jungle: What to Read and How to Read It. Universti Sains Malaysia, Main Campus, Penang, Malaysia
- 1994 Anticoagulation Monitoring Amicare Corporation. Grand Rapids, MI
- 1993 Cardiovascular Drug Monitoring, Nurses for High Risk Home Care Services (MCS), Grand Rapids, Michigan
- The Trials and Tribulations of Warfarin Therapy, Family Medicine Section Meeting, Saint Mary's Hospital, Grand Rapids Michigan
- The Trials and Tribulations of Warfarin Therapy, Michigan Pharmacists Association Interim Meeting, Dearborn, Michigan
- 1992 The Trials and Tribulations of Warfarin Therapy, Internal Medicine Grand Rounds, Saint Mary's Hospital, Grand Rapids Michigan
- Case Studies in Pharmaceutical Care, Annual Fall Conference, College of Pharmacy, Ferris State University, Big Rapids, Michigan
- Warfarin Therapy: A Pharmacist's Approach, Western Michigan Society of Hospital Pharmacists, Grand Rapids, Michigan
- 1991 Setting Expectations and Motivating Students, Ferris State University, College of Pharmacy Adjunct Faculty Program, Grand Rapids, Michigan
- Lessons to be learned from research in the clinical setting: Progress report on the Pharmacotherapy Consultation Study. Grand Rapids Area Medical Education Center Research Society, Grand Rapids, Michigan
- A Down to Earth Talk About Worms, Michigan Pharmacists Association Interim Meeting, Dearborn, Michigan

PRESENTATIONS (Cont'd)

- 1990 Training Pharmacy Preceptors Program, Annual Fall Seminar, Ferris State University, Big Rapids, Michigan
- Helicobacter Pylori and Ulcer Disease, Robert Zustiak Memorial Clinical Pharmacy Seminar, Dearborn, Michigan
- Principles of Pharmacokinetics, Michigan Optometrist Society, Big Rapids, Michigan
- Helicobacter Pylori and Ulcer Disease, Twenty First Annual Seminar of WMSHP, Grand Rapids, Michigan
- 1989 Acid/Base and Fluid/Electrolyte Primer, Mid-Michigan Regional Medical Center, Midland, Michigan.
- Campylobacter Pylori and Ulcer Disease, Fall Seminar, Ferris State University, Big Rapids, Michigan
- "Fitting" Use of Anticonvulsants,
Medicine Grand Rounds, Saint Mary's Hospital, Grand Rapids, Michigan
Western Michigan Society of Hospital Pharmacists, Grand Rapids, Michigan
- 1988 Talk About Prescriptions, Rotary International, Big Rapids, Michigan
- Pharmacology of Pain Medications, Michigan Optometrist Society, Livonia, Michigan
- Health Care in Zimbabwe, Saint Mary's Hospital, Grand Rapids, Michigan
- Appropriate Use of Antibiotics: Basic Principles, Joint Congress of the College of Primary Care Physicians and the Pharmaceutical Society of Zimbabwe, Harare, Zimbabwe
- Gentamicin Use in the Intensive Care Unit, Department of Anaesthetics, School of Medicine, Harare, Zimbabwe
- Drugs of Abuse in Zimbabwe, Harare Jaycees, Turnpan Building, Harare, Zimbabwe
- Proper Use of Drugs in Children, Mothers Association of the Anglican Church, Harare, Zimbabwe
- 1987 Use and Abuse of Psychotropic Drugs, College of Primary Care Physicians, Harare, Zimbabwe
- Benzodiazepines: A Review, College of Primary Care Physicians, Bulawayo, Zimbabwe
- Pharmacologic Considerations in Asthma, Visiting Professor Series, Mpilo Hospital, Bulawayo, Zimbabwe
- Clinical Use of Anticonvulsants, Pharmaceutical Society of Zimbabwe and Progress in Medicine Conference, University of Zimbabwe, Harare, Zimbabwe

PRESENTATIONS (Cont'd)

Clinical Pharmacy in the Retail Setting, Pharmaceutical Society of Zimbabwe, Mashonaland Branch, Harare, Zimbabwe

Optimal Use of Gentamicin, Progress in Medicine Conference, School of Medicine, Harare, Zimbabwe

Drugs of Abuse in Zimbabwe: Problems and Solutions, Soroptimist Society of Zimbabwe, Harare, Zimbabwe

The National Drug and Toxicology Information Service, at the Annual Public Service Pharmacists Conference, Harare, Zimbabwe

The Developing Role of the Pharmacist in the Health Care Team Joint Congress of the College of Primary Care Physicians and the Pharmaceutical Society of Zimbabwe, Victoria Falls, Zimbabwe

- 1987 Pharmacokinetic Considerations in Pediatrics, Joint Congress of the College of Primary Care Physicians and the Pharmaceutical Society of Zimbabwe, Victoria Falls, Zimbabwe

Chloramphenicol: A Critical Review, College of Primary Care Physicians, Harare, Zimbabwe

- 1986 TPN for the Critically Ill Patient, Critical Care Symposium, Grand Rapids, Michigan

Drugs of Abuse: Actions and Toxicities, presented to patients of Project Rehab, Grand Rapids, Michigan

Antiarrhythmic Agents: A Change of Heart, Western Michigan Society of Hospital Pharmacists

Living with Asthma presented to parents and children of the community, Grand Rapids, Michigan

Cardiac Medications: Keeping Up With the Beat, Cardiac Rehabilitation Symposium, Grand Rapids, Michigan

Aminoglycoside Antibiotics - Maximizing Efficacy and Minimizing Toxicity, Medicine Grand Rounds, Saint Mary's Hospital, Grand Rapids, Michigan

Disease Specific Parenteral Nutrition, Clinical Pharmacology Conference, Saint Mary's Hospital, Grand Rapids, Michigan

Medications for Diabetes, part of an American Diabetes Association program for the Visiting Nurses Association, Grand Rapids, Michigan

- 1985 Beta Blockers: An Update, Ionia/Montcalm Pharmacist Association, Belding, Michigan

Certification Course in Aminoglycoside Pharmacokinetics (8 hours), Saint Mary's Hospital, Grand Rapids, Michigan

Pharmacy

APRC 1995-1996

Section 3 of 4

PRESENTATIONS (Cont'd)

- 1985 Theophylline: Practical Pharmacokinetics, Medical Chest Conference, Saint Mary's Hospital, Grand Rapids, Michigan
- 1984 Therapeutic Considerations of Peptic Ulcer Disease,
Capitol Area Pharmacists Association, Lansing, Michigan
Kent County Pharmacists Association, Grand Rapids, Michigan
Pharmacologic Applications in Dentistry, Western Michigan Dental Society Symposium, Grand Rapids, Michigan
- 1983 Drug Considerations in the Elderly, Family Medicine Section Meeting, Saint Mary's Hospital, Grand Rapids, Michigan
Current Cardiac Medication, Continuing Education program at Muskegon Community College, Muskegon, Michigan
Comparison of Five Methods for Phenytoin Dosage Adjustment, Platform Presentation, Michigan Pharmacist Association Interim Meeting, Dearborn, Michigan
Cephalosporin Update, Clinical Pharmacology Conference, Saint Mary's Hospital, Grand Rapids, Michigan
- 1982 Prostaglandin Inhibitors and Acute Renal Failure, Nephrology Journal Club, Saint Mary's Hospital, Grand Rapids, Michigan
Therapeutic Implications of Hemodynamic Monitoring, Western Michigan Society of Hospital Pharmacists, Grand Rapids, Michigan

LICENSURE

1980- Present Pharmacist License, Michigan, By Exam

REFERENCES AVAILABLE UPON REQUEST

JANA L. JIRAK

3107 Casper Street
Kalamazoo, MI 49001
(616) 345-6216 or (616) 341-7750

CURRENT POSITION:

Externship Director and Associate Professor of Clinical Pharmacy. Ferris State University, Big Rapids, MI 49307. (September 1988 to Present)

ACADEMIC QUALIFICATIONS:

ASHP Accredited Hospital Pharmacy Residency, University of Iowa Hospitals and Clinics, Iowa City, IA 52242. (1982)

Doctor of Pharmacy, University of Nebraska Medical Center, Omaha, NE 68105. (1981)

PROFESSIONAL LICENSURE:

Colorado #13606
Michigan #025320
Nebraska #9396

PROFESSIONAL EXPERIENCE:

Ferris State University College of Pharmacy, based at Bronson Methodist Hospital, Kalamazoo, MI 49007. (1982-Present)

Externship Director. (September 1988-Present)

- ◆ Recruit and maintain approximately 100 externship sites
- ◆ Coordinate student scheduling
- ◆ Manage externship budget
- ◆ Write quarterly newsletter
- ◆ Plan annual preceptor training seminar
- ◆ Designed and implemented 10 week B.S. Externship program
- ◆ Wrote student and preceptor externship manuals
- ◆ Developed and teach 2 credit hour class, Patient Communications
- ◆ Lecture in Clinical Seminar I
- ◆ Advisor for 3 Pharm.D. students

Interim Assistant Dean for Pharmacy Practice. (July 1991 - June 1993)

- ◆ Supervised 11 faculty, 1 staff member
- ◆ Managed department budget
- ◆ Coordinated faculty and staff recruitment
- ◆ Delivered faculty evaluations
- ◆ Chaired department meetings
- ◆ Facilitated faculty development workshop on pharmaceutical care
- ◆ Planned and moderated AACP District IV panel discussion on pharmaceutical care in the ambulatory care setting

Acting Department Head, Pharmacy Practice. (October 1988-August 1989)

- ◆ Coordinated revision and implementation of 10 week B.S. clerkship
- ◆ Developed budget for Pharm.D. program
- ◆ Conducted department meetings
- ◆ Coordinated faculty recruitment
- ◆ Recruited and supervised department secretary
- ◆ Supervised 7 clinical faculty
- ◆ Assisted students with hospital residency showcase
- ◆ Attended "Chairing the Academic Department" seminar

Externship Coordinator. (1985-1988)

- ◆ Co-facilitated externship revision
- ◆ Developed objectives for multidisciplinary rural geriatrics clerkship
- ◆ Provided preceptor training in patient education
- ◆ Planned annual preceptor seminar
- ◆ Served as liaison to chain drugstores

Assistant/Associate Professor of Clinical Pharmacy. (1982-1988, promoted 1986)

- ◆ Precepted internal medicine rotation for B.S. students
- ◆ Precepted internal medicine rotation for hospital pharmacy residents
- ◆ Lectured in B.S. therapeutics course
- ◆ Supervised rotation development and teaching efforts of 33 area adjunct faculty
- ◆ Piloted extended community externship and hospital externship rotations
- ◆ Recruited hospital and community training sites

Committee Assignments:

- ◆ Pharmacy Council (1991-96, 88-89)
- ◆ Rank and Promotion Committee (1991-96, 88-89, 86-87)
- ◆ ACPE Pharm.D. Self-Study Steering Committee (1992-93)
- ◆ ACPE Self-Study Steering Committee (1991)
- ◆ Curriculum Committee (1991-92, 84-87)
 - Chair (1985-86)
 - Blue Ribbon Task Force on Curriculum (1984-85)
 - Summer Curriculum Revision Committee (1985)

Committee Assignments, continued:

- ◆ Pharm.D. Committee (1989-90)
- ◆ Library Committee (1987-88, 83-84)
- ◆ ACPE Self-Study Goals & Objectives Committee (1982-84)

American Council on Pharmaceutical Education, Chicago, IL.

Site Visitor, Albany College of Pharmacy (1992)

Site Visitor, Midwestern University Chicago College of Pharmacy (1996, 1995)

Ingersoll Pharmacy, Marcellus, MI 49067. (1987-Present)

Relief pharmacist

Bronson Methodist Hospital School of Nursing, Kalamazoo, MI 49007. (1992, 1987)

Lecturer in advanced pharmacology

Field & Field, P.C., Attorneys at Law, Kalamazoo, MI 49007. (1986)

Served as expert witness in Jens vs. Murphy and Western Medical

Borgess Medical Center, Kalamazoo, MI 49001. (1984)

Pharmacokinetics consultant

Kalamazoo Valley Community College, Kalamazoo, MI 49001. (1984)

Taught 2 credit advanced pharmacology course for nursing program

PROFESSIONAL AFFILIATIONS:

American Association of Colleges of Pharmacy

- ◆ Task Force on Preceptor Needs (1990-93)
- ◆ Faculty Delegate (1988)

American Society of Hospital Pharmacists

American Pharmaceutical Association

State of Michigan Internship Commission (1984-87)

Michigan Pharmacists Association, Hospital Section

- ◆ Pharmaceutical Care Implementation Conference by invitation (1995)
- ◆ Michigan Invitational Conference on Pharmaceutical Care Facilitator (1994)
- ◆ Committee to Advance Pharmacy Practice (1990-92)
- ◆ Professional and Legal Affairs Committee (1989-90)
- ◆ Michigan Hilton Head, invited participant (1989)
- ◆ Task Force on Patient Education (1984-86)

PROFESSIONAL AFFILIATIONS, Continued:

- ◆ WKZO Radio Program - "Drugs in Pregnancy" (1983)
- ◆ American Red Cross Medication Screening Programs

Northern Michigan Area Health Education Center

- ◆ Advisory Board (1988-89)
- ◆ Task Force on Curriculum Development (1989)

Christian Pharmacists Fellowship International

Toastmasters International, Bronson Methodist Hospital Club

- ◆ Outstanding Toastmaster of the Year (1993)
- ◆ Educational Vice President (1993)
- ◆ Treasurer (1992)
- ◆ Administrative Vice President (1988)
- ◆ President (1985, 1986)

PUBLICATIONS:

Beck DE, Aceves-Blumenthal C, Jirak JL et al. Enhancing recognition of volunteer practitioner-educators for their teaching contributions: the success of intrinsic and extrinsic incentives. Submitted to *Am J Pharm Ed*, 1994.

Beck DE, Aceves-Blumenthal C, Carson R, Culley J, Dawson K, Jirak J, Kawahara N, Morris N, Noguchi J. Factors contributing to volunteer practitioner-faculty vitality. *Am J Pharm Ed*. 1993;57:305-313.

Vanderveen RP, Jirak JL, Peters GR et al. Effect of ranitidine on the disposition of orally and intravenously administered triazolam. *Clin Pharm*. 1991;10:539-43.

Vanderveen RP and Jirak JL. The pharmacist as a health consultant - ten years later. *DICP Ann Pharmacother*. 1990;24:833-6.

RESEARCH GRANTS:

Investigation of what motivates volunteer faculty to teach and recognition methods employed by colleges of pharmacy. American Association of Colleges of Pharmacy and Amgen, \$300 to each of nine colleges of pharmacy. (1992-93)

Development of externship and clerkship competencies and evaluation tools. Ferris Faculty Development Fund, \$1,926, Jirak JL and Durst SW. (1988) Northern Michigan Area Health Education Center, \$4,000, Vanderveen RP, Jirak JL, Durst SW. (1987)

RESEARCH GRANTS, Continued:

Investigation and elucidation of the drug interaction between ranitidine and triazolam. The Upjohn Company Community Research Fund, Kalamazoo, Michigan, \$100,000, Vanderveen RP, Jirak JL, Peters G et al. (1987)

NATIONAL PRESENTATIONS:

Beck D, Aceves C, Carson R, Hotchkiss G, Jirak J, Noguchi J, O'Sullivan T, Skelton D. Vitality of Volunteer Practitioner-Instructors: Phase II Results. Poster Presentation, American Association of Colleges of Pharmacy Annual Meeting. Albuquerque, New Mexico. (1994)

Stock CS, Jirak JL, Durst SW and Arneson DL. Expanding the pharmacists' role in nicotine addiction treatment and smoking cessation. Poster Presentation, American Association of Colleges of Pharmacy Annual Meeting. Washington, D.C. (1992)

Arneson D, Jirak JL and Stock CS. Exploring and expanding the pharmacists' role in nicotine addiction treatment and smoking cessation. Poster Presentation, American Association of Colleges of Pharmacy Annual Meeting. Boston, Massachusetts. (1991)

Vanderveen RP, Jirak JL, Peters GR et al. Effect of ranitidine on the disposition of orally and intravenously administered triazolam. Clinical Research Report, American Society of Hospital Pharmacists Midyear Clinical Meeting. Las Vegas, Nevada. (1990)

Vanderveen RP and Jirak JL. Community pharmacists as OTC consultants. Poster Presentation, American Pharmaceutical Association Annual Meeting. Anaheim, California. (1989)

REVIEWER:

Meldrum H. Interpersonal Communication in Pharmaceutical Care, 1994
The Haworth Press, Inc.

FACILITATOR TRAINING:

Pharmacist-Patient Consultation Program, Unit 3. Pfizer Pharmaceuticals. (1995)
Pharmacist-Patient Consultation Program, Unit 2. Pfizer Pharmaceuticals. (1994)
Pharmacist-Patient Consultation Program, Unit 1. Pfizer Pharmaceuticals. (1991)
How to Help Your Patients Stop Smoking. National Cancer Institute. (1991)
Training Pharmacy Preceptors. American Association of Colleges of Pharmacy.
(1990)

PRESENTATIONS:

- 1996 Pharmacist-Patient Consultation Program - Unit 1
◆Bronson Methodist Hospital
- Pharmacist-Patient Consultation Program - Unit 2
◆Bronson Methodist Hospital
- Pharmacist-Patient Consultation Program - Unit 3
◆Bronson Methodist Hospital
- Experiential Evaluation Workshop
◆Michigan Pharmacists Association Annual Meeting, Dearborn, Michigan
- 1995 Providing Pharmaceutical Care for the Low Literacy Patient
◆Michigan Pharmacists Association Interim Meeting, Dearborn, Michigan
- Experiential Evaluation Workshop
◆Ferris State University, Kalamazoo and Bay City, Michigan
- Pharmacist-Patient Consultation Program - Unit 1
◆North American Indian Pharmacists Association, Detroit, Michigan
- 1994 Pharmacist-Patient Consultation Program - Unit 1
◆Elgin Pharmacy Association, Elgin, Illinois
◆Kroger Pharmacies, Livonia, Michigan
- 1993 Pharmacist-Patient Consultation Program - Unit 1
◆University of Toledo, Toledo, Ohio
◆William Beaumont Hospital, Southfield, Michigan
◆Sparrow Hospital, Lansing, Michigan
◆Saginaw General Hospital, Saginaw, Michigan
◆Veteran's Administration Medical Center, Ann Arbor, Michigan
◆Veteran's Administration Medical Center, Saginaw, Michigan
◆Veteran's Administration Medical Center, Allen Park, Michigan
◆Department of Health, Detroit, Michigan
◆Shopko Stores, Inc., Green Bay, Wisconsin
◆Shopko Stores, Inc., Wisconsin Dells, Wisconsin
◆Southeast Iowa RX Association, Burlington, Iowa
◆Walgreen's, Bloomington, Minnesota
- 1992 Educational Strategies for Teaching Externs in the Practice Environment, Wayne State University Adjunct Faculty, Detroit, Michigan

PRESENTATIONS, Continued:

1992 Pharmacist-Patient Consultation Program - Unit 1

- ◆ Wayne State University, Detroit, Michigan
- ◆ Blue Care Network, Lansing, Michigan
- ◆ Drug Emporium, Columbus, Ohio.
- ◆ Health Maintenance Plan, Columbus, Ohio
- ◆ Health Maintenance Plan, Dayton, Ohio
- ◆ Health Maintenance Plan, Cincinnati, Ohio

Pharmacists Assisting Smokers to Stop, GAPS Grant Presentation, Traverse City, Michigan

Train the Trainer Pharmacist-Patient Consultation Program, 12 hour workshop, University, of Toledo Faculty, Toledo, Ohio

Pharmacists Assisting Smokers to Stop, Michigan Pharmacists Association Interim Meeting, Dearborn, Michigan

1991 Training Pharmacy Preceptors, Oregon State University Adjunct Faculty, Portland, Oregon

Patient Education, Academy of Students of Pharmacy, Oregon State University, Portland, Oregon

Training Pharmacy Preceptors, Ferris State University Adjunct Faculty, Big Rapids, Michigan

1990 Internship Development Workshop, Michigan Pharmacists Association Interim Meeting, Dearborn, Michigan

Training Pharmacy Preceptors, Ferris State University Adjunct Faculty, Big Rapids, Michigan

1989 Pharmacy - A Pathway to the Future, 400 high school and pre-professional students, Bronson Methodist Hospital, Kalamazoo, Michigan

Institutional and Clinical Pharmacy Practice, Pharmacy Orientation Class, Ferris State University, Big Rapids, Michigan

Preceptor Orientation, five groups of Ferris State University Adjunct Faculty, various locations in Michigan

1988 Institutional and Clinical Pharmacy Practice, Pharmacy Orientation Class, Ferris State University, Big Rapids, Michigan

PRESENTATIONS, Continued:

- 1987 Choosing a Pharmacy, Oshtemo Rotary Association, Oshtemo, Michigan
- 1986 One-on-One Instruction, Ferris State University Adjunct Faculty, Big Rapids, Michigan
- 1985 Patient Education Workshop, Michigan Pharmacists Association Interim Meeting, Dearborn, Michigan
- Patient Education Workshop, Ferris State University Adjunct Faculty at 6 sites in Michigan
- Oral Hypoglycemics in the Treatment of NIDDM, Western Michigan Society of Hospital Pharmacists Pharmacy-Nursing Seminar, Grand Rapids, Michigan
- 1984 District IV Externship-A Comparison With National Trends, Survey and report at District IV AACP Meeting, Grand Rapids, Michigan
- Geriatric Drug Therapy, Interdisciplinary Workshop, Veteran's Administration Medical Center, Battle Creek, Michigan
- Insulin Preparations and Insulin Therapy, Western Michigan Society of Hospital Pharmacists, Kalamazoo, Michigan
- New Trends in Diabetes Mellitus and Insulin Therapy, The Upjohn Company Pharmacists, Kalamazoo, Michigan
- Student Impact on Preceptor Workload, Survey and report to Bronson Methodist Hospital Department of Pharmacy, Kalamazoo, Michigan
- 1983 Psychotropic Medications, 10 hour series, Kalamazoo area pharmacists, Kalamazoo, Michigan
- Patient Education Offerings at Colleges of Pharmacy, Survey and report to Michigan Pharmacists Association Task Force on Patient Education, Lansing, Michigan
- New Trends in Insulin Therapy, Southwest Michigan Pharmacists Association, Kalamazoo, Michigan
- New Trends in Insulin Therapy, Tri-County Pharmacists Association, St. Joseph, Michigan

PRESENTATIONS, Continued:

1982 Possible Nitrate Tolerance in Unstable Angina, Eighth Annual Midwestern Conference of Residents, Omaha, Nebraska

The Clinical Use of Theophylline, University of Iowa Hospitals and Clinics Staff Pharmacists, Iowa City, Iowa

1981 ASHP Accredited Residencies, Regional Student American Pharmaceutical Association Meeting, Iowa City, Iowa

CURRICULUM VITAE

LUCY N. NGOH
Assistant Professor of Pharmacy Administration
College of Pharmacy
Ferris State University
Big Rapids, Michigan 49307
(616) 592 2248

Education:

Dates Attended

- The University of Texas at Austin 8/87 to 5/92
Austin, Texas

Doctor of Philosophy

Dissertation Title:

"The Comprehension of Antibiotic Prescription Instructions and
Their Utilization In Three Primary Health Care Settings
in Cameroon, West Africa"

- Tulane University 8/85 to 5/88
New Orleans, Louisiana U.S.A

Master in Health Administration

- University of Washington 9/82 to 6/85
Seattle, Washington

Bachelor of Science in Pharmacy

- Seattle Central Community College 1/81 to 8/82
Seattle, Washington

Associate of Arts Degree

Employment Experience

Dates Employed

- | | | |
|----|--|-----------------|
| 1. | College of Pharmacy
Ferris State University
Big Rapids, Michigan 49307
Assistant Professor
Pharmacy Administration | 7/92 to present |
| 2. | University of Texas at Austin
College of Pharmacy
Austin, Texas
Teaching Assistant
Dispensing Pharmacy Practice | 9/91 to 1/92 |
| 3. | St David's Hospital
Austin, Texas
Relief Pharmacist | 7/91 to 6/92 |
| 4. | Walgreens Chain Drug Stores
Austin, Texas
Relief Pharmacist | 2/90 to 6/90 |
| 5. | HCA South Austin Medical Center
Austin, Texas
Staff Pharmacist | 7/87 to 6/90 |
| 6. | Brackenridge Hospital Pharmacy
Austin, Texas
Health Administration Intern | 6/87 to 4/88 |
| 7. | Louisiana State University
Medical Center
New Orleans, Louisiana
Research Assistant
Section of Genetics | 9/86 to 5/87 |
| 8. | Harborview Medical Center
Seattle, Washington
Pharmacy Intern | 8/82 to 9/85 |

COURSES DEVELOPED AND TAUGHT

(July 1992 - Present)

- Clinical Biostatistics, PHAD 530
- Administrative Science for Pharmacy, PHAD 520 (1/2)
- Sociopharmacy, PHAD 500
- Jurisprudence, PHAD 420

Additional Course Participation

- Guest Lecturer, in a Doctor of Pharmacy Course in Patient Communications, November 29, 1993, Ferris State University. Topic- Cultural Diversity and Low Literacy
- Guest Lecturer, in a Doctor of Pharmacy Course in Patient Communications, April 22, 1993, Ferris State University. Topic- Counseling Low Literacy Patients
- Guest Lecturer, in a Pharmacy undergraduate course in Patient Communications, November 3, 1992, Ferris State University. Topic- Counseling Low Literacy Patients

CONTRIBUTED PAPERS AND PUBLICATIONS

- * The Effect of Visual Aids and Advanced Organizers on Improving the use of Antibiotics in Rural Cameroon. Ngoh, LN and Shepherd, MD. Book chapter in: **Medicines: Meanings and Contexts**. Etkin, NL and Tan, ML eds. (1994)
- * The Design, Development, and Evaluation of Visual Aids For Communicating Prescription Drug Instructions to Nonliterate Patients in Rural Cameroon. (Under review for **Journal of Patient Education and Counseling**).
- * OBRA'90 Counseling Requirements: Bridging the Gap for Patients with Low Literacy Skills. Lucy N. Ngoh, Ferris State University. Presentation at the **Michigan Pharmacist 1995 Interim Meeting: Face to Face With Change**, February 17-19, 1995, Dearborn, Michigan.

CONTRIBUTED PAPERS AND PUBLICATIONS

- * The Design, Development, and Evaluation of Visual Aids for Patients with Low Literacy Skills. Lucy N. Ngoh, Ferris State University, Michigan, U.S.A. **The Third Wintergreen Research Conference in Social and Administrative Sciences, hosted by the Center on Drugs and Public Policy, The University of Maryland Graduate School, Baltimore, and held in Wintergreen, Virginia, October 13-16, 1994.**
- * The Design And Development Of Visual Aids For Patients With Low Literacy Skills In Special Populations: A View From Rural Cameroon. Lucy N. Ngoh, Ferris State University, and Marvin D. Shepherd, University of Texas at Austin, U.S.A. **Podium presentation at the American Pharmaceutical Association 141st Annual Meeting and Exposition, March 19-23, 1994, Seattle, Washington U.S.A.**
- * Comparison of Educational Methods for Improving Illiterate Patient's Knowledge and Antibiotic Use in Rural Cameroon. Lucy N. Ngoh, Ferris State University, and Marvin D. Shepherd, University of Texas at Austin, U.S.A. **Podium presentation at the American Pharmaceutical Association 140th Annual Meeting and Exposition, March 20-24, 1993, Dallas, Texas U.S.A.**
- * "The Comprehension of Antibiotic Prescription Instructions and Their Utilization In Three Primary Health Care Settings in Cameroon, West Africa". **First International Conference On Social And Cultural Aspects Of Pharmaceuticals, Conference Center Woudschoten, The Netherlands, October 17-21, 1991.**

HONORS AND AWARDS

- Selected as a participant in the first International Conference On Social And Cultural Aspects Of Pharmaceuticals, Conference Center Woudschoten, The Netherlands, October 17-21, 1991.
- Selected as member of Rho Chi (the American honor Society of Pharmacy) in 1989.
- Selected as member of the Beta Alpha Phi International Honor Society in February of 1989.

HONORS AND AWARDS

- Awarded the American Association of University Women Educational Foundation International Fellowship for the 1988-1989 academic year.
- Awarded the P.E.O. International Peace Scholarship for the 1987-1988 academic year.
- Nominated as member of the Academic Honor Society of Phi Kappa Phi in December of 1988

GRANT ACTIVITY

- Awarded the American Association of Colleges of Pharmacy 1995-96 Grant for New Investigators. A proposal, "The Design, Use, and Evaluation of Prescription Information Leaflets for Adults with Low Literacy Skills: A Pilot Study in Pharmacy Practice."
- Awarded a Rockefeller Foundation African Dissertation Internship for one year beginning February 1, 1990 to conduct my dissertation research at the University of Yaounde in Cameroon, West Africa.

PROFESSIONAL DEVELOPMENT

- * Attended the 1995 American Society For Pharmacy Law Seminar VI "Developments In Pharmacy Law," November 16-19, 1995 at Monteleone Hotel New Orleans, Louisiana.
- * Passed the National Commission for Health Education Credentialing, Inc. (NCHEC) Health Education Specialist Certification Examination Tested in October, 1995
- * Attended The Food and Drug Law Institute "Federal Drug Law and Regulatory Education Program," The Washington Court Hotel, Washington, D.C., October 16-17, 1995.
- * Participated in "Instructional Strategies Workshop, part 1 and part 2" -Dr. Katherine Manley, August 24, 1995, Ferris State University, Big Rapids, Michigan

PROFESSIONAL DEVELOPMENT

- * Attended the 10th National Conference on Prescription Medicine Information and Education, "Integrating The Art and Science of Prescription Medicine Compliance," May 8-9, 1995 at The Sheraton Washington Hotel, Washington, DC
- * Attended the CePOR '95 conference, "Standards for the Economic Evaluation of Drugs: Issues and Answers," at The University of North Carolina at Chapel Hill, April 2-4, 1995
- * Attended The Food and Drug Law Institute "Federal Drug Law and Regulatory Education Program," Washington Marriott Hotel, Washington, D.C., October 18-19, 1994.
- * Attended the Third Wintergreen Research Conference in Social and Administrative Sciences, hosted by the Center on Drugs and Public Policy, The University of Maryland Graduate School, Baltimore, and held in Wintergreen, Virginia, October 13-16, 1994.
- * Participated in "Instructional Strategies Workshop, part 1 and part 2" -Dr. Katherine Manley, August 25, 1994, Ferris State University, Big Rapids, Michigan
- * Participated in Professional Convocation Concurrent Sessions Topics, "Cooperative Learning: How it Can Work in Your Classroom," August 22, 1994, Ferris State University, Big Rapids, Michigan
- * Attended the 1994 Society for Public Health Education Midyear Scientific Conference "Empowerment: Enhancing the Quality of Life for Diverse Populations" July 8-11, 1994 at Research Triangle Park and Chapel Hill, North Carolina
- * Attended the 1993 American Society For Pharmacy Law Seminar IV "Developments In Pharmacy Law," November 18-21, 1993 at Arizona Biltmore, Phoenix, Arizona
- * Attended the 1993 Society for Public Health Education Midyear Scientific Conference "Expanding the Scope of Health Education: A Response to Healthy People 2000" June 24-26, 1993 at Grand Rapids, Michigan

PROFESSIONAL DEVELOPMENT

- * Attended a Workshop on "Low Literacy Communications Skills for Health Professionals at University of New England, College of Professional and Continuing Studies, July 18-21, 1993.
- * Attended the Ninth National Conference on Prescription Medicine Information and Education, "Making Progress in Medicine Communication: The Outcomes Challenge," May 6-7, 1993 at The Washington Hilton and Towers, Washington, DC.
- * Wrote and passed the Michigan State Jurisprudence Examination for Licensure held on December 01, 1992.
- * Participated in a Teaching Thinking Skills workshop, November 6-7, 1992, Ferris State University, Big Rapids, Michigan

PROFESSIONAL AFFILIATIONS

- American Association of Colleges of Pharmacy
- American Pharmaceutical Association
- Michigan Pharmacists Association
- American Society For Pharmacy Law
- International Pharmaceutical Federation (FIP)
- Society For Public Health Education
- American Association of University Women

Professional License

- Registered Pharmacist, State of Texas
- Registered Pharmacist, State of Michigan
- Certified Health Education Specialist

SERVICE

UNIVERSITY SERVICE

- * Student Health Advisory Committee
- * International Education Committee
- * Member of the "Mid-America College Health Association" Planning Committee for the 29th Annual Meeting, October 1994, Ferris State University, Big Rapids, Michigan

SERVICE

COLLEGE OF PHARMACY SERVICE

July 1992-Present College of Pharmacy Committee
Assignments:

1. Admissions
2. Continuing Education
3. Sabbatical
4. Curriculum (until 9/1993)
5. Library (until 9/1993)
6. Rank and Promotion (1994)

Member of the Pharm. D. Self Study (PDSS) Subcommittee,
Curriculum and Degrees

Participated in the 1993 and 1994 Honors Convocation
respectively

Participated in the 1993 "Pharmacy Career Day"

PHARMACY PROFESSION SERVICE

1. Attended a special Michigan Employee Pharmacist (MESP)
sector Focus Group educational seminar in East Lansing,
Michigan on Thursday, November 11, 1993 at the Holiday Inn
2. Participated in the 11th Annual Symposium on Pharmaceutical
Sciences Graduate Programs, October 8-9, 1993

COMMUNITY SERVICE

1. Served as a Volunteer in the "Cancer Fund of America
Neighborhood Campaign" in 1994
2. Served as a "Role Model Presenter" at the Math, Science
Technology Access For All Conference at the FSU Williams
Auditorium on Saturday March 11, 1995.

LOCAL RESIDENCE

521 West Fuller
Big Rapids, Michigan 49307
(616) 796-4750

January 1996

MARC A. NIENHUIS, PHARM.D.

CURRICULUM VITAE

ADDRESS: (home) 310 Russell
Kawkawlin, Michigan 48631

(office) Bay Medical Center
Pharmacy Department
1900 Columbus Avenue
Bay City, Michigan 48708

TELEPHONE: (home) (517) 686-5840
(office) (517) 894-3732

BIRTHDATE: August 27, 1952

LICENSURE: August, 1975 - Michigan

**SOCIAL SECURITY
NUMBER:** 368-60-7170

CURRENT POSITION: Associate Professor of Clinical Pharmacy
Ferris State University

Manager of Clinical Pharmacy
Bay Medical Center

EDUCATION:

1976-1978 The University of Michigan
College of Pharmacy
Ann Arbor, Michigan

Degree received: Doctor of Pharmacy

1970-1975 Ferris State College
School of Pharmacy
Big Rapids, Michigan

Degree received: Bachelor of Science-Pharmacy

PHARMACY PRACTICE EXPERIENCE:

- 1990-Present Ferris State University
 School of Pharmacy
 Big Rapids, Michigan
- Associate Professor of Clinical Pharmacy
- University-related activities include:
 coordinating the Bay City site for the
 provision of experiential/clinical education
 to clerkship students, university
 developmental activities, committee
 involvement, and formal lectures in Bachelor
 and Doctor of Pharmacy Programs.
- 1979-1989 Ferris State University
 School of Pharmacy
 Big Rapids, Michigan
- Assistant Professor of Clinical Pharmacy
- 1978-Present Bay Medical Center
 Pharmacy Department
 Bay City, Michigan
- Manager of Clinical Pharmacy
- Development/direction/participation in
 clinical pharmacy programs; consultant in
 infectious disease, nutrition, clinical
 pharmacotherapeutics, pharmacokinetics;
 Medical Staff/Hospital committee involvement;
 drug utilization evaluation.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:

Phi Eta Sigma Honor Society
Rho Chi Pharmacy Honor Society, Alpha Chapter
American Society of Hospital Pharmacy
Michigan Pharmacists Association
Central Michigan Society of Hospital
Pharmacists (Board 1983-86, President
1984-85)
Bay County Pharmacists Association (Board
1980-83)

PROFESSIONAL ACTIVITIES:

Bay Medical HomeCare Board 1986-Present
Bay County Hospice Board 1986-Present
Michigan State Medical Society AIDS Hotline
1987-Present
Michigan State Medical Society Speaker's
Bureau 1987-Present
American Red Cross AIDS Task Force
1987-Present
Volunteer Hospitals of America Antibiotic Task
Force
Area Health Education Council 1985-1989
American Heart Association Board 1981-1987

PRESENTATIONS:

1992 "Oral Antibiotic Update"
Michigan Pharmacist's Association Annual
Meeting
Dearborn, Michigan

 "Oral Antibiotic Update"
Minnesota Society of Hospital Pharmacy
Duluth, Minnesota

 "Pharmacotherapy Update"
New Mexico Pharmacist's Association
Los Cruces, New Mexico

 "Pharmacotherapy Update"
Iowa Pharmacist's Association
Ames, Iowa

 "Oral Antibiotic Update"
Oregon Pharmacy Society
Portland, Oregon

 "Antibiotic Review"
Portland University Hospital, Medical Grand
Rounds
Portland, Oregon

- 1991 "Gastroesophageal Reflux Disease"
University of Wisconsin Annual Fall Seminar
Madison, Wisconsin
- "Ethics in Pharmacy"
Oklahoma Society of Hospital Pharmacists
Tulsa, Oklahoma
- "Gastroesophageal Reflux Disease"
Pennsylvania Society of Hospital Pharmacists
Pittsburgh, Pennsylvania
- "Gastroesophageal Reflux Disease"
Michigan Pharmacy Association
Chicago, Illinois
- "Cardiovascular Update"
Minnesota Pharmacy Association
Minneapolis, Minnesota
- "Therapeutic Outcomes"
Pennsylvania Society of Hospital Pharmacists
Hershey, Pennsylvania
- "Treatment of Nosocomial Infections"
Oregon Pharmacy Association
Portland, Oregon
- "Gastroesophageal Reflux Disease"
New York Hospital, Grand Rounds
New York
- "Antibiotic Resistance"
"Pharmacodynamic Principles of Antibiotics"
North Dakota Society of Hospital Pharmacists
Fargo, North Dakota
- "Gastroesophageal Reflux Disease"
Central Michigan Society of Hospital
Pharmacists
Lansing, Michigan
- "Antibiotic Resistance"
Michigan Pharmacist's Association Interim
Meeting
Dearborn, Michigan
- "Kinetics/Pharmacodynamic Principles in
Antibiotic Selection"
Michigan Society of Hospital Pharmacists
Annual Meeting
Dearborn, Michigan

- 1990
- "Antibiotic Resistance"
Ferris State University Clinical Seminar
Big Rapids, Michigan
 - "AIDS"
Central Michigan University Biology Visiting
Professor Series
Mount Pleasant, Michigan
 - "AIDS"
Michigan Pharmacist's Association Interim
Meeting
Dearborn, Michigan
 - "Proper Antibiotic Usage"
Oregon Professional Pharmacist's Association
Portland, Oregon
 - "Pharmacokinetic Principles in Antibiotic
Selection"
Pennsylvania Society of Hospital Pharmacists
Erie, Pennsylvania
 - "AIDS"
Utah Society of Hospital Pharmacists
Salt Lake City, Utah
 - "Treatment of Common Bacterial Infections"
Michigan Pharmacist's Association Annual
Meeting
Traverse City, Michigan
- 1989
- "Peptic Ulcer Disease"
Arkansas Society of Hospital Pharmacists
Little Rock, Arkansas
 - "Antibiotic Update"
Central Louisiana Society of Hospital
Pharmacists
Baton Rouge, Louisiana
 - "Gastroesophageal Reflux Disease"
Florida Osteopathic Society
Sarasota, Florida
 - "Peptic Ulcer Disease"
Indiana Pharmacist's Association
Indianapolis, Indiana

"Pharmacodynamic Considerations in Antibiotic Selection"

Indiana Society of Hospital Pharmacists
Fort Wayne, Indiana

"Proper Antibiotic Usage"

Mercy Hospital National Pharmacy Annual Meeting
New Orleans, Louisiana

"Treatment of Outpatient Infections"

Michigan Pharmacist's Association Annual Meeting
Mackinaw Island, Michigan

"Antibiotic Update"

Michigan Pharmacist's Association Interim Meeting
Dearborn, Michigan

"Antibiotic Roundtable"

Michigan Society of Hospital Pharmacists
Troy, Michigan

"Outpatient Infections"

Nevada Pharmacist's Association
Las Vegas, Nevada

"Pharmacokinetic Considerations in Antibiotic Usage"

Ohio Society of Hospital Pharmacists
Dayton, Ohio

"AIDS"

Oregon Society of Hospital Pharmacists
Portland, Oregon

1988

"Treatment of Outpatient Infections"

Michigan Pharmacist's Association Annual Meeting
Traverse City, Michigan

"Antibiotic Update"

Michigan Pharmacist's Association Interim Meeting
Dearborn, Michigan

"Pharmacokinetic Considerations in Antibiotic Selection"

Minnesota Society of Hospital Pharmacists
Duluth, Minnesota

"Infections in the Critically Ill Patient"
New Mexico Medical Society
Santa Fe, New Mexico

"Diagnosis/Treatment of Peptic Ulcer Disease"
Pennsylvania Pharmacist's Association
Wilkes-Barre, Pennsylvania

1987 "Infections in the Elderly"
Maryland Society of Hospital Pharmacists
Ocean City, Maryland

"Quinolones"
Montana Society of Hospital Pharmacists
Billings, Montana

1986 "Adverse Drug Reactions"
"Antibiotics"
Arizona Society of Hospital Pharmacists
Tuscon, Arizona

"Considerations in Hospital Antibiotic
Formulary"
California Society of Hospital Pharmacists
Long Beach, California

"Proper Antibiotic Usage"
Indian Health Service
Gallop, New Mexico
Carrodo, Arizona

"Fluid/Electrolyte/Acid Base"
Michigan Society of Hospital Pharmacists
Dearborn, Michigan

"Antibiotic Formulary Considerations"
New Mexico Society of Hospital Pharmacists
Santa Fe, New Mexico

"Adverse Drug Reactions"
"Antibiotics"
Wisconsin Society of Hospital Pharmacists
Lake Geneva, Wisconsin

"Pharmacodynamic Considerations in Antibiotic
Selection"
Northern Michigan Society of Hospital
Pharmacists
Gaylord, Michigan

- 1985-1989 "Hyperlipidemia"
"Antibiotic Update"
"Hypertension"
"Asthma"
Michigan Upper Peninsula Pharmacist's Association
Marquette, Michigan
- 1985 "Expansion of Dosing Interval as a Marketing
Tool"
Florida Society of Hospital Pharmacists
Fort Lauderdale, Florida
- "Hypertension"
Michigan Pharmacist's Association Interim
Meeting
Dearborn, Michigan
- "Adverse Drug Reactions"
"Antibiotics"
Texas Society of Hospital Pharmacists
Austin, Texas
- 1984 "Pharmacokinetics for the Non-
Pharmacokineticist"
Michigan Osteopathic Society
Dearborn, Michigan
- 1983 "Proper Antibiotic Usage"
Michigan State Medical Society
Dearborn, Michigan
- "Ischemic Heart Disease"
Western Michigan Society of Hospital
Pharmacists
Kalamazoo, Michigan
- 1982 "Drugs in the Elderly"
Ferris State University Spring Seminar
Big Rapids, Michigan
- "Asthma"
Michigan Pharmacist's Association
(road trip-9 cities)
- 1981 "Asthma"
Michigan Pharmacist's Association Interim
Meeting
Dearborn, Michigan

1981-Present "Basic Cardiac Life Support/Advanced Cardiac
Life Support"
Participated in over 50 courses

ANNUAL ANTIBIOTIC PRESENTATIONS (1980-PRESENT)

<u>Medical Staff</u>	<u>Topic</u>
Hills & Dales Hospital, Cass City	Antibiotic Update
Caro Community Hospital	Antibiotic Update
Huron Memorial Hospital, Bad Axe	Antibiotic Update
Wurthsmith Air Force Base, Oscoda	Antibiotic Update
Moderator/Organizer of Bay Medical Center Antibiotic Symposium	1984-Present
Moderator/Organizer of Michigan Pharmacist's Association Annual Zustiack Seminar & Trust Fund	1986-Present

MICHIGAN STATE MEDICAL SOCIETY AIDS SPEAKER'S BUREAU
(1987-PRESENT)

Pharmacy	30 County/State Society Programs
Medicine	20 Hospital Medical Staff/County Programs
Nursing	10 Regional Programs
Universities	10 University Programs
Lay Organizations	Over 50 presentations: High schools Lions Clubs Kiwinas Clubs National Organization of Women University Women

PUBLICATIONS

- Applied Clinical Pharmacokinetics, Raven Press. Chapter:
"Digoxin", 1983.
- "Pediculosis/Scabies Update", U.S. Pharmacist, September 1980.
- "Critical Care Pharmacy: A Consultation Model", American Society of Hospital Pharmacy, December 1978.
- "Preventing and Treating Pediculosis and Scabies", U.S. Pharmacist, September 1976.
- "Comparison of Pharmacy-Based Anticoagulation Service versus Medical Staff" (in progress)

Case Studies (in progress):

- "Use of Ceftriaxone in Neurosyphillis"
"Listeria Meningitis in an Immunocompetent 60 Year Old Male"
"Ciprofloxacin Resistance in Diabetic Foot Ulcers"

HOSPITAL/MEDICAL STAFF COMMITTEE MEMBERSHIP

Department of Internal Medicine
Pharmacy & Therapeutics
Code Max
Infection Control (quality assurance voting member)
Special Care Committee
Education Committee
Medical Residency Subcommittee

CONSULTANT

Health Plus
Blue Care Network

PATIENT CARE ACTIVITY DEVELOPMENT

Pharmacist on Code Max Team - 1978
Nutritional Support Team - 1979
Decentralized Pharmacist - 1982
Intravenous Home Antibiotic Program - 1984
Home Total Parenteral Nutrition Program - 1984
Pain Team - 1984

Curriculum Vitae
Mary S. Richardson, Pharm.D., BCPS

Work Address:

St. Lawrence Hospital
Pharmacy Department
1210 West Saginaw
Lansing, MI 48914
(517)-377-0500 X05461
Digital Beeper: 517-360-4669

Home Address:

2713 Meadowlane Drive
Lansing, MI 48906
517-323-9638

Current Position: Assistant Professor of Clinical Pharmacy

Ferris State University
College of Pharmacy
Big Rapids, MI 49307
616-592-2329

License: Maryland, Michigan

Certifications: Board Certified Pharmacotherapy Specialist, 1993-2000

Education:

Veterans Affairs Medical Center
10701 East Boulevard
Cleveland, OH
July 1991-June 1992
Geriatrics Clinical Residency

University of Maryland
School of Pharmacy
20 North Pine Street
Baltimore, MD
September 1987- May 1991
Doctor of Pharmacy

Western Maryland College
Westminster, MD
September 1984- May 1987
Bachelor of Arts, Biology

Professional Societies and Honors:

American College of Clinical Pharmacy, member
American Society of Hospital Pharmacists, member
Rho Chi National Honor Society
*Omicron chapter historian, 1990
Lambda Kappa Sigma Professional Fraternity

*Epsilon chapter corresponding secretary. 1990
Beta Beta Beta Biological Honor Society
Academic Excellence Awards: 1989, 1990, and 1991
Maryland Distinguished Scholar
Western Maryland College Presidential Scholar
Western Maryland College Dean's List

Work Experience:

August 1992-present: Assistant professor of clinical pharmacy Ferris State University. Big Rapids, MI.

July 1991-June 1992: Geriatric clinical pharmacy resident. Veterans Affairs Medical Center. Cleveland, OH.

September 1990-December 1990: Graduate teaching assistant for pharmacy practice/clinical pharmacy department. University of Maryland. Baltimore, MD.

Lectures/Teaching Responsibilities:

Didactic:

Pathophysiology and Applied Therapeutics (Pharm.D.):

Lectures taught include Contraception, Hypertension, Parkinson's Disease and Geriatric Syndromes.

Pharmacotherapeutics (B.S.):

Lectures taught include Hypertension and Parkinson's Disease.

Patient Communications (Pharm.D.):

Lectures taught include Counseling Geriatric Patients.

Pharmacokinetics (Pharm.D.):

Lectures taught include Pharmacokinetic Changes in the Elderly

Experiential:

Clinical Clerkship (B.S.)

Ambulatory Care Clerkship (Pharm.D.)

Geriatrics Clerkship (Pharm.D.)

Clinical Responsibilities:

St. Lawrence Hospital:

Team member. Geriatric Inpatient Service/Resident teaching

Geriatric Assessment Center: Medication Chart Reviews/Consults

Family Health Center: Drug information/patient medication counseling service, drug utilization review, and resident teaching

Co-Editor. Ambulatory Care Newsletter

Ferris State University Clinical Site Coordinator:

Externship Administrative Responsibilities:

Organize and schedule students for externship and clinical clerkship experience

Orient students to scheduling process

Compile and administer externship final/ compile final grades for experiential rotations

Conduct portfolio review
Conduct externship site visitations
Participate in new site recruitment/development
Conduct continuing education sessions for adjunct faculty
Serve as liaison between adjunct faculty, students, and the university

Committees:

Ferris State University Committee Assignments:

Clinical Pharmacy Practice Council 1993-1994, member
Clinical Pharmacy Practice Council 1994-1995, Chairman
Self Study Committee on Organization and Experimentation for ACPE 1993, Chairman
Pharm.D. Admissions 1993-5, member
Principles Of Clinical Pharmacy Practice, Course design committee
Externship/Clerkship Revision 1994-1995
Library Committee 1993-1994, member
Sabbatical Committee 1994-1995, member
Single Degree Study Committee 1994-1995, member
Curriculum Committee 1995-1996, member/guest

Michigan Pharmacist's Association:

MEPPS Program Consultant Cadre Committee 1995-1996, member

Presentations/ Posters:

Polypharmacy. Workshop Session, 1995 Ninth Annual Symposium on Geriatric Medicine. Michigan State University. East Lansing, MI. December 8, 1995.

Ferris State University Experiential Evaluation Workshop. Continuing Education Session. Lansing, MI. November 30, 1995.

Calcium channel blockers: safe or deadly? Family Practice Residency Clinical Therapeutics Conference. St. Lawrence Hospital. Lansing, MI. October 10, 1995.

Ace inhibitors in acute myocardial infarction. Family Practice Residency Clinical Therapeutics Conference. St. Lawrence Hospital. Lansing, MI March 14, 1995.

Medications. Caregivers Education Series. St. Lawrence Hospital. Lansing, MI. February 15, 1995.

Go with your gut feelings: A practical guide to proton pump inhibitors & prokinetic agents for GI conditions. Family Practice Residency Clinical Therapeutics Conference. St. Lawrence Hospital. Lansing, MI. November 8, 1994.

Medication Management in the Elderly: Implications for Nursing. Consultant panel member. Livonia, MI. November 17, 1994.

Non-steroidal antiinflammatory drugs. Family Practice Residency Clinical Therapeutics Conference. St. Lawrence Hospital. Lansing, MI. November 14, 1994

Medications. Caregivers Education Series. St. Lawrence Hospital. Lansing, MI February 16, 1994.

The effects of medication on functional ability. Workshop Session, 1993 Seventh Annual Symposium on Geriatric Medicine. Michigan State University. East Lansing, MI. October 14, 1993

Medication use in the elderly Geriatric Lecture Series. St. Lawrence Hospital. Lansing, MI. 1992-present.

Medication Use in the Elderly Assessment of Psychiatric Patients Seminar. Michigan State University East Lansing, MI. 1994-present.

The effect of a short course of ciprofloxacin on the prothrombin time of elderly patients stabilized on warfarin. Poster presentation. 1992 ASHP Midyear Clinical Meeting. Orlando, FL.

The effect of a short course of ciprofloxacin on the prothrombin time of elderly patients stabilized on warfarin. Presentation. 1991 Great Lakes Regional Residency Conference. Oakbrook, IL.

Antibiotics and phototoxicity reactions. Department of Infectious Disease Case Conference. Cleveland Clinic. Cleveland, OH.

Treatment of asymptomatic bacteruria in patients with chronic catheters. Geriatrics Service. Veterans Affairs Medical Center. Cleveland, OH.

Use of narcotic analgesics in the elderly. Geriatrics Service. Veterans Affairs Medical Center. Cleveland, OH.

Use of non-steroidal inflammatory agents in the elderly. Geriatrics Service. Veterans Affairs Medical Center. Cleveland, OH.

Use of antidepressants in the elderly. Geriatrics Service. Veterans Affairs Medical Center. Cleveland, OH.

Research:

Current: O'Brien JG., Richardson MS, and Yonker J. Medication use in advanced aging: a comparison on nonagenarians and octogenarians. Poster presented at 1994 Gerontological Society Meeting. Atlanta, GA.

O'Brien JG., Richardson MS, and Yonker J. Medication use in a community based over 80 population. Paper presented at 1993 Gerontological Society Meeting. New Orleans, LA.

Richardson MS and Zuckerman IH. The use of methylphenidate in geriatric patients for failure to thrive syndrome: a descriptive analysis. Pharm.D. research project. University of Maryland.

Publications:

Richardson MS. The elderly and adverse drug reactions. Michigan Journal of Pharmacy 1993; April.

CURRICULUM VITAE

JOAN MARIE RIDER

OFFICE ADDRESS:

Saint Mary's Health Services
Pharmacy Department
200 Jefferson SE
Grand Rapids, MI 49503
Telephone: (616) 774-6681
FAX: (616) 732-3051

PERMANENT ADDRESS:

761 Bradford Place NE
Grand Rapids, Michigan 49546
Telephone: (616) 285-2464

EDUCATION AND CREDENTIALS

1991 - Present	Certified Pharmacotherapy Specialist (BCPS) by the Board of Pharmaceutical Specialties
1988-1990	University of Michigan College of Pharmacy Ann Arbor, Michigan Doctor of Pharmacy
1987-1988	Bronson Methodist Hospital Kalamazoo, Michigan ASHP Accredited Residency
1984-1987	Ferris State University College of Pharmacy Big Rapids, Michigan B.S. Pharmacy
1983-84	Grand Valley State University Allendale, Michigan Pre-Pharmacy studies
1981-1983	Mercy Central School of Nursing Grand Rapids, Michigan Nursing Studies

ACADEMIC APPOINTMENT

July, 1994-present	Ferris State University College of Pharmacy Big Rapids, Michigan Associate Professor of Clinical Pharmacy
September 1990-June, 1994	Ferris State University College of Pharmacy Big Rapids, Michigan Assistant Professor of Clinical Pharmacy

PHARMACY PRACTICE EXPERIENCE

September, 1990-Present	Saint Mary's Health Services Pharmacy Department Grand Rapids, Michigan Clinical Pharmacist
June, 1990-Present	Momber Pharmacy Sparta, Michigan Staff Pharmacist
September, 1988-June, 1990	Lucky Drugs No. 2, Inc. Ann Arbor, Michigan Staff Pharmacist
June-August 1988	Rite Aid, Inc. Grand Rapids, Michigan Staff Pharmacist

TEACHING**PHPR 531: Pathophysiology and Applied Therapeutics I**

Pharmacotherapy of Diabetes Mellitus
Pharmacotherapy of Peptic Ulcer, Gastroesophageal Reflux and Zollinger-Ellison Disease
Pharmacotherapy of Osteoarthritis
Pharmacotherapy of Viral Hepatitis

PHPR 532: Pathophysiology and Applied Therapeutics II

Pharmacotherapy of Asthma and COPD

PHPR 541/542: Principles in Clinical Pharmacy I and II

Course Coordinator
Monitoring the Endocrine Patient
Monitoring the Pulmonary Patient
Orientation to SOAP Format

PHCL 520: Pharmacotherapeutics

Pharmacotherapy of Diabetes Mellitus
Pharmacotherapy of Asthma and COPD
Pharmacotherapy of Peptic Ulcer, Gastroesophageal Reflux and Zollinger-Ellison Disease
Pharmacotherapy of Rheumatoid and Osteoarthritis

TEACHING

PHAR 460: Advanced Pharmacokinetics
Pharmacokinetics of Antiepileptic Drugs

PHPR 520: Clinical Clerkship

PHPR 600/601: Internal Medicine Clerkship I and II

PHPR 622: Pulmonary Medicine Clerkship

PUBLICATIONS

Rider JM, Mauger TF, Jameson JP, Notman DD. Water Handling In Patients Receiving Haloperidol Decanoate. *Ann Pharmacother.* 1995;29(7/8):663-6.

Rider JM. Diabetes Update. *Pharmat Inc.* 1995;21(1):1-13.

Rider JM. Seizure Disorders. *Drug Store News for the Pharmacist.* 1994 Oct 17;4(10):55-61.

Carver PL, Berardi RR, Knapp MJ, Rider JM, Kauffman CA, Bradley SF, Atassi M. In Vivo Interaction of Ketoconazole and Sucralfate in Healthy Volunteers. *Antimicrob Agents Chemother.* 1994;38(2):326-9.

Knapp MJ, Berardi RR, Dressman JB, Rider JM, Carver PL. Modification of Gastric pH with Oral Glutamic Acid. *Clin Pharm.* 1991 Nov;10:866-9.

PRESENTATIONS

- 1996 "Diabetes Update"
Western Michigan Society of Hospital Pharmacists Annual Spring Seminar; Grand Rapids, MI
- "Diabetes Update"
Capital Area Pharmacists Association February Meeting; Lansing, MI
- "Diabetes Update"
Kent County Pharmacists Association January Meeting; Grand Rapids, MI
- "Diabetes Update"
Southwestern Michigan Pharmacists Association January Meeting; Portage, MI
- "Diabetes Update"
Ionia-Montcalm Pharmacists Association January Meeting; Greenville, MI

PRESENTATIONS

- 1995 "Diabetes Update"
Western Michigan Pharmacists Association November Meeting; Spring Lake, MI
- "Diabetes Update"
Michigan Society of Hospital Pharmacists Annual Meeting; Lansing, MI
- "New Drug Update: Ophthalmic and Topical Agents"
42nd Annual Pharmacy Seminar Ferris State University, Big Rapids, MI.
- "Update on Helicobacter pylori and its Role in Peptic Ulcer Disease"
Michigan Pharmacists Association Interim Meeting; Dearborn, MI.
- 1994 "Hepatitis Therapy: Current and Future Concepts" Internal Medicine Section Meeting,
Saint Mary's Health Services; Grand Rapids, MI.
- "New Drug Update: Cardiovascular and Respiratory Agents"
41st Annual Pharmacy Seminar Ferris State University, Big Rapids, MI.
- 1993 "The Effect of Haldol Decanoate on Water Handling" Poster Presentation
American College of Clinical Pharmacy Annual Meeting; Reno, NV.
- "Implementation Strategies On Pharmaceutical Care" Facilitator Round Table Workshop
24th Annual Western Michigan Pharmacy/Nursing Seminar; Grand Rapids, MI.
- 1992 "Hepatitis: Alphabetizing the Liver"
Michigan Pharmacists Association Interim Meeting; Dearborn, MI.
- "The Asthma Patient Deserves Pharmaceutical Care: Problems Associated with Asthma Medications" Ferris State University College of Pharmacy Continuing Education Seminar;
Lansing, MI.
- "Case Studies in Pharmaceutical Care" Facilitator Round Table Workshop
Ferris State University College of Pharmacy Annual Preceptors Conference; Big Rapids, MI.
- "New Drug Update"
Continuing Education Program; Meijer's Pharmacists; Flint, MI.
- "Asthma: Take My Breath Away"
Continuing Education Program; Meijer's Pharmacists; Grand Rapids and Ann Arbor, MI.
- "New Drug Update"
39th Annual Pharmacy Seminar Ferris State University, Big Rapids, MI.
- "Current Concepts and Future Directions in the Treatment of Asthma"
23rd Annual WMSHP Pharmacy and Nursing Seminar, Grand Rapids, MI.
- 1991 "Appropriate Use of Antihypertensive Agents" Saint Mary's Hospital Family Practice
Internal Medicine Residents Noon Conference, Grand Rapids, MI.

PRESENTATIONS

- 1990 "Management of Diabetic Gastroparesis with Prokinetic Agents"
Western Michigan Society of Hospital Pharmacists, Kalamazoo, MI.
- "Evaluation of a Potential Interaction between ketoconazole and Sucralfate in Healthy Volunteers" Ferris State University College of Pharmacy; Big Rapids, MI.
- "Modification of Gastric pH with Oral Glutamic Acid"
ASHP Annual Meeting Poster Presentation; Boston, MA.
- 1989 "Management of Diabetic Gastroparesis"
The University of Michigan Medical Center Inservice: Endocrine Nurses and Medical Residents; Ann Arbor, MI
- "Insulin Hypersensitivity" The University of Michigan Medical Center
Pharmacy Noon Conference; Ann Arbor, MI.
- "Diagnosis and Treatment of Cystic Fibrosis"
The University of Michigan College of Pharmacy; Ann Arbor, MI.
- 1988 "New Roles for Pharmacy Technicians: Result of Decentralization"
Annual Residency Conference, Dublin, OH
- 1987 "Pathophysiology and Treatment of Diabetes"
Bronson Methodist Hospital Critical Care Nurses , Kalamazoo, MI.
- "OTC Medications and Diabetes"
Bronson Methodist Hospital, Lay Public Kalamazoo, MI

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- | | |
|--------------|--|
| 1991-present | American College of Clinical Pharmacy |
| 1987-present | American Society of Health-System Pharmacists |
| 1992-present | Kent County Pharmacists Association |
| 1992-present | Michigan Society of Hospital Pharmacists |
| | 1992-95 Membership Committee |
| | 1995-present Organizational Affairs Committee: Co-Chairman |
| | 1995-present Regional Society Delegate to MSHP board |
| 1987-present | Western Michigan Society of Hospital Pharmacists |
| | 1993-present Executive Committee |
| | 1994-95 President-Elect |
| | 1995-96 President |

JOURNAL REVIEWER/REFEREE

1994-present The Annals of Pharmacotherapy

COMMITTEE SERVICE (Ferris State University)

1995-97 Rank and Promotion Committee; Chairperson
1994-95 Continuing Education Committee
1993-95 Strategic Marketing Committee; Campus Wide Committee
1993-94 Dean's Pharmacy Council
1992 Distance Learning Task Force; Campus Wide Committee
1991-93 Admissions Committee; College of Pharmacy;
1990-91 Library Committee; College of Pharmacy

SERVICE (Saint Mary's Health Services)

1993-94 Pulmonary Rehabilitation Team Member
1992-present Pharmacy and Therapeutics Committee
1992-present Pharmacist Advancement Systems Review Panel
1991-94 Multidisciplinary Research Group
1991-92 Psychopharmacology Research Group

PROFESSIONAL SERVICE

1996-present Elected Board Member
Alumni Society Board of Govenors
The University of Michigan
College of Pharmacy

LICENSURE

1987-Michigan #5302410902

- July 1986-July 1989 **Clinical Coordinator in General Medicine**
The Buffalo General Hospital, Buffalo, New York
Responsibilities included: providing clinical services for 120 general medicine beds, rounding daily with a Medicine service, providing instruction to House Officers and other health professionals in the form of inservices, precepting all medicine rotations for both general and clinical pharmacy residents, participating in hospital committees, coordinating pharmacy conferences, DUR, staff development and a minimal staffing commitment.
- Oct. 1986-July 1989 **Clinical Instructor**
School of Pharmacy, The State University of New York at Buffalo
Responsibilities included: precepting Doctor of Pharmacy students on general medicine rotations, and Bachelor of Pharmacy students during the clinical section of their 5th. year.
- Feb. 1985-June 1986 **Staff Pharmacist**
Humana Women's Hospital, San Antonio, Texas
- July 1984-June 1986 **Staff Pharmacist**
Medical Center Hospital, San Antonio, Texas
- June 1983-June 1984 **ASHP General Residency**
Lutheran General Hospital, Park Ridge, Illinois
Preceptor: Mick Hunt
- June 1980-June 1983 **Internship**
Mt. Clemens General Hospital, Mt. Clemens, MI

EDUCATION/CERTIFICATION

- August 1991 Board Certified Pharmacotherapy Specialist
- July 1984-June 1986 Doctor of Pharmacy Degree
University of Texas Health Science Center at San Antonio
and The University of Texas at Austin, College of Pharmacy
- Sept. 1978-April 1983 Bachelor of Science, Major in Pharmacy
Wayne State University, College of Pharmacy and Allied Health Professions
Detroit, Michigan

PUBLICATIONS/POSTERS

- ◆ Klaus JR, Ross MF, Knodel LC. New Drug Therapy: Augmentin. *J Ped Health Care* 1988;2:113-115.
- ◆ Poster presentation 1988 ASHP Midyear Clinical Meeting, Dallas, Texas.
Ross MF, Koester D, McCann K. Development of a Self-Sustaining Cardiopulmonary Resuscitation Training Program for Pharmacists.

PRESENTATIONS

- ◆ Health Care in El Salvador: A Humanitarian Mission- MPA/ Annual Convention and Exposition 1996
- ◆ Physicians Internal Medicine Board Review-KCMS, (Feb. 1991)
- ◆ WMSHP Continuing Education-Nov. 1989 meeting.
Digoxin: After 200 years, do the Benefits Outweigh the Risks?
- ◆ Continuing education curriculum, Niagara Falls Memorial Hospital-(1988-1989)
-EKG's, Arrhythmia's and the ACLS Guidelines for Treatment
-Treatment, and Assessment of Useful Interventions for Acute Myocardial Infarction
-A Review of Anti arrhythmic Drug Therapy
- ◆ Toxoplasmosis in the AIDS Patient-(1986)
seminar presented to the pharmacy faculty and students at the University of Texas (both in San Antonio and Austin), and at The Buffalo General Hospital to the pharmacy staff and students.
- ◆ Neurosyphilis: Is It Still a Wolf in Sheep's Clothing?-(1986)
lecture to the pharmacy faculty at the San Antonio State Hospital
- ◆ Captopril and It's Uses: Past, Present, and Future-(1985)
lecture to the family practice faculty and house staff at the Brady Green Ambulatory Care Clinics
- ◆ Hepatic Coma: "Causes and Cures"-(1983) and
- ◆ The Investigational Drug Process: Why we have it, How it works, How pharmacists can help.-(1984)
seminars presented to preceptors and pharmacy staff at Lutheran General Hospital
- ◆ Parenteral Drug Administration-(1983)
pharmacy staff development program reviewing techniques of parenteral drug administration, at Lutheran General Hospital
- ◆ What is a Residency?-(1984)
invited presentation to undergraduate pharmacy students at the University of Illinois

HONORS and AWARDS

- ◆ Graduated with High Honors from Wayne State University
- ◆ Lemmon Award
- ◆ Paul and Nettie Deutch Scholarship
- ◆ Rho Chi Pharmaceutical Honor Society
- ◆ Merit Scholarship to Wayne State University

PROFESSIONAL AFFILIATIONS

- ◆ American College of Clinical Pharmacy (ACCP)
Ambulatory Care Special Interest Group
- ◆ American Society of Hospital Pharmacists (ASHP)
- ◆ Michigan Society of Hospital Pharmacists (MSHP) in conjunction with the Michigan Pharmacists Association (MPA)
- ◆ Western Michigan Society of Hospital Pharmacists (WMSHP)

ORGANIZATIONAL ACTIVITIES

- | | |
|--------------|--|
| 1992-present | ASHP Faculty liaison, student advisor for FSU |
| 1994-1996 | WMSHP Board of Directors, At Large Member |
| 1994-present | MSHP Education Committee |
| 1995-1996 | MSHP Education Committee Co-Chair |
| 1993-1994 | MSHP Committee to plan Pharmaceutical Care Seminar |
| 1992-1993 | MSHP Committee to Advance Pharmacy Practice-member |

1987-1989 New York State Council of Hospital Pharmacists Public Relations
Committee-member
Feb.- June 1985 Class Coordinator: Pharm. D. Class of '86
1982-1983 Search Committee for the head of the Department of Pharmacy
Practice, WSU--student member
June-Oct. 1982 Appointed SPhA Region IV Delegate (national position)
1981-1982 SPhA, WSU chapter--Treasurer
1981-1982 Class of '83--Vice President of Student Affairs (WSU)
1981-1982 Class of '83--representative on Pharmacy Student Advisory Board
(WSU)

COMMUNITY SERVICE

- ◆ Initiated and set up pharmaceutical care services for the First Presbyterian Church Free Health Clinic (Providing free health care to the uninsured in Kalamazoo County). Continue to volunteer on a monthly basis, and consult on management issues as needed.
- ◆ Serve on the Sister Parish Committee, St. Thomas More, Kalamazoo, MI
- ◆ Board Member, Wedgewood Condominium Association (1990-1994)

LICENSED

Illinois #051-035017
Michigan #5302028163

REFERENCES

Available upon request

February 1996

CURRICULUM VITAE

Gerald William Alexander Slywka
Ph.D.

Educational Background:

Undergraduate Training: University of Saskatchewan, Saskatoon
B.S.P. (Pharmacy) 1961
University of Tennessee, Memphis
B.S. (Pharmacy) 1976

Graduate Training: University of Saskatchewan, Saskatoon
M.Sc. (Pharmaceutics) 1963
University of Alberta, Edmonton
Ph.D. (Pharmaceutical Chem.) 1969
Central Michigan University
M.A. (Educational Admin.) 1978

Positions Held:

1. November 1975 to present, College of Pharmacy,
Ferris State University, Big Rapids, MI. 49307
a. 1975 -1984 Associate Professor
b. May 1984 - Professor
2. July 1972 - November 1975, Assistant Professor,
Head Analytical Section, Div. of Drug
Metabolism & Biopharmaceutics, Medicinal
Chemistry, Univ. of Tenn., Memphis, TN.
3. March 1971 - June 1972, Head Toxicology Section,
Royal Canadian Mounted Police, Vancouver,
British Columbia, Canada.
4. November 1969 - March 1971, Toxicologist, Royal
Canadian Mounted Police, Regina,
Saskatchewan, Canada.

Licensure: State of Michigan- Licensed Pharmacist
August, 1987 -
State of Michigan- Controlled Substance License
August, 1987 - 1994

Membership in Professional Societies:

American Pharmaceutical Association
Michigan Pharmaceutical Association
American Chemical Society
International Assoc. of Forensic Toxicologists
American Association of Colleges of Pharmacy
Rho Chi, National Pharmacy Honor Society
Sigma Xi Society

Honors: Merit, Ferris State University, May 1990
Sabbatical, University of Saskatchewan, School of
Pharmacy, 1983-84.
Pharmaceutical Industry, Faculty Visitation
Program, Parke-Davis & Company, 1978
Greek Educator of the Year, FSU, 1977-78

Ancillary Appointments :

Ferris State University's representative to the
United States Pharmacopeial (USP) Convention,
1980, 1985, 1990.
Delegate- National Educational Association, 1984
Delegate to the American Association Colleges of
Pharmacy, 1978-79

Advisor: American Pharmaceutical Association Academy of
Students of Pharmacy, 1992 -
Rho Chi Honor Society, 1985 - 1994
Pharmacy Classes, 1980-83; 1985-88; 1990-93
Phi Delta Chi, 1976-1989

University Assignments: (1990-Present)

Ferris State Faculty Senate, 1992-1996; 1986-1988
Tuition Task Force, 1994; 1995
Sabbatical, Chairperson, 1994; 1995
Space Committee, 1994
Athletic Advisory, 1993-1996
Fiscial Restructuring Committee, 1993-94
Task Force for University Archives, 1992-1993
Internal Communications Committee, 1992-1993
Conference Center Advisory Committee, 1990-1993
Historical/Archival Advisory Committee, 1991-1992
Ferris State Faculty Research Committe, 1988-1990

College Assignments: (1992-Present)

Single Degree Committee, Chairperson, 1994-1995
Sabbatical, Chairperson, 1994; 1994
Promotion/Merit, Chairperson, 1993; 1994
Promotion/Merit, 1995-1996
Pharmacy Alumni Coordinator, 1991-1993
Editor, FSU Pharmacy Alumni Bulletin, 1991-
Pharmacy Strategic Plan Committee, 1991-1992
Continuing Education, 1991-1992

Professional Involvement:

Michigan Pharmaceutical Association,
Educational Committee, 1994-
Membership Committee, 1995-
Mid-Michigan Pharmaceutical Association;
President, 1991-1992
Secretary, 1992-1994; 1990-1991

Community Involvement:

Rotary Club;
Big Rapids, 1992- ; Secretary 1994-
Reed City, 1988-1992
St. Philip Neri Church, Reed City;
Finance Committee, 1987-

Research Grants Funded [While at FSU]:

1991-92	FSU Research Support Committee, "A Preliminary Examination of Amazonian Medicinal Plants Using Chemical and Biological Screens". Co-investigator : R.J. Krueger.	\$5,940.00
1981	FSU Educational Innovation Support, "Development of Pharmacy and Geriatric Health Course". Co-developer: R.J. Krueger	\$2,000
1978-79	A.H. Robins Co., "Dimetapp Adverse Drug Study"	\$7,800
1978-79	FSU Research Support Committee, "Factors influencing the growth and alkaloid production in suspension cultures on <u>C. roseus</u> . Co-investigator: R.J. Krueger	\$5,000
1977	A. H. Robins Co., "Robitussin Adverse Drug Study"	\$7,275

Papers, Abstracts, and Posters Contributed at Scientific
Meetings [While at Ferris]

1. Poster Presentation: C. Limbach, D. Daly, G.W.A. Slywka, N. Neumann, and R.J. Krueger, "Ecuadoran Medicinal Plants I, A Preliminary Investigation of the C. Limbach Collection of Shuar [Jivaro] Medicinal Plants", Phytochemical Societies of Europe and North America, Miami Beach, Fl., August 8-12, 1992.
2. S. Smith, G.W.A. Slywka and R.J. Krueger, "Identification of the Anthocyanins of Strobilanthes dyerianus MAST. (Acanthaceae) and their production in callus culture", Lloydia 44 (5): 609 (1981).
3. W.D. Hardigan, G.W.A. Slywka and H.J. Eng, "Distribution and Cost of Drugs in a Pharmaceutically Decentralized HMO", Contemporary Pharmacy Practice, 3, No.1, 23 (1980).
4. Abstract: R.J. Krueger and G.W.A. Slywka, "The Influence of Nitrate and Ammonium Levels on Growth and Alkaloid Production in C. roseus Suspension Cultures", American Society of Pharmacognosy, July, 1979, Purdue University, West Lafayette, IN.

Paper and Abstracts Contributed at Scientific Meetings
[Not at Ferris]

1. Bioavailability of Eleven Sulfisoxazole Products, G.W.A. Slywka, A.P. Melikian, P.L. Whyatt, and M.C. Meyer, Basic Pharmaceutical Section, American Pharmaceutical Association, Academy of Pharmacy Practice, May 15, 1978, Montreal, Quebec, Canada.
2. Bioavailability of Eleven Diphenylhydantoin [Phenytoin] Products, A.P. Melikian, G.W.A. Slywka, P.L. Whyatt and M.C. Meyer, Basic Pharmaceutical Section, American Pharmaceutical Association, Academy of Pharmaceutical Sciences, November 19, 1975, Atlanta, Georgia.
3. Liquid Chromatographic Analysis of Pharmaceuticals, A.P. Melikian and G.W.A. Slywka, Symposium on Liquid Chromatography, Little Rock, Arkansas, February 21, 1975.
4. The Relationship of Price to Bioavailability for Four Multiple Source Drug Products, G.W.A. Slywka, M.R. Ryan, A.P. Melikian, M.C. Meyer, H.E. Bates, and P.L. Whyatt, General Pharmaceutical Section, American Pharmaceutical Association, Annual Meeting, April 20, 1975.
5. Development of a Turbidometric Assay for Low Levels of Ampicillin in Serum and its Applicability to Clinical Studies, P.L. Whyatt, R.E. Dann, G.W.A. Slywka and M.C. Meyer, Proceedings of the Tennessee Academy of Sciences [1974].
6. The Bioavailability of Fourteen Nitrofurantoin Products, M.C. Meyer, G.W.A. Slywka, R.E. Dann and P.L. Whyatt, Proceeding of the 17th National Meeting of the A.Ph.A. Academy of Pharmaceutical Sciences, New Orleans, Louisiana [1974].
7. A New Alkaloid from Elaeagnus commutata, R.A. Locock and G.W.A. Slywka, 19th Annual Meeting, American Society of Pharmacognosy, August 8, 1969.
8. Factors Affecting the Rate of Diffusion of Sodium Salicylate and Salicylic Acid in Various Vehicles, G.W.A. Slywka and J.A. Wood, 10th Canadian Conference of Pharmaceutical Research, Winnipeg, Manitoba, August 9, 1963.

Publications [Not at Ferris]

1. The Relationship of Price to Bioavailability for Four Multiple Source Drug Products, G.W.A. Slywka, M.R. Ryan, A.P. Melikian, M.C. Meyer, H.E. Bates and P.L. Whyatt, JAPhA, NS 17, No. 1, 30 [1977].

2. Bioavailability of Eleven Phenytoin Products, A.P. Melikian, G.W.A. Slywka, P.L. Whyatt and M.C. Meyer, J. Pharmacokin. Biopharm., 5, 133 [1977].
3. The Bioavailability of Eleven Sulfisoxazole Products, G.W.A. Slywka, A.P. Melikian, P.L. Whyatt and M.C. Meyer, J. Pharm. Sci., 65, 1492 [1976].
4. The Bioavailability of Seventeen Ampicillin Products, P.L. Whyatt, G.W.A. Slywka, A.P. Melikian and M.C. Meyer, J. Pharm. Sci., 65, 652 [1976].
5. Hydrochlorothiazide Bioavailability: An Evaluation of Thirteen Products, M.C. Meyer, A.P. Melikian, P.L. Whyatt and G.W.A. Slywka, Curr. Ther. Res., 17, 570 [1975].
6. Propoxyphene Bioavailability: An Evaluation of Ten Products, G.W.A. Slywka, P.L. Whyatt, A.P. Melikian and M.C. Meyer, J. Clin. Pharmacol., 15, 598 [1975].
7. Inequivalency of Nitrofurantoin Products, M.C. Meyer, G.W.A. Slywka, P.L. Whyatt and A.P. Melikian, J.A.M.A. 232, 1009 [1975].
8. The Tennessee Drug Quality Assurance Program, P.L. Whyatt, G.W.A. Slywka, A.P. Melikian, H.E. Bates and M.C. Meyer, Tennessee Pharmacist, 11, 12 [1975].
9. The Bioavailability of Sixteen Tetracycline Products, M.C. Meyer, R.E. Dann, P.L. Whyatt and G.W.A. Slywka, J. Pharmacokin. Biopharm., 2, 287 [1974].
10. A Rapid, Precise, Turbidometric Assay for Low Levels of Ampicillin in Serum after Single-Dose Oral Administration, P.L. Whyatt, R.E. Dann, G.W.A. Slywka and M.C. Meyer, Antimicrob. Ag. Chemother., 6, 811 [1974].
11. The Bioavailability of Fourteen Nitrofurantoin Products, M.C. Meyer, G.W.A. Slywka, R.E. Dann and P.L. Whyatt, J. Pharm. Sc., 63, 1963 [1974].
12. Mass Spectra and Selected Beta-Carbolines, R.T. Coutts, R. Locock and G.W.A. Slywka, Organic Mass Spectrometry, 3, 879 [1970].
13. Structure of a New Beta-Carboline Alkaloid from Elaeagnus commutata, G.W. A. Slywka and R. Locock, Tetrahedron Letters, 53, 4635 [1969].

CURRICULUM VITAE

Curtis L. Smith

HOME

Address: 13905 Forest Hill Rd.
Grand Ledge, MI 48837

Telephone: (517) 626-2534

BUSINESS

Dept. of Pharmacy Services
Sparrow Health System
1215 East Michigan
Lansing, MI 48912

(517) 483-3579

EDUCATION

DATE	INSTITUTION	DEGREE
1989-1991	The University of Oklahoma Health Sciences Center Oklahoma City, Oklahoma Preceptor: E.M. Hampton, Pharm.D.	Fellowship in Pharmacokinetics/ Pharmacodynamics
1987-1989	Medical University of S. Carolina Charleston, South Carolina	Doctor of Pharmacy (First Honor Graduate)
1984-1987	Ferris State University School of Pharmacy Big Rapids, Michigan	Bachelor of Science in Pharmacy (Highest Distinction)
1982-1984	Calvin College Grand Rapids, Michigan	---

PROFESSIONAL PRACTICE EXPERIENCE

ACADEMIC EXPERIENCE

Assistant Professor of Clinical Pharmacy, Department of Pharmacy Practice and Administration, College of Pharmacy, Ferris State University, August 1995 - present.

Assistant Professor of Pharmacy, Department of Pharmacy Practice and Administration, College of Pharmacy, Rutgers, The State University, July 1991 - July 1995.

CLINICAL EXPERIENCE

Clinical Pharmacist, Sparrow Health System, Department of Pharmacy Services,
Lansing, MI, August 1995 - present.

Clinical Pharmacist, Department of Pharmacy and Division of Allergy and Infectious
Diseases, Robert Wood Johnson University Hospital, New Brunswick, NJ, August
1991 - July 1995.

TEACHING EXPERIENCE

Ferris State University - College of Pharmacy

Pharm.D. courses:

Pharmacokinetics Clinical Clerkship -- Preceptor

Advanced Clinical Pharmacokinetics - 1995 – PHPR 540

- Drug distribution
- Drug elimination and clearance
- Clinical pharmacokinetic data collection and analysis
- Pharmacokinetics in renal disease
- Drug interactions
- Advanced pharmacokinetic concepts
- Pharmacokinetic data analysis / Computer applications
- Population pharmacokinetics
- Pharmacokinetics of antiepileptics

Baccalaureate courses:

Clinical Clerkship -- Preceptor

Rutgers University - College of Pharmacy

Pharm.D. courses:

Infectious Diseases Clinical Clerkship -- Preceptor

Pharmacokinetics Clinical Clerkship -- Preceptor

Advanced Clinical Pharmacokinetics I - 1992-94 -- 31:725:509

- Intramuscular, oral, and rectal absorption (1992 only)
- Drug metabolism
- Drug elimination and clearance
- Non-linear pharmacokinetics (1992 only)
- Pharmacokinetic data analysis / Computer applications
- Population pharmacokinetics

TEACHING EXPERIENCE (cont.)

Advanced Clinical Pharmacokinetics II (Course coordinator) - 1993-95 -- 31:725:510

- Pharmacokinetics in renal disease (1993 only)
- Computer applications in clinical pharmacokinetics
- Clinical pharmacokinetic data collection and analysis
- Chloramphenicol and flucytosine pharmacokinetics (1993-94)

Advanced Pharmacotherapeutics II - 1992/93 -- 31:725:502

- Peritonitis (1992-93)
- Antibiotic Review Session (1992-93)
- Overview of Antimicrobial Agents (1994)
- HIV and HIV-related Opportunistic Infections (1994-95)
- Systemic Viral Infections (1994-95)
- Systemic Fungal Infections (1994-95)

Clinical Research Design - 1992-95 -- 31:725:530

- Prospective / Retrospective Studies
- Pharmacokinetic and Antibiotic Studies (1992-94)

Advanced Pharmacotherapeutics I - 1991 -- 31:725:501

- Viral Hepatitis

Clinical Toxicology - 1991-93 -- 31:725:505

- Food Poisoning

Advanced Clinical Pharmacokinetics (Co-coordinator) - 1992 -- 31:725:510

- Intramuscular, oral, and rectal absorption
- Drug metabolism and clearance
- Non-linear pharmacokinetics
- Pharmacokinetic data analysis / Computer applications
- Pharmacokinetics in renal disease
- Clinical pharmacokinetic data collection and analysis

Clinical Pharmacokinetics Tutorial - Coordinator - 1991

Baccalaureate courses:

Clinical Clerkship -- Preceptor

Pharmacotherapeutics III (Coordinator) - 1994 -- 30:725:403

- HIV and HIV-related Opportunistic Infections
- Systemic Fungal Infections
- Viral Infections
- Parasitic Infections

TEACHING EXPERIENCE (cont.)

Pharmacokinetics - 1994-95 -- 30:725:302

- Distribution
- Hepatic Clearance
- Renal Clearance
- Pharmacokinetic Drug Interactions
- Clinical Pharmacokinetics

Clinical Pharmacy - 1991-93 -- 30:725:413

- Overview of Antimicrobial Agents

Pharmaceutical Microbiology - 1991-94 -- 30:725:301

- Microbiology Case Studies

University of Oklahoma Health Sciences Center - College of Pharmacy

Pharm.D. courses:

PHAR 7810 - Advanced Pharmacotherapeutics II - 1991

- Transplant Immunology

PHAR 7800 - Advanced Pharmacotherapeutics I - 1990

- Infectious Diseases II Section Coordinator
- Microbiological Evaluation and Factors in Antibiotic Selection
- Osteomyelitis, Cellulitis, and Diabetic Foot Infections
- Human Immunodeficiency Virus (HIV), HIV-related Illness and the Acquired Immunodeficiency Syndrome (AIDS)
- Systemic Fungal Infections
- Systemic Viral Infections
- Infections in the Neutropenic Host

PHAR 7832 - Clinical Pharmacokinetics II - 1990

- Data Collection and Analysis in Clinical Pharmacokinetics
- Induction and Inhibition of Drug Metabolism
- Pharmacokinetics of Vancomycin and Other Antibiotics

Baccalaureate courses:

PHAR 3803 - Pathophysiology - 1991

- Microbiological Evaluation of Infectious Diseases
- Human Immunodeficiency Virus Infections
- Osteomyelitis and Cellulitis

PHAR 4804 - Therapeutics II - 1991

- Osteomyelitis and Cellulitis
- AIDS and Associated Infections

TEACHING EXPERIENCE (cont.)

PHAR 5520 - Clinical Pharmacy Practicum

PHAR 4804 - Therapeutics II - 1990

- Osteomyelitis, Cellulitis, and Diabetic Foot Infections

Additional Instructional Activity

Review of Antibiotics / Pharmacokinetics

FDA Short Course

Rutgers University

June 1995

Pharmacodynamics

Animal Science Techniques

Rutgers University

Fall 1991

Grant Awards to Pharmacy Schools (GAPS)

Surgical Antimicrobial Prophylaxis (2 hours)

Hospital Pharmacists - University of Oklahoma Health Sciences Center

October 1989

RESEARCH EXPERIENCE

Extramural Funding

Duodenal versus Ileal Absorption of Salmon Calcitonin in Normal Healthy
Volunteers

\$38,450

Principal Investigator

Status: Patient recruitment / Data analysis

Bacterial Infections in HIV Positive Patients: A Restrospective Review

\$500

Principal Investigator

Status: Data Analysis

Acetylator Status and Tolerance to Trimethoprim / Sulfamethoxazole in HIV
Positive Patients

AACP Young Investigators Award - November 1992

\$4,912

Principal Investigator

Status: Patient recruitment / Data Analysis

Serum Bactericidal Activity of Fleroxacin Against Methicillin-Susceptible and
Methicillin-Resistant Staphylococci

Roche Laboratories

\$9,423

Co-investigator

Clinical and Medicoeconomic Impact of the Cyclosporine / Diltiazem
Pharmacokinetic and Pharmacodynamic Drug Interaction in Renal Transplant
Recipients

Presbyterian Health Foundation - November 1989

\$19,690

Co-Investigator

WORK EXPERIENCE

Staff and Poison Control Center pharmacist

Oklahoma Medical Center

Oklahoma City, OK

November 1989 to 1991.

Staff pharmacist

Charleston Memorial Hospital

Charleston, SC

October 1987 to June 1989.

PROFESSIONAL LICENSURE

Michigan, 5302410897

New Jersey, R22935

South Carolina, 6877

PROFESSIONAL CERTIFICATION

Board Certified Pharmacotherapy Specialist

PROFESSIONAL ORGANIZATIONS

American College of Clinical Pharmacy

American Society of Hospital Pharmacists

American Association of Colleges of Pharmacy

Rho Chi Pharmaceutical Honor Society

Omicron Delta Kappa Society

Pharmacy

APRC 1995-1996

Section 4 of 4

PUBLICATIONS

Sinko PJ, Smith CL, McWhorter LT, Stern W, Wagner E, Gilligan JP. Utility of pharmacodynamic measures for assessing the oral bioavailability of peptides. 1. Administration of recombinant salmon calcitonin in rats. *J Pharm Sci* 1995; 84:1374-1378.

Smith CL, Hampton EM, Pederson JA, Pennington LR, Bourne DWA. Clinical and medicoeconomic impact of the cyclosporine/diltiazem pharmacokinetic and pharmacodynamic drug interaction in renal transplant recipients. *Pharmacotherapy* 1994; 14:471-481.

Wagner ML, Wagner BKJ, Smith CL. Faculty have few incentives for becoming board certified in pharmacotherapy. *Pharmacotherapy* 1993; 13:500-503.

Fan-Havard P, Koshy Z, Bais RM, Smith CL, Eng RHK. Effect of morphine and phenobarbital on teicoplanin elimination pharmacokinetics. *J Antimicrob Chemother* 1993; 31:101-108.

Patel HS, Peters MD, Smith CL. Is there a role for fluconazole in the treatment of vulvovaginal candidiasis? *DICP Ann Pharmacother* 1992; 26:350-353.

Smith CL, Hampton EM. Using estimated creatinine clearance for individualizing drug therapy: A reassessment. *DICP Ann Pharmacother* 1990; 24:1185-1190.

EDITORIAL REVIEWER / REFEREE

DICP, *The Annals of Pharmacotherapy*
1990 - Present

PRESENTATIONS

Research:

Smith CL, Sutyak JP, Stern W, Gilligan JP, Sinko PJ. Regional intestinal absorption of recombinant salmon calcitonin in an intestinal-vascular access port (IVAP) dog model. 9th Annual Meeting of the American Association of Pharmaceutical Scientists, San Diego CA, November 6-10, 1994.

McWhorter LT, Smith CL, Wagner E, Snyder LM, Stern W, Sinko PJ, Gilligan JP. Pharmacokinetics of recombinant salmon calcitonin following site-specific delivery in the rat intestine. 9th Annual Meeting of the American Association of Pharmaceutical Scientists, San Diego CA, November 6-10, 1994.

PRESENTATIONS (cont.)

- Gilligan JP, Smith CL, McWhorter LT, Wagner E, Sinko PJ, Stern W. Enhanced bioavailability of recombinant salmon calcitonin in rats: Regional intestinal administration with protease inhibitors. 9th Annual Meeting of the American Association of Pharmaceutical Scientists, San Diego CA, November 6-10, 1994.
- Patel K, Smith CL, Weinstein MW, Hampton EM. Aminoglycoside serum concentrations determined from central venous catheters. 28th Annual Meeting of the American Society of Hospital Pharmacists, Atlanta GA, December 7, 1993.
- Kim HC, Smith CL, Matts L, Eisele J, Saidi P. Continuous infusion of factor IX in a patient undergoing surgical procedure. 35th Annual American Society of Hematology, St. Louis MO, Dec. 5, 1993.
- Sinko PJ, Smith CL, Hu P, Wagner E, Tyburski L, Gilligan JP, Stern W. Pharmacokinetics, pharmacodynamics and absolute oral bioavailability of recombinant salmon calcitonin in dogs. 8th Annual Meeting of the American Association of Pharmaceutical Scientists, Orlando FA, November 14-18, 1993.
- Gilligan JP, Smith CL, Tyburski L, Wagner E, Stern W, Sinko PJ. Pharmacokinetics and pharmacodynamics of recombinant salmon calcitonin after intraduodenal, intravenous and subcutaneous administration in rats. 8th Annual Meeting of the American Association of Pharmaceutical Scientists, Orlando FA, November 14-18, 1993.
- Gilligan JP, Tyburski L, Wagner E, Driscoll DP, Burkett VH, Matthews DE, Sinko PJ, Smith CL, Stern W. A pharmacokinetic and pharmacodynamic comparison of chemically synthesized and recombinant salmon calcitonin. 15th Annual Meeting of the American Society for Bone and Mineral Research, Tampa FA, September 18-22, 1993.
- Smith CL, Hampton EM, Pederson JA, Pennington LR, Bourne DWA. Influence of diltiazem on the pharmacokinetics and pharmacodynamics of cyclosporine and the dose and cost of cyclosporine in renal transplant recipients. 13th Annual Meeting of the American College of Clinical Pharmacy, Toronto, August 9-12, 1992.
- Roberts G, Smith CL, Sagraves R, Kamper C, Hampton EM. An in vitro evaluation of gentamicin delivery to neonates. 26th Annual Meeting of the American Society of Hospital Pharmacists, New Orleans LA, December 10, 1991.
- Smith CL, Hampton EM, Pederson JA, Pennington LR, Bourne DWA. Influence of diltiazem on the pharmacokinetics and dose/cost relationships of cyclosporine in renal transplant recipients. 24th Annual Meeting of the American Society of Nephrology, Baltimore MD, November 17-20, 1991.

Continuing Education:

- "Aminoglycoside and Vancomycin Pharmacokinetics"
Sparrow Hospital, Department of Pharmacy Services
Lansing, MI - November 24, 1995
- "New Drugs for the HIV Patient"
Rutgers College of Pharmacy Continuing Education
New Drug Update - 1994
Piscataway, NJ - September 21, 1994
- "Issues in Antibiotic Utilization"
Easton Hospital Department of Pharmacy
Pharmacy and Microbiology Staff
Easton, PA - November 1993
- "Current Drug Therapies in Patients with AIDS"
Tuberculosis and AIDS: Learn the Facts, Avoid the Fears
Unterberg Center of Nursing Excellence
Monmouth Medical Center
Long Branch, NJ - November 5, 1993
- "New Oral Antibiotics"
Middlesex County Chapter NJPhA
Piscataway, NJ - October 1993
- "Immunizations, AIDS, Lyme Disease and UTI's"
NJ State Nurses Association Pharmacology
Nurse Practitioners and Clinical Nurse Specialists
Princeton, NJ - June 22, 1993
- "Superficial Fungal Infections"
Somerset, Hunterdon, and Warren County NJPhA
Bridgewater, NJ - June 17, 1993
- "Adult and Pediatric Immunizations"
Rutgers College of Nursing Continuing Education
Nurse Practitioners
Piscataway, NJ - June 1, 1993
- "Oral Cephalosporins - An Update"
Rutgers College of Pharmacy Continuing Education
An Update on New Oral Antibiotics
Piscataway, NJ - October 14, 1992

PRESENTATIONS (cont.)

"Quinolones - Usage Evaluation"
Incorporating "High Tech" Issues into Hospital Pharmacy Practice
Clinical Pharmacy Services Network
Fanwood, NJ - April 30, 1992

"Interferon Treatment for Hepatitis"
Rutgers College of Pharmacy Continuing Education
Recent Advances in Gastrointestinal Therapeutics
Piscataway, NJ - April 8, 1992

"Pharmacist's Role in Choosing Appropriate Antibiotics"
SK-Beecham Drug Representative Conference
New Brunswick, NJ - November 7, 1991

"Therapeutic Advances for HIV and HIV-related Illness"
OU College of Pharmacy Sponsored Continuing Education
"New Drug and Therapeutic Update: 1990"
Oklahoma City, OK - October 1990, Tulsa, OK - November 1990

"Therapeutic Advances for HIV and HIV-related Illness"
OU College of Pharmacy Sponsored Continuing Education
"Therapeutics in the 90's"
Ardmore, OK and Enid, OK - September 1990

Inservices:

"Drug Interactions in the HIV Patient"
UMDNJ Internal Medicine Noon Conference
New Brunswick, NJ - June 30, 1994

"Vancomycin for Staphylococcal Meningitis"
UMDNJ Infectious Diseases Noon Conference
St. Peter's Medical Center
New Brunswick, NJ - April 28, 1994

"Microbiological Aspects of Antibiotic Use"
RWJUH Pharmacy Staff
New Brunswick, NJ - December 22, 1993

"New Drugs for the AIDS Patient"
RWJUH Pharmacy Staff
New Brunswick, NJ - April 28, 1993

PRESENTATIONS (cont.)

"New Drugs for the AIDS Patient"

UMDNJ Infectious Diseases Noon Conference
St. Peter's Medical Center
New Brunswick, NJ - March 27, 1993

"Nosocomial Pneumonia" - Moderator

RWJUH Pharmacy Staff
New Brunswick, NJ - February 9, 1993

"Overview of Antimicrobial Agents"

Surgery Resident Conferences - UMDNJ Surgical Residents
New Brunswick, NJ - November 18, 1992

"ddC"

RWJUH Pharmacy Staff
New Brunswick, NJ - September 1, 1992

"Extended Spectrum Penicillins"

RWJUH Pharmacy Staff
New Brunswick, NJ - June 30, 1992

"Advancements in Treating CMV Retinitis and MAI Infections"

RWJUH Pharmacy Staff
New Brunswick, NJ - May 1992

"Antifungal Chemotherapy"

UMDNJ Infectious Diseases Noon Conference
New Brunswick, NJ - December 19, 1991

COMMITTEE SERVICE

Awards Committee - 1995-96

Antibiotic Subcommittee - RWJUH - Chair - 1994-95

Pharmacy Practice and Administration Faculty Search Committee - 1991-95

College of Pharmacy Scholastic Standing Committee - 1992-94

College of Pharmacy Honors Program Committee - 1992-95

Pharm.D. Admissions Committee - 1992-93

Laboratory Committee - Chair - 1992-95

HONORS AND RECOGNITION

Rutgers Univeristy, College of Pharmacy, Professor of the Year (1995)
Hoechst-Roussel Excellence in Clinical Pharmacy Award (1989)
Bristol Award for Outstanding Achievement (1987)
Drug Education Team Award (1987)
SuperRx Drugs Corporation Scholarship Award (1986)

PERSONAL

Place of Birth: Wabash, Indiana
Date of Birth: April 19, 1964
Marital Status: Married (Ruth)

rev. 2/96

CURRICULUM VITAE

CHARLES D. SPAULDING

Associate Professor of Pharmacy Administration
College of Pharmacy
Ferris State University
Big Rapids, Michigan 49307
(616) 592-2232

EDUCATIONAL ATTAINMENTS

Doctor of Philosophy
Pharmaceutical Sciences (Pharmacy Administration)
Northeast Louisiana University
Dissertation Title:
*"A Survey of Louisiana Independent Pharmacy Consumer's
Attitudes Towards Fee-for-Service Nonprescription
Drug and Diagnostic Test Consulting"*

Master of Business Administration
Northeast Louisiana University

Bachelor of Business Administration
Northeast Louisiana University
Major Field: Management
Minor Field: Economics
Honors: magna cum laude, Beta Gamma Sigma, Phi Kappa Phi
Outstanding Management Student
David E. Robertson Human Resource Management Award

EMPLOYMENT

College of Pharmacy
Ferris State University
September 1988 - Present

Northeast Louisiana University, September 1986 - August 1988
Research Assistant, School of Pharmacy

Northeast Louisiana University, April 1986 - August 1988
Consultant, Small Business Development Center

Northeast Louisiana University, September 1985 - May 1986
Graduate Instructor in Economics

U. S. Army, 1960 - 1982. Teaching assignments were as follows:
August 1978 to July 1980 served as the Chief Instructor,
Military Science at Hofstra University.
Primary responsibilities were to recruit, manage, instruct,
and motivate 175 male and female ROTC cadets to become
effective commissioned officers.
March 1974 to May 1975 served as a Leadership Instructor at
Redstone Arsenal, Alabama. Primary responsibilities were to
provide instruction to junior and middle managers in the
effective management of personnel, time, money, and other
available resources towards the goal of mission accomplishment.

COURSES DEVELOPED AND TAUGHT

(September 1988 - Present)

Pharmacy Management Systems, PHAD 320
Clinical Biostatistics (SPSSx), PHAD 530 (1/5)
Study Design and Literature Evaluation, PHAD 510
Administrative Science for Pharmacy, PHAD 520 (1/2)
Pharmaceutical Marketing, PHAD 470
Health Care Systems, PHAD 480
Professional Practice Management, PHAD 430
Institutional Pharmacy Management, PHAD 360

PUBLICATIONS

**"Number of Years in Practice Does Not Necessarily
Correspond to Increased Wages for All Practice Settings"**

(Spaulding and Spaulding)

Published in

Journal Michigan Pharmacist

Vol. 33, No. 2 February 1995

**"Food for Thought:
Michigan Pharmacists Economic Survey"**

(Spaulding and Spaulding)

Published in

Journal Michigan Pharmacist

Vol. 32, No. 2 February 1994

"Performance Appraisal"

Published in

Pharmacy Business

Vol. 4, No. 4 Fall 1993

**"Past, Current and Projected Trends in
Michigan Pharmacists' Compensation"**

(Spaulding and Spaulding)

Published in

Journal Michigan Pharmacist

Vol. 31, No. 2 February 1993

**"Compensation: A Managerial Overview of
Wages, Salaries, Fringe Benefits and
Other Employer-Employee Considerations"**

Published in
Pharmacy Business
Vol. 3, No. 3 Summer 1992

**"Consumer Attitudes Toward
Pharmacist Consulting Fees"**
(Spaulding et al.)

Chapter in
**Marketing Pharmaceutical Services:
patron loyalty, satisfaction, and preferences**
The Haworth Press, Inc., 1992

"How Do You Stack Up?"

(Spaulding and Whitney)
Published in
Journal Michigan Pharmacist
Vol. 30, No. 2 February 1992

**"Comparative Prescription Couponing:
Is it a Viable Direct Marketing Technique?"**

(Spaulding and Joseph)
Published in
American Pharmacy
Vol. 32, No. 1 January 1992

"Human Resource Staffing"

Published in
Pharmacy Business
Vol. 2, No. 8 September 1991

"Human Resource Planning"

Published in
Pharmacy Business
Vol. 2, No. 5 May 1991

"Closing the Gap ... Gender Parity?"

(Spaulding and Whitney)
Published in
Signa:
Vol. 3, No. 1 Spring 1991

"Guarding Against Sex Discrimination"

Published in
Pharmacy Business
Vol. 2, No. 3 March 1991

"Michigan Pharmacists' Compensation"

(Spaulding and Whitney)
Published in
Journal Michigan Pharmacist
Vol. 29, No. 2 February 1991

"What Really Goes Into Human Resource Management"
Published in
Pharmacy Business
Vol. 2, No. 1 January 1991

**"Fee-for-Service Pharmacist Consulting:
A Consumer Marketing Survey"**
(Spaulding et al.)
Published in
Journal of Pharmaceutical Marketing and Management
Vol. 3, No. 4 Fall 1989

CONTRIBUTED PAPERS AND PRESENTATIONS

**Michigan Pharmacists' Compensation:
Indicators, Trends, & Projections**
(Spaulding and Spaulding)
Presented at the 1995
Michigan Pharmacists Association Interim Meeting

**Economic Survey Trends in
Pharmacists' Income and Benefits**
(Spaulding and Spaulding)
Presented at the 1994
Michigan Pharmacists Association Interim Meeting

**Pharmacists Compensation Survey:
How Does Yours Compare?**
(Spaulding and Spaulding)
Presented at the 1993
Michigan Pharmacists Association Interim Meeting

**Economic Salary Survey for
Employee Pharmacists**
(Spaulding and Whitney)
Presented at the 1992
Michigan Pharmacists Association Interim Meeting

Economic Survey for Hospital Pharmacists
(Spaulding and Whitney)
Presented at the 1992
Michigan Pharmacists Association Interim Meeting

**Prescription Couponing:
Assessing the Feasibility and Profitability**
Presented at the 1991
American Pharmaceutical Association Annual Meeting

An Analysis of 1990 Pharmacists' Compensation
(Spaulding and Whitney)
Presented at the 1991
Michigan Pharmacists Association Interim Meeting

**Fee-for-Service Pharmacist Consulting:
A Post-Marketing Evaluation of Patient Records**
Presented at the 1990
American Pharmaceutical Association Annual Meeting

**A Study of Independent Pharmacy Consumer's Attitudes Towards
Fee-for-Service Nonprescription Drug
and Diagnostic Test Consulting**
(Spaulding et al.)
Presented at the 1989 American Pharmaceutical Association
Annual Meeting

**Fee-for-Service Pharmacist Consulting:
A Consumer Marketing Survey**
(Spaulding et al.)
Presented at the 1988 American Pharmaceutical Association
Annual Meeting

CONSULTING AND GRANT ACTIVITY

**"A Proposal to Assist the Michigan Pharmacists Association
in the Conduct of the Annual Economic Survey"**
(Spaulding and Spaulding)
Funded in 1990, 1991, 1992, 1993, 1994 and 1995

PROFESSIONAL DEVELOPMENT

AACP-NACDS Chain Visitation Program
REVCO D. S., Inc.
June 1991

**Pharmaceutical Manufacturers Association
Coordinated Industry Program for Pharmacy Faculty**
ICI Pharmaceuticals Group
August 1990

PROFESSIONAL ORGANIZATIONAL AND PUBLIC SERVICE ACTIVITIES

American Pharmaceutical Association
American Association of Colleges of Pharmacy
Michigan Pharmacists Association
NARD Faculty Liaison
NACDS Faculty Liaison
Academy of Students of Pharmacy Advisor
Class of 1997 Advisor
Class of 1995 Advisor
Class of 1991 Advisor
Rho Chi Society
Sigma Xi Research Society
Captain, U. S. Army Reserve

UNIVERSITY SERVICE

Academic Senate, 1991-1993
Student Activities Budget Advisory Committee, 1990-1992
Summer Quarter Study Committee, 1990-1991

COLLEGE OF PHARMACY SERVICE

Curriculum Committee, 1993-1995
Rank & Promotion/Merit Committee, 1995
Library Committee, 1993-1994
Faculty Evaluation Committee, 1991-1994
Awards Committee, 1989-1994
Administrative Coordinator, Faculty Search, 1991-1993
Sabbatical Committee, 1989-1993
AACP Faculty Delegate, 1991-1992
Admissions Committee, 1990-1991

LOCAL RESIDENCE

15191 McKinley Road
Big Rapids, Michigan 49307
(616) 796-6545

September 1995

Curriculum Vitae
CRAIG M. STRALEY

Home

137 Keathley Dr.
Battle Creek, MI 49017
(616) 964-6136

Work

Pharmacy Dept. - 119
V.A. Medical Center
5500 Armstrong Rd.
Battle Creek, MI 49016
(616) 966-5600 ext.5733

EDUCATION

- 1988 - 1990 Post Doctoral Fellowship in Developmental Disabilities
Office of Mental Retardation and Developmental Disabilities
State of New York
West Seneca Developmental Center
West Seneca, New York
- 1986 - 1988: Doctor of Pharmacy
School of Pharmacy
State University of New York at Buffalo
- 1973 - 1977: Bachelor of Science
School of Pharmacy
Ferris State College
Big Rapids, MI

ACADEMIC APPOINTMENTS

- Sept. 1995 Associate Professor of Clinical Pharmacy
College of Pharmacy
Ferris State University
Big Rapids, MI
- Oct. 1990 -
Sept. 1995 Asst. Professor of Clinical Pharmacy
College of Pharmacy
Ferris State University
Big Rapids, MI
- 1988 - Oct. 1990 Research Assistant Instructor in Pediatrics
School of Medicine
State University of New York at Buffalo
Buffalo, NY

CLINICAL APPOINTMENTS

Oct. 1990 - V.A. Medical Center
Asst. Prof. of Clinical Pharmacy
V.A. Medical Center
Battle Creek, MI 49016

Feb. 1989 - Drug Monitoring Committee (Chair)
Oct. 1990 J. N. Adam Developmental Center
Perrysburg, NY 14129

PROFESSIONAL EXPERIENCE

1983 - 1986: Staff Pharmacist
E.W. Sparrow Hospital
1215 E. Michigan Ave.
Lansing, MI 48912
Dennis Weaver, Asst. Dir. Pharm. Service

1981 - 1983: Staff Pharmacist
Jackson Osteopathic Hospital
110 N. Elm
Jackson, MI 49202
Larry Gardon, Dir. of Pharmacy

1980 - 1981: Pharmacist
Wilbee Pharmacy
1101 Ludington
Escanaba, MI 49829
Dennis Wilbee, owner

Mar. 1980 - Staff Pharmacist
Aug. 1980 Detroit Receiving Hosp/Univ. Health Center
4201 St. Antoine
Detroit, MI 48201
Gerry Smith, Satellite Pharmacy
Supervisor

1978 - 1980 Manager/Pharmacist
Revco D.S. #109
3138 Biddle Ave.
Wyandotte, MI 48192
Larry Sindelar, District Manager

PROFESSIONAL EXPERIENCE (cont)

Feb. 1978 - Asst. Manager/Pharmacist
Aug. 1978: Revco D.S. #105
22501 Michigan Ave.
Dearborn, MI 48124
Larry Sindelar, District Manager

1977 - 1978 Pharmacist
Cook Drug Co.
1609 W. Atherton
Flint, MI 48507
Wallace Isbell, Store Manager

SERVICE

FSU College of Pharmacy Computer Committee, 1995-96

FSU College of Pharmacy Admissions Committee, 1994-95 and 1995-96.

FSU College of Pharmacy Faculty Evaluation Committee, 1993-94.

Group leader - Ferris State University Externship Revision Day. May 17, 1994.

Group discussion facilitator - American Association of Colleges of Pharmacy Academic Management Symposium: Conference on the Case Method in Pharmaceutical Education. Hilton Head, S.C. Feb. 24-26, 1994.

Ferris State University Pharmacy Practice Faculty search and interview committees. 1991 - 1994.

Pharmacy Representative - V.A. Medical Center Clozapine Treatment Team.
Nov. 1991 - present.

Presentation to Lay group: Use of Antidepressants in Seasonal Affective Disorders. National Organization of Seasonal Affective Disorders local Chapter.
Oct. 16, 1991.

Member - Board of Directors, Dept. of Veterans Affairs Research Foundation at Battle Creek, Inc. Oct. 1991 - Oct. 1993.

Pharmacy representative - V.A. Medical Center Library Advisory Committee.
July 1991 - April 1992.

Wattles Park Elementary 1990-1992 Playground Project.

RESEARCH

Relationships between biological markers and outcome after neuroleptic dose reduction in mentally retarded individuals. Co-investigators: Stanley W. Carson, Pharm.D., et al.

Physical incompatibility between lithium and some neuroleptic agents. Co-investigators: Marilyn E. Morris, Ph.D.; Michael E. Msall, M.D.

Computer assisted instruction for schizophrenia.

Generation of a lithium dosing equation using multivariate analysis.

PUBLICATIONS

Gengo FM, Gabos C, **Straley C**, Manning C. The pharmacodynamics of ethanol: Effects on performance and judgment. *J Clin Pharmacol* 1990 Aug;30(8):748-54.

TEACHING EXPERIENCE

Section coordinator: "Psychopharmacology" in Pathophysiology and Applied Therapeutics (PHL 523). Ferris State University. 1991 - 1994.

"Antipsychotics, Antidepressants, Lithium" in Clinical Pharmacokinetics (PHPR 540). Ferris State University. March 16, 1994.

Visiting lecturer - "Psychiatric Diseases" in Pathophysiology and Drug Therapy of Disease II (PPR 460). Wayne State University; February 1992, January 1994.

"Biostatistics" and "Literature Evaluation" in Clerkship (PH 575). Ferris State University. 1991, 1992, 1993, 1994.

"Psychopharmacology" in Pharmacotherapeutics (PHL 560). Ferris State University. 1990, 1991, 1992, 1993, 1994.

"Dementia" in Pathophysiology and Applied Therapeutics (PHL 523). Ferris State University. 1991, 1992, 1993.

"Schizophrenia" in Pharmacotherapeutics 512. SUNY at Buffalo. Jan. 1989.

"Developmental Disabilities" in PHM 493. SUNY at Buffalo. Oct. 1988.

TEACHING EXPERIENCE (cont)

"Adrenal Steroids" - Lecture and Case studies. PHM 493/494. SUNY at Buffalo. 1987. Howard Forman, Pharm. D - Faculty advisor.

PRESENTATIONS

Depression and Schizophrenia. Invited presentation to VA Medical Center Nursing Service. May 18, 1995

Depression and Mental Health. FSU Spring seminar. Apr. 18, 1995.

Identification and management of drug interactions. Invited Continuing Medical Education (CME) presentation to VA Medical Center staff. Presented with Pharm.D. student, Nathan Kanous. Jan. 26, 1995.

Clozapine. Invited presentation to Social Work Service. Aug. 16, 1994.

Clozapine and risperidone in schizophrenia. Presentation at Nursing Inservice Day - Psych series: Schizophrenia. April 28, 1994.

Biostatistics and Literature Evaluation. Four one-hour presentations to the pharmacy staff at V. A. Medical Center, Jan. 1993. Repeat has been requested for 1994.

Policies and Procedures for use of clozapine in the Battle Creek V. A. Medical Center. Presentation at workshop at VA Medical Center for staff. May 1992.

Drug-induced blood dyscrasias. Presentation to pharmacy staff at V. A. Medical Center, July 24, 1991.

Pharmacokinetic principles in monitoring and tapering neuroleptic medications. Presentation at multi-disciplinary conference on developmental disabilities (C-MEDD meeting). Rochester, NY. Mar. 14, 1990.

Psychiatric uses of β -blockers. Presentation to medical staff at West Seneca Developmental Center, May 2, 1989 and medical staff at J. N. Adam Developmental Center, June 2, 1989.

Neuroleptic Withdrawal. Presentation to medical staff at West Seneca Developmental Center, Mar. 7, 1989 and medical staff at J. N. Adam Developmental Center, April 21, 1989.

PRESENTATIONS (cont)

Side Effects of Neuroleptics. Presentation to medical staff at West Seneca Developmental Center, Nov. 15, 1988 and medical staff at J. N. Adam Developmental Center, Feb. 10, 1989.

Thioridazine and Hyponatremia. Pharm. D seminar; 10/28/87.

Is Erythromycin Rational Therapy for Chronic Bacterial Prostatitis? Pharm. D seminar; Dec. 3, 1986.

PROFESSIONAL AFFILIATIONS

American Association of Colleges of Pharmacy (AACCP)

American College of Clinical Pharmacy (ACCP)

American Society of Hospital Pharmacists (ASHP)

Michigan Pharmacists Association (MPA)

Society for Neuroscience - Michigan Chapter

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95**

Prefix	Year	<u>Student Credit Hours</u>				<u>Full Time Equated Faculty</u>				<u>SCH/FTEF</u>			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
<u>College of Allied Health Sciences</u>													
<u>Allied Dental</u>													
DHYG	1993-94	0.00	1,216.00	887.00	2,103.00	0.00	3.03	3.09	6.12		401.72	286.64	343.55
DHYG	1994-95	0.00	1,129.00	992.00	2,121.00	0.00	3.40	2.79	6.18		332.32	356.14	343.05
DTEC	1993-94	0.00	517.00	347.00	864.00	0.00	1.72	1.94	3.66		299.71	179.33	236.07
DTEC	1994-95	0.00	513.00	351.00	864.00	0.00	1.99	1.75	3.74		257.14	200.57	230.71
<u>College of Allied Health Sciences</u>													
CAHS	1993-94	0.00	309.00	310.00	619.00	0.00	1.55	1.43	2.98		198.78	217.45	207.71
CAHS	1994-95	6.00	116.00	278.00	394.00	0.00	0.73	1.03	1.75		159.50	270.67	224.58
<u>Environmental/Clinical Sciences</u>													
CLLS	1993-94	0.00	525.00	635.00	1,160.00	0.00	2.00	2.00	4.00		262.50	317.50	290.00
CLLS	1994-95	291.00	639.00	665.00	1,304.00	0.72	1.95	1.95	3.90	403.27	327.99	341.49	334.74
IEHM	1993-94	0.00	1,155.00	881.00	2,036.00	0.00	2.39	2.12	4.51		482.72	415.56	451.17
IEHM	1994-95	464.00	855.00	622.00	1,477.00	0.55	2.31	2.09	4.41	843.64	369.91	297.07	335.29
<u>Health Management</u>													
HCSA	1993-94	0.00	715.00	828.00	1,543.00	0.00	1.38	2.11	3.49		518.32	392.61	442.32
HCSA	1994-95	291.00	744.00	715.00	1,459.00	0.24	1.85	1.72	3.58	1,224.75	401.50	414.68	407.85
MRIS	1993-94	0.00	1,248.00	1,365.00	2,613.00	0.00	2.81	2.77	5.58		443.59	493.14	468.17
MRIS	1994-95	550.00	1,225.00	1,253.00	2,478.00	0.77	2.69	2.48	5.17	714.29	455.06	505.42	479.20
<u>Hospital Related</u>													
NUCM	1993-94	0.00	595.00	451.00	1,046.00	0.00	1.00	1.00	2.00		595.00	451.00	523.00
NUCM	1994-95	96.00	616.00	510.00	1,126.00	0.18	1.00	1.00	2.00	525.74	616.00	510.00	563.00

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Allied Health Sciences													
Hospital Related													
RADI	1993-94	0.00	1,220.00	1,168.00	2,388.00	0.00	1.78	1.50	3.27		687.32	778.67	729.16
RADI	1994-95	833.00	1,132.00	1,108.00	2,240.00	0.60	1.50	1.50	3.00	1,376.86	754.67	738.67	746.67
RESP	1993-94	0.00	372.00	526.00	898.00	0.00	1.11	1.00	2.11		335.14	526.00	425.59
RESP	1994-95	340.00	401.00	492.00	893.00	0.15	1.00	1.00	2.00	2,207.79	401.00	492.00	446.50
Nursing													
NURS	1993-94	0.00	1,933.00	1,299.00	3,232.00	0.00	6.07	5.64	11.71		318.71	230.32	276.12
NURS	1994-95	463.00	2,297.00	1,810.00	4,107.00	0.69	6.57	8.22	14.79	672.38	349.62	220.21	277.70

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Arts and Sciences													
Biological Sciences													
BIOL	1993-94	0.00	6,709.00	6,686.00	13,395.00	0.00	12.42	10.54	22.96		540.17	634.11	583.30
BIOL	1994-95	1,905.00	6,498.00	5,840.00	12,338.00	2.35	9.24	8.53	17.78	811.89	703.01	684.38	694.07
HORT	1993-94	0.00	239.00	493.00	732.00	0.00	1.11	1.49	2.59		216.23	331.99	282.59
HORT	1994-95	226.00	326.00	521.00	847.00	0.30	1.09	1.18	2.27	750.06	299.46	441.53	373.35
Humanities													
ARTH	1993-94	0.00	150.00	237.00	387.00	0.00	0.17	0.25	0.42		900.00	948.00	928.80
ARTH	1994-95	0.00	210.00	132.00	342.00	0.00	0.33	0.25	0.58		630.00	528.00	586.29
ARTS	1993-94	0.00	704.00	769.00	1,473.00	0.00	1.37	1.62	3.00		512.00	473.23	491.00
ARTS	1994-95	177.00	742.00	703.00	1,445.00	0.11	1.62	1.50	3.12	1,609.09	456.62	468.67	462.40
COMM	1993-94	0.00	4,910.00	4,447.00	9,357.00	0.00	7.57	7.06	14.63		648.18	630.26	639.54
COMM	1994-95	1,177.00	3,651.00	3,666.00	7,317.00	1.15	5.62	6.30	11.93	1,026.87	649.07	581.58	613.40
HIST	1993-94	0.00	2,019.00	1,826.00	3,845.00	0.00	2.12	1.87	4.00		950.12	973.87	961.25
HIST	1994-95	381.00	1,857.00	1,705.00	3,562.00	0.30	2.25	2.12	4.37	1,254.94	825.33	802.35	814.17
HUMN	1993-94	0.00	3,285.00	3,164.00	6,449.00	0.00	4.08	3.87	7.96		804.49	816.52	810.35
HUMN	1994-95	910.00	2,460.00	2,397.00	4,857.00	0.91	3.29	3.25	6.54	999.12	747.34	737.54	742.47
MUSI	1993-94	0.00	625.00	621.00	1,246.00	0.00	2.04	1.79	3.83		306.37	346.93	325.33
MUSI	1994-95	21.00	588.00	626.00	1,214.00	0.02	1.62	1.62	3.25	1,363.64	361.85	385.23	373.54
THTR	1993-94	0.00	215.00	99.00	314.00	0.00	1.05	0.82	1.87		204.76	120.85	167.98
THTR	1994-95	1.00	206.00	20.00	226.00	0.00	1.04	0.24	1.28		198.08	84.59	177.06

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Arts and Sciences													
Language & Literature													
ENGL	1993-94	0.00	9,034.00	6,460.00	15,494.00	0.00	17.82	14.16	31.98		506.87	456.37	484.51
ENGL	1994-95	928.00	8,584.00	5,897.00	14,481.00	0.90	16.95	13.21	30.16	1,032.60	506.52	446.46	480.21
ENGQ	1993-94	0.00	962.00	0.00	962.00	0.00	1.88	0.00	1.88		511.11		511.11
FREN	1993-94	0.00	368.00	188.00	556.00	0.00	0.66	0.50	1.16		553.38	376.00	477.25
FREN	1994-95	76.00	362.00	321.00	683.00	0.09	0.66	0.66	1.33	863.64	544.36	482.71	513.53
GERM	1993-94	0.00	228.00	216.00	444.00	0.00	0.66	0.50	1.16		342.86	432.00	381.12
GERM	1994-95	0.00	208.00	196.00	404.00	0.00	0.50	0.50	1.00		416.00	392.00	404.00
JRNL	1993-94	0.00	305.00	229.00	534.00	0.00	1.00	1.00	2.00		305.00	229.00	267.00
JRNL	1994-95	36.00	229.00	162.00	391.00	0.11	0.67	0.63	1.29	327.27	343.50	259.20	302.71
LANG	1993-94	0.00	40.00	39.00	79.00	0.00	0.00	0.00	0.00				
LANG	1994-95	0.00	16.00	5.00	21.00	0.00	0.00	0.00	0.00				
LITR	1993-94	0.00	1,131.00	1,647.00	2,778.00	0.00	2.30	3.64	5.94		491.09	452.93	467.72
LITR	1994-95	195.00	963.00	1,373.00	2,336.00	0.21	2.01	3.04	5.05	918.51	478.78	451.40	462.30
SPAN	1993-94	0.00	966.00	735.00	1,701.00	0.00	1.83	1.50	3.33		527.87	490.00	510.81
SPAN	1994-95	204.00	950.00	574.00	1,524.00	0.37	1.83	1.50	3.33	558.60	519.13	382.67	457.66
TCOM	1993-94	0.00	38.00	61.00	99.00	0.00	0.17	0.33	0.50		228.00	183.00	198.00
TCOM	1994-95	12.00	26.00	36.00	62.00	0.03	0.13	0.25	0.38	419.58	208.00	144.00	165.33
Mathematics													
CPSC	1993-94	0.00	99.00	159.00	258.00	0.00	0.13	0.54	0.66		792.00	296.44	390.10
CPSC	1994-95	9.00	57.00	102.00	159.00	0.01	0.12	0.27	0.39	681.82	494.00	374.00	409.68

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Arts and Sciences													
Mathematics													
MATH	1993-94	0.00	10,962.00	8,547.00	19,509.00	0.00	15.94	14.57	30.52		687.49	586.47	639.25
MATH	1994-95	1,707.00	10,343.00	7,846.00	18,189.00	1.32	15.62	12.68	28.30	1,294.04	662.18	618.66	642.68
Physical Sciences													
ASTR	1993-94	0.00	242.00	190.00	432.00	0.00	0.29	0.28	0.57		822.80	684.00	755.38
ASTR	1994-95	65.00	99.00	184.00	283.00	0.00	0.25	0.29	0.54		396.00	625.60	520.11
CHEM	1993-94	0.00	4,555.00	3,926.00	8,481.00	0.00	5.61	5.79	11.40		812.67	677.89	744.18
CHEM	1994-95	925.00	4,189.00	3,551.00	7,740.00	0.74	6.61	5.86	12.47	1,242.85	633.59	606.41	620.82
GEOL	1993-94	0.00	252.00	125.00	377.00	0.00	0.44	0.44	0.88		567.00	285.71	427.46
GEOL	1994-95	2.00	332.00	108.00	440.00	0.06	0.50	0.44	0.94	33.92	664.00	246.86	469.33
INCT	1993-94	0.00	74.00	82.00	156.00	0.00	0.28	0.72	1.01		261.02	113.10	154.69
INCT	1994-95	0.00	78.00	90.00	168.00	0.00	0.43	0.50	0.93		182.00	180.00	180.92
PHSC	1993-94	0.00	256.00	168.00	424.00	0.00	0.58	0.30	0.87		444.66	561.56	484.63
PHSC	1994-95	0.00	132.00	128.00	260.00	0.00	0.25	0.24	0.49		528.00	535.63	531.73
PHYS	1993-94	0.00	1,619.00	1,555.00	3,174.00	0.00	2.26	2.38	4.64		717.73	652.11	684.01
PHYS	1994-95	234.00	1,662.00	1,462.00	3,124.00	0.40	2.37	2.32	4.68	588.62	701.53	631.50	666.92
Social Science													
ANTH	1993-94	0.00	351.00	453.00	804.00	0.00	0.38	0.63	1.00		936.00	724.80	804.00
ANTH	1994-95	0.00	264.00	137.00	601.00	0.00	0.50	0.67	1.17		528.00	505.50	515.14
ECON	1993-94	0.00	2,589.00	2,442.00	5,031.00	0.00	3.00	3.63	6.63		863.00	673.66	759.40
ECON	1994-95	807.00	2,223.00	2,097.00	4,320.00	0.62	3.38	3.00	6.37	1,300.77	658.67	699.00	677.65

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Arts and Sciences													
Social Science													
GEOG	1993-94	0.00	738.00	734.00	1,472.00	0.00	1.00	1.00	2.00		738.00	734.00	736.00
GEOG	1994-95	137.00	726.00	667.00	1,393.00	0.13	1.00	1.00	2.00	1,073.67	726.00	667.00	696.50
PLSC	1993-94	0.00	1,134.00	1,053.00	2,187.00	0.00	1.50	1.50	3.00		756.00	702.00	729.00
PLSC	1994-95	93.00	684.00	717.00	1,401.00	0.08	1.25	1.04	2.29	1,207.79	547.20	688.32	611.35
PSYC	1993-94	0.00	3,291.00	3,510.00	6,801.00	0.00	3.88	4.13	8.00		849.07	850.91	850.02
PSYC	1994-95	888.00	3,007.00	3,240.00	6,247.00	0.72	3.88	3.88	7.75	1,241.96	776.00	836.13	806.06
SCWK	1993-94	0.00	1,302.00	1,568.00	2,870.00	0.00	3.42	4.31	7.73		380.81	363.99	371.43
SCWK	1994-95	620.00	1,199.00	1,235.00	2,434.00	0.99	3.33	3.16	6.50	626.74	359.52	390.21	374.46
SOCY	1993-94	0.00	2,651.00	2,793.00	5,444.00	0.00	3.00	2.88	5.88		883.67	971.48	926.64
SOCY	1994-95	546.00	2,373.00	2,640.00	5,013.00	0.33	3.13	3.13	6.25	1,654.55	759.36	844.80	802.08
SSCI	1993-94	0.00	352.00	382.00	734.00	0.00	0.58	0.77	1.35		606.90	493.66	542.17
SSCI	1994-95	0.00	160.00	321.00	481.00	0.00	0.69	1.12	1.81		230.86	286.61	265.30
Student Development Services													
IEPG	1993-94	0.00	684.00	560.00	1,244.00	0.00	2.79	3.13	5.92		245.01	179.20	210.25
IEPG	1994-95	332.00	502.00	392.00	894.00	0.66	2.57	2.12	4.69	503.03	195.37	184.47	190.44
UNIV	1993-94	0.00	4,290.00	1,311.00	5,601.00	0.00	6.51	2.50	9.01		658.99	524.40	621.64
UNIV	1994-95	51.00	3,939.00	1,016.00	4,955.00	0.22	6.29	2.01	8.30	231.82	626.55	504.70	597.00

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Business													
Accountancy													
ACCT	1993-94	0.00	3,520.00	3,490.00	7,010.00	0.00	6.21	6.47	12.68		566.61	539.62	552.85
ACCT	1994-95	1,016.00	3,159.00	3,085.00	6,244.00	1.09	6.80	7.46	14.27	932.55	464.29	413.43	437.69
ACTQ	1993-94	0.00	234.00	18.00	252.00	0.00	0.50	0.13	0.63		468.00	144.00	403.20
Computer Info Systems													
CISM	1993-94	0.00	195.00	265.00	460.00	0.00	0.88	0.95	1.83		222.22	279.44	251.94
CISM	1994-95	247.00	160.00	284.00	444.00	0.60	1.27	1.54	2.81	411.45	126.19	184.22	158.03
CSYS	1993-94	0.00	441.00	319.00	760.00	0.00	1.53	1.17	2.70		287.30	273.82	281.48
CSYS	1994-95	108.00	256.00	222.00	478.00	0.15	1.34	1.17	2.50	732.70	191.76	190.56	191.20
ISYS	1993-94	0.00	4,386.00	4,295.00	8,681.00	0.00	7.25	8.17	15.42		604.97	525.92	563.09
ISYS	1994-95	1,118.00	3,903.00	4,309.00	8,212.00	1.21	6.50	7.73	14.23	920.62	600.46	557.13	576.92
OSYS	1993-94	0.00	1,194.00	1,091.00	2,285.00	0.00	2.56	2.64	5.20		466.10	413.00	439.14
OSYS	1994-95	276.00	831.00	815.00	1,646.00	0.30	2.00	2.23	4.23	905.26	415.50	365.85	389.34
STQM	1993-94	0.00	1,519.00	1,515.00	3,034.00	0.00	2.38	2.83	5.20		639.58	536.28	583.46
STQM	1994-95	612.00	1,520.00	1,419.00	2,939.00	0.69	3.25	2.63	5.88	885.93	467.04	540.57	499.87
Management													
BLAW	1993-94	0.00	2,022.00	1,707.00	3,729.00	0.00	2.90	2.33	5.23		698.12	731.97	713.22
BLAW	1994-95	942.00	1,990.00	1,385.00	3,375.00	0.78	2.79	2.38	5.17	1,204.45	712.55	582.75	652.87
BUSN	1993-94	0.00	570.00	445.00	1,015.00	0.00	0.54	0.38	0.92		1,052.31	1,181.42	1,105.26
BUSN	1994-95	27.00	447.00	460.00	907.00	0.02	0.42	0.50	0.92	1,363.64	1,058.99	916.94	981.85

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Business													
Management													
FINC	1993-94	0.00	1,692.00	1,575.00	3,267.00	0.00	2.64	2.63	5.26		641.44	600.00	620.77
FINC	1994-95	366.00	1,344.00	1,086.00	2,430.00	0.28	2.64	2.35	4.98	1,330.91	509.51	462.89	487.56
INSR	1993-94	0.00	111.00	147.00	258.00	0.00	0.33	0.33	0.67		333.00	441.00	387.00
INSR	1994-95	27.00	132.00	120.00	252.00	0.06	0.33	0.33	0.67	490.91	396.00	360.00	378.00
INTB	1993-94	0.00	549.00	481.00	1,030.00	0.00	1.13	1.29	2.42		488.00	372.59	426.33
INTB	1994-95	249.00	600.00	561.00	1,161.00	0.25	1.38	1.37	2.75	1,010.55	436.36	408.00	422.18
LLAW	1993-94	0.00	349.00	397.00	746.00	0.00	0.69	0.68	1.36		506.80	587.03	546.55
LLAW	1994-95	4.00	192.00	185.00	377.00	0.03	0.67	0.61	1.28	145.45	287.77	301.48	294.34
MGMT	1993-94	0.00	4,423.00	4,175.50	8,598.50	0.00	6.55	6.43	12.98		675.22	649.43	662.45
MGMT	1994-95	1,641.00	3,335.00	3,381.00	6,716.00	1.52	5.60	6.17	11.77	1,082.26	595.07	548.27	570.55
REAL	1993-94	0.00	126.00	210.00	336.00	0.00	0.17	0.42	0.58		756.00	504.00	576.00
REAL	1994-95	39.00	81.00	135.00	216.00	0.09	0.17	0.39	0.55	427.16	486.00	349.41	390.58
Marketing													
ADVG	1993-94	0.00	1,041.00	960.00	2,001.00	0.00	1.85	1.60	3.45		562.90	598.97	579.55
ADVG	1994-95	312.00	849.00	740.00	1,589.00	0.34	1.37	1.42	2.79	912.99	617.45	522.73	569.40
FSMT	1993-94	0.00	774.00	710.00	1,484.00	0.00	1.54	1.48	3.02		503.26	479.45	491.58
FSMT	1994-95	72.00	741.00	485.00	1,226.00	0.11	1.29	1.24	2.53	654.55	575.58	391.21	485.13
HSMT	1993-94	0.00	268.00	357.00	625.00	0.00	0.46	0.53	0.99		580.05	672.32	629.39
HSMT	1994-95	198.00	184.00	311.00	495.00	0.22	0.35	0.48	0.83	900.00	527.26	649.27	597.85
MKTG	1993-94	0.00	3,435.00	3,391.00	6,826.00	0.00	5.52	5.59	11.11		622.28	606.86	614.52
MKTG	1994-95	1,783.00	2,781.00	2,616.00	5,397.00	1.45	5.24	5.00	10.24	1,233.61	530.47	523.31	526.97

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Business													
Marketing													
PGMG	1993-94	0.00	429.00	380.00	809.00	0.00	0.50	0.50	1.00		858.00	760.00	809.00
PGMG	1994-95	349.00	421.00	361.00	782.00	0.24	0.50	0.50	1.00	1,465.46	842.00	722.00	782.00
PREL	1993-94	0.00	309.00	327.00	636.00	0.00	0.56	0.56	1.12		550.14	582.22	566.18
PREL	1994-95	147.00	183.00	229.00	412.00	0.12	0.46	0.60	1.06	1,189.63	401.46	380.69	389.64
PTMG	1993-94	0.00	74.00	69.00	143.00	0.00	0.00	0.15	0.15			460.00	953.33
PTMG	1994-95	36.00	94.00	70.00	164.00	0.22	0.15	0.15	0.30	163.64	626.67	466.67	546.67
RETG	1993-94	0.00	575.00	657.00	1,232.00	0.00	1.15	1.08	2.23		502.18	606.46	552.88
RETG	1994-95	315.00	627.00	681.00	1,308.00	0.32	1.25	1.21	2.46	997.78	501.60	563.59	532.07
VISC	1993-94	0.00	1,153.00	1,111.00	2,264.00	0.00	2.83	3.08	5.91		407.42	360.71	383.08
VISC	1994-95	57.00	980.00	978.00	1,958.00	0.11	2.67	2.87	5.54	520.79	367.73	340.17	353.43

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	<u>Student Credit Hours</u>				<u>Full Time Equated Faculty</u>				<u>SCH/FTEF</u>			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
<u>College of Education</u>													
<u>Child Development</u>													
EDCD	1993-94	0.00	463.00	189.00	652.00	0.00	0.70	0.48	1.18		663.47	391.62	552.33
EDCD	1994-95	120.00	377.00	250.00	627.00	0.18	0.75	0.67	1.41	681.82	506.04	373.90	443.54
<u>Criminal Justice</u>													
CRIM	1993-94	0.00	4,330.00	4,472.00	8,802.00	0.00	4.95	6.06	11.02		873.86	737.35	798.73
CRIM	1994-95	1,381.00	3,459.00	3,389.00	6,848.00	2.07	4.43	4.35	8.78	666.38	780.81	779.08	779.95
MSCI	1993-94	0.00	96.00	89.00	185.00	0.00	0.00	0.00	0.00				
MSCI	1994-95	0.00	81.00	79.00	160.00	0.00	0.00	0.00	0.00				
<u>Leisure Studies & Wellness</u>													
HLTH	1993-94	0.00	873.00	661.00	1,534.00	0.00	1.34	0.85	2.19		653.12	777.65	701.52
HLTH	1994-95	42.00	622.00	403.00	1,025.00	0.02	1.03	0.77	1.80	1,818.18	603.71	521.10	568.29
PHED	1993-94	0.00	1,054.00	983.00	2,037.00	0.00	1.24	1.20	2.44		847.72	818.03	833.13
PHED	1994-95	162.00	503.00	640.00	1,143.00	0.12	0.59	0.94	1.53	1,303.30	845.81	683.29	746.41
RMLS	1993-94	0.00	618.00	640.00	1,258.00	0.00	1.00	1.25	2.25		618.00	512.68	559.53
RMLS	1994-95	150.00	677.00	709.00	1,386.00	0.23	1.08	1.37	2.46	661.96	623.96	515.64	563.41
<u>Occupational Education</u>													
EDUC	1993-94	0.00	1,961.00	2,199.00	4,160.00	0.00	6.40	5.61	12.00		306.54	392.16	346.54
EDUC	1994-95	1,001.00	1,962.00	1,834.00	3,796.00	1.45	4.61	4.45	9.06	691.49	425.60	412.47	419.15
<u>Television Production</u>													
TVPR	1993-94	0.00	1,060.00	947.00	2,007.00	0.00	3.00	3.08	6.08		353.33	307.47	330.10
TVPR	1994-95	407.00	886.00	840.00	1,726.00	0.60	2.58	2.58	5.16	683.25	342.75	325.58	334.17

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Optometry													
Optometry													
OPHT	1993-94	0.00	346.00	304.00	650.00	0.00	1.43	1.00	2.43		242.48	304.00	267.83
OPHT	1994-95	84.00	193.00	137.00	330.00	0.22	1.45	1.00	2.45	381.82	133.00	137.00	134.63
OPTC	1993-94	0.00	332.00	279.00	611.00	0.00	1.60	1.45	3.05		207.59	192.95	200.64
OPTC	1994-95	6.00	226.00	200.00	426.00	0.04	1.54	1.51	3.04	160.43	147.23	132.80	140.08
OPTM	1993-94	0.00	2,163.00	2,431.00	4,594.00	0.00	7.97	9.55	17.52		271.44	254.55	262.23
OPTM	1994-95	380.00	2,173.00	2,377.00	4,550.00	3.62	9.41	10.29	19.70	104.87	230.95	231.02	230.99

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Pharmacy													
Pharmacy													
PHAD	1993-94	0.00	314.00	595.00	909.00	0.00	0.74	1.08	1.82		426.14	548.39	498.95
PHAD	1994-95	260.00	428.00	706.00	1,134.00	0.44	1.00	1.08	2.08	590.91	428.00	650.69	543.88
PHAQ	1993-94	0.00	130.00	0.00	130.00	0.00	0.26	0.00	0.26		494.00		494.00
PHAR	1993-94	0.00	1,606.00	818.00	2,424.00	0.00	2.58	2.08	4.66		621.64	393.96	520.19
PHAR	1994-95	164.00	1,728.00	866.00	2,594.00	0.68	2.54	2.40	4.95	242.30	679.87	360.24	524.51
PHCG	1993-94	0.00	0.00	22.00	22.00	0.00	0.00	0.15	0.15			148.92	148.92
PHCG	1994-95	6.00	0.00	32.00	32.00	0.15	0.00	0.36	0.36	41.06		88.64	88.64
PHCH	1993-94	0.00	1,517.00	750.00	2,267.00	0.00	2.53	1.77	4.30		599.69	423.71	527.24
PHCH	1994-95	485.00	1,754.00	684.00	2,438.00	0.83	2.07	1.35	3.42	586.98	846.50	506.90	712.56
PHCL	1993-94	0.00	720.00	1,067.00	1,787.00	0.00	1.28	2.21	3.49		564.58	482.67	512.63
PHCL	1994-95	519.00	1,215.00	1,067.00	2,282.00	0.84	1.92	1.98	3.90	615.87	631.47	539.02	584.59
PHCQ	1993-94	0.00	134.00	0.00	134.00	0.00	0.28	0.00	0.28		478.57		478.57
PHLQ	1993-94	0.00	256.00	0.00	256.00	0.00	0.28	0.00	0.28		917.92		917.92
PHPR	1993-94	0.00	1,183.00	1,149.00	2,332.00	0.00	5.22	6.36	11.58		226.80	180.55	201.38
PHPR	1994-95	8.00	1,089.50	1,450.00	2,539.50	0.00	5.94	6.19	12.13		183.36	234.39	209.39
PHQQ	1993-94	0.00	140.00	0.00	140.00	0.00	0.13	0.00	0.13		1,120.00		1,120.00
PHSV	1993-94	0.00	0.00	6.00	6.00	0.00	0.00	0.22	0.22			27.08	27.08
PHSV	1994-95	3.00	2.00	0.00	2.00	0.00	0.20	0.00	0.20		9.98		9.98

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Technology													
Automotive													
ABOD	1993-94	0.00	440.00	418.00	858.00	0.00	1.50	1.69	3.19		293.33	247.06	268.80
ABOD	1994-95	0.00	438.00	474.00	912.00	0.00	1.50	1.70	3.20		292.00	278.82	285.00
AEMT	1993-94	0.00	242.00	183.00	425.00	0.00	1.00	1.00	2.00		242.00	183.00	212.50
AEMT	1994-95	0.00	239.00	190.00	429.00	0.00	1.00	1.00	2.00		239.00	190.00	214.50
AHEM	1993-94	0.00	647.00	567.00	1,214.00	0.00	2.00	2.01	4.01		323.50	282.09	302.74
AHEM	1994-95	229.00	509.00	464.00	973.00	0.55	1.50	1.41	2.91	414.70	339.33	329.29	334.47
ATSR	1994-95	0.00	0.00	24.00	24.00	0.00	0.00	0.10	0.10			240.00	240.00
AUTO	1993-94	0.00	1,752.00	1,604.00	3,356.00	0.00	6.33	5.32	11.64		277.00	301.61	288.24
AUTO	1994-95	334.00	1,460.00	1,184.00	2,644.00	0.59	5.50	4.79	10.29	568.61	265.45	247.13	256.93
HEQT	1993-94	0.00	742.00	692.00	1,434.00	0.00	2.33	2.60	4.93		318.00	266.15	290.68
HEQT	1994-95	0.00	870.00	814.00	1,684.00	0.00	2.17	3.09	5.25		401.54	263.78	320.60
HSET	1993-94	0.00	136.00	88.00	224.00	0.00	0.67	0.40	1.07		204.00	220.00	210.00
HSET	1994-95	36.00	88.00	200.00	288.00	0.07	0.33	0.74	1.07	495.87	264.00	270.60	268.55
Construction													
ARCH	1993-94	0.00	1,119.00	892.00	2,011.00	0.00	2.85	2.59	5.45		392.32	344.01	369.31
ARCH	1994-95	0.00	713.00	751.00	1,464.00	0.00	2.58	2.39	4.97		276.07	314.04	294.32
BCTM	1993-94	0.00	123.00	159.00	282.00	0.00	0.25	0.43	0.68		492.00	366.92	412.68
BCTM	1994-95	0.00	222.00	171.00	393.00	0.00	0.49	0.54	1.04		448.48	315.69	379.10
CETM	1993-94	0.00	66.00	108.00	174.00	0.00	0.50	0.50	1.00		132.00	216.00	174.00
CETM	1994-95	0.00	99.00	16.00	135.00	0.00	0.36	0.29	0.65		275.00	123.43	207.16
CONM	1993-94	0.00	1,386.00	1,710.00	3,096.00	0.00	4.02	3.58	7.61		344.54	477.28	407.07
CONM	1994-95	0.00	1,455.00	1,575.00	3,030.00	0.00	3.34	3.58	6.92		435.93	439.66	437.86

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Technology													
Construction													
FMAN	1993-94	0.00	210.00	263.00	473.00	0.00	0.62	0.88	1.50		336.00	300.00	314.98
FMAN	1994-95	36.00	220.00	191.00	411.00	0.00	1.07	0.72	1.79		206.25	264.46	229.75
HVAC	1993-94	0.00	1,162.00	1,182.00	2,344.00	0.00	3.91	4.09	8.00		297.19	289.00	293.00
HVAC	1994-95	56.00	1,130.00	1,265.00	2,395.00	0.06	3.59	3.46	7.04	1,018.18	315.20	365.61	339.96
SURE	1993-94	0.00	740.00	824.00	1,564.00	0.00	1.50	1.78	3.28		493.33	461.82	476.22
SURE	1994-95	44.00	877.00	849.00	1,726.00	0.05	2.52	2.19	4.71	909.09	348.32	387.54	366.57
Electrical Electronics													
EEET	1993-94	0.00	1,714.00	1,633.00	3,347.00	0.00	5.83	5.79	11.62		293.83	282.25	288.06
EEET	1994-95	138.00	1,636.00	1,397.00	3,033.00	0.17	4.90	5.07	9.97	814.64	334.11	275.57	304.33
Graphic Arts													
PHOT	1993-94	0.00	0.00	40.00	40.00	0.00	0.00	0.17	0.17			240.00	240.00
PHOT	1994-95	14.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	795.45			
PMGT	1993-94	0.00	342.00	288.00	630.00	0.00	1.00	1.00	2.00		342.00	288.00	315.00
PMGT	1994-95	146.00	284.00	261.00	545.00	0.28	0.91	0.92	1.83	522.55	313.65	282.75	298.05
PTEC	1993-94	0.00	937.00	874.00	1,811.00	0.00	5.00	4.35	9.35		187.40	200.77	193.62
PTEC	1994-95	72.00	1,075.00	891.00	1,966.00	0.31	3.56	3.63	7.19	228.86	302.07	245.32	273.41
Manufacturing Eng Tech													
CADD	1993-94	0.00	20.00	148.00	168.00	0.00	0.10	1.08	1.18		200.00	415.20	396.95
CADD	1994-95	0.00	116.00	193.00	309.00	0.00	0.42	1.10	1.52		276.74	355.96	334.16
EGRG	1993-94	0.00	256.00	182.00	438.00	0.00	0.53	0.52	1.06		482.01	346.88	414.85
EGRG	1994-95	0.00	316.00	260.00	576.00	0.00	0.47	0.19	0.65		668.46	529.13	629.82

**Appendix E. Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and
SCH/FTEF Aggregated by Course Prefix within College and Department
1993-95 (continued)**

Prefix	Year	Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
		Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W	Summer	Fall	Winter	F + W
College of Technology													
Manufacturing Eng Tech													
MATL	1993-94	0.00	356.00	357.00	713.00	0.00	0.50	1.00	1.50		712.00	357.00	475.33
MATL	1994-95	0.00	434.00	227.00	661.00	0.00	0.67	0.50	1.17		649.38	454.00	565.76
MECH	1993-94	0.00	769.00	747.00	1,516.00	0.00	1.89	1.54	3.43		407.12	485.82	442.43
MECH	1994-95	0.00	673.00	638.00	1,311.00	0.00	1.30	1.39	2.70		517.15	457.64	486.37
MFGE	1993-94	0.00	1,357.00	1,323.00	2,680.00	0.00	3.15	3.34	6.49		431.25	395.71	412.94
MFGE	1994-95	188.00	1,447.00	1,267.00	2,714.00	0.33	2.76	3.29	6.05	569.70	523.79	384.91	448.28
MFGT	1993-94	0.00	945.00	612.00	1,557.00	0.00	2.65	2.17	4.82		356.15	282.46	323.03
MFGT	1994-95	28.00	803.00	474.00	1,277.00	0.07	2.44	1.64	4.08	385.67	328.43	289.32	312.74
PDET	1993-94	0.00	251.00	328.00	579.00	0.00	0.56	0.80	1.36		451.80	410.00	427.13
PDET	1994-95	60.00	322.00	338.00	660.00	0.07	0.50	0.56	1.06	826.45	644.00	598.30	619.76
PLTS	1993-94	0.00	898.00	1,323.00	2,221.00	0.00	2.50	4.87	7.37		359.20	271.66	301.36
PLTS	1994-95	404.00	1,013.00	1,454.00	2,467.00	0.73	3.55	3.10	6.65	553.62	285.35	468.28	370.70
TDTD	1993-94	0.00	723.00	638.00	1,361.00	0.00	2.11	2.03	4.14		342.47	313.93	328.47
TDTD	1994-95	0.00	693.00	589.00	1,282.00	0.00	2.09	1.68	3.77		331.43	350.17	339.79
TECL	1993-94	0.00	168.00	155.00	323.00	0.00	0.90	0.82	1.72		186.67	189.44	187.99
TECL	1994-95	0.00	101.00	101.00	202.00	0.00	0.73	0.89	1.62		137.73	113.62	124.52
WELD	1993-94	0.00	944.00	651.00	1,595.00	0.00	2.89	2.88	5.77		326.77	225.85	276.36
WELD	1994-95	58.00	866.00	642.00	1,508.00	0.07	2.22	2.50	4.72	798.90	390.68	256.80	319.72

**Appendix F. Ranked Listing of Student Credit Hours (SCH)/Full-Time Equated Faculty (FTEF), Aggregated by Department
Fall + Winter Semesters 1994-95**

Department	Student Credit Hours/ Full Time Equated Faculty (SCH/FTEF)
Criminal Justice	798.18
Biological Sciences	657.77
Social Science	641.06
Mathematics	639.53
Leisure Studies & Wellness	613.29
Humanities	610.14
Hospital Related	608.43
Physical Sciences	599.23
Management	549.28
Marketing	498.49
Language & Literature	467.90
Computer Info Systems	462.68
Student Development Services	450.12
Health Management	450.03

**Appendix F. Ranked Listing of Student Credit Hours (SCH)/Full-Time Equated Faculty (FTEF), Aggregated by Department
Fall + Winter Semesters 1994-95 (continued)**

Department	Student Credit Hours/ Full Time Equated Faculty (SCH/FTEF)
Child Development	443.54
Accountancy	437.69
Occupational Education	419.15
Pharmacy	407.52
Manufacturing Eng Tech	382.32
Construction	352.22
Enviromental/Clinical Sciences	335.03
Television Production	334.17
Electrical Electronics	304.33
Allied Dental	300.67
Automotive	280.12
Graphic Arts	278.40
Nursing	277.70
College of Allied Health Sciences	224.58
Optometry	210.64

**Appendix G. Teaching Cost per Student Credit Hour by Prefix and
Level - Ranked High to Low
1993-94 Data
(Teaching Costs Include Fringe)**

<u>Course Description</u>	<u>Course Prefix</u>	<u>Course Level</u>	<u>Teaching Cost Per Credit Hour</u>
Social Sciences	SSCI	U	\$827.39
Manufacturing Engineering Technology	MFGE	L	\$492.65
Allied Health Science	CAHS	L	\$462.10
Education	EDUC	G	\$425.46
Insurance	INSR	U	\$420.33
Dental Technology	DTEC	L	\$387.49
Photography	PHOT	L	\$361.51
Pharmacy Administration	PHAD	G	\$359.61
Technical and Professional Communication	TCOM	U	\$318.95
Civil Engineering Technology	CETM	L	\$308.98
Computer Science	CPSC	U	\$307.34
Printing Technology	PTEC	L	\$307.26
Social Work	SCWK	U	\$302.75
Heavy Equipment Service Engineering Technology	HSET	U	\$285.08
Automotive Machine Technology	AEMT	L	\$283.61
Education	EDUC	L	\$268.42
Technical Drafting and Tool Design	TDTD	L	\$260.25
Welding Engineering Technology	WELD	L	\$250.54
Optometric Technology	OPTC	L	\$249.51
Electrical and Electronics Engineering Technology	EEET	U	\$242.32
Technical Illustration	TECL	L	\$232.48
Mathematics	MATH	U	\$231.20
Electrical and Electronics Engineering Technology	EEET	L	\$227.35
Mechanical Engineering Technology	MECH	L	\$223.01
Computer Information Systems Management	CISM	G	\$220.36
Welding Engineering Technology	WELD	U	\$217.45

**Appendix G. Teaching Cost per Student Credit Hour by Prefix and
Level - Ranked High to Low
1993-94 Data (continued)**

<u>Course Description</u>	<u>Course Prefix</u>	<u>Course Level</u>	<u>Teaching Cost Per Credit Hour</u>
Heavy Equipment Technology	HEQT	L	\$215.81
Plastics Engineering Technology	PLTS	U	\$215.46
Printing Management	PMGT	U	\$213.47
Education	EDUC	U	\$213.41
Pharmacy Practice	PHPR	G	\$212.12
Recreation Management and Leisure Studies	RMLS	U	\$209.80
Automotive Body	ABOD	L	\$209.65
Architectural Technology	ARCH	E	\$208.71
Automotive/Heavy Equipment Management	AHEM	U	\$205.24
Medical Record Information Systems	MRIS	U	\$202.91
Heating, Ventilation, Air Conditioning & Refrig Tec	HVAC	U	\$199.04
Computer Aided Design	CADD	L	\$192.21
Clinical Laboratory Science	CLLS	U	\$189.38
Opticianry	OPHT	L	\$188.71
Manufacturing Tooling Technology	MFGT	L	\$188.67
Insurance	INSR	L	\$187.67
Journalism	JRNL	L	\$182.44
Horticulture	HORT	L	\$182.26
Automotive Service Technology	AUTO	L	\$177.17
Social Work	SCWK	L	\$176.48
Nursing	NURS	L	\$176.33
Physical Science	PHSC	L	\$174.72
Advertising	ADVG	U	\$174.65
Accountancy	ACCT	G	\$170.10
Industrial and Environmental Health Management	IEHM	U	\$169.39
Retailing	RETG	L	\$167.79

**Appendix G. Teaching Cost per Student Credit Hour by Prefix and
Level - Ranked High to Low
1993-94 Data (continued)**

<u>Course Description</u>	<u>Course Prefix</u>	<u>Course Level</u>	<u>Teaching Cost Per Credit Hour</u>
Heating, Ventilation, Air Conditioning & Refrig Tec	HVAC	L	\$166.05
Construction Management	CONM	L	\$166.02
Construction Management	CONM	E	\$165.91
Architectural Technology	ARCH	L	\$165.05
Computer Information Systems	ISYS	E	\$164.37
Computer Information Systems	ISYS	U	\$164.37
Surveying Engineering	SURE	U	\$164.11
Product Design Engineering Technology	PDET	U	\$163.13
Optometry	OPTM	G	\$161.71
Building Construction	BCTM	L	\$159.59
Industrial Chemistry Technology	INCT	L	\$158.02
Television Production	TVPR	L	\$153.80
Economics	ECON	U	\$153.35
Pharmaceutics	PHAR	U	\$152.93
Plastics Engineering Technology	PLTS	L	\$152.25
Public Relations	PREL	U	\$150.33
Manufacturing Engineering Technology	MFGE	U	\$147.47
English	ENGL	U	\$144.31
Advertising	ADVG	E	\$144.24
Optometry	OPTM	U	\$141.32
Computer Information Systems	ISYS	L	\$140.82
Court and Freelance Reporting	CSYS	L	\$136.47
Facilities Management	FMAN	U	\$136.38
Television Production	TVPR	U	\$136.03
Office Systems Management	OSYS	L	\$135.51
Clinical Laboratory Science	CLLS	L	\$135.14

**Appendix G. Teaching Cost per Student Credit Hour by Prefix and
Level - Ranked High to Low
1993-94 Data (continued)**

<u>Course Description</u>	<u>Course Prefix</u>	<u>Course Level</u>	<u>Teaching Cost Per Credit Hour</u>
Communication	COMM	U	\$133.15
Construction Management	CONM	U	\$132.60
Chemistry	CHEM	U	\$130.30
Humanities	HUMN	U	\$127.75
International Business	INTB	U	\$127.13
Product Design Engineering Technology	PDET	E	\$127.13
Literature	LITR	L	\$123.51
Computer Science	CPSC	L	\$122.69
Dental Hygiene	DHYG	L	\$122.40
Respiratory Care	RESP	L	\$122.34
Management	MGMT	U	\$121.51
Office Systems Management	OSYS	U	\$120.62
Nuclear Medicine	NUCM	L	\$119.83
Nursing	NURS	U	\$119.41
Medical Record Information Systems	MRIS	L	\$117.72
Metallurgy	MATL	L	\$117.26
Literature	LITR	U	\$116.59
Accountancy	ACCT	L	\$115.05
Accountancy	ACCT	E	\$112.35
Accountancy	ACCT	U	\$112.35
Food Service Management	FSMT	L	\$111.40
Pharmacology	PHCL	U	\$111.21
Allied Health Science	CAHS	U	\$110.14
Health Care Systems Administration	HCSA	U	\$109.27
Child Development	EDCD	L	\$108.39
Statistics and Quantitative Methods	STQM	U	\$107.68

**Appendix G. Teaching Cost per Student Credit Hour by Prefix and
Level - Ranked High to Low
1993-94 Data (continued)**

<u>Course Description</u>	<u>Course Prefix</u>	<u>Course Level</u>	<u>Teaching Cost Per Credit Hour</u>
Nuclear Medicine	NUCM	U	\$107.30
Pharmaceutical Chemistry	PHCH	U	\$106.88
English	ENGL	L	\$105.13
Statistics and Quantitative Methods	STQM	G	\$104.82
Marketing	MKTG	U	\$103.28
Engineering Graphics	EGRG	L	\$102.32
Finance	FINC	L	\$102.19
Visual Communication	VISC	L	\$101.92
Retailing	RETG	U	\$100.44
Biology	BIOL	L	\$94.85
Law	LLAW	L	\$93.86
Communication	COMM	E	\$93.33
Physics	PHYS	L	\$92.37
Art	ARTS	L	\$91.66
Computer Aided Design	CADD	U	\$91.29
Criminal Justice	CRIM	L	\$89.87
Biology	BIOL	U	\$89.26
Finance	FINC	U	\$87.98
Real Estate	REAL	L	\$86.31
Technical and Professional Communication	TCOM	E	\$86.11
Economics	ECON	L	\$83.38
Pharmacology	PHCL	G	\$82.19
History	HIST	U	\$81.97
Communication	COMM	L	\$79.72
Political Science	PLSC	L	\$79.60
Anthropology	ANTH	L	\$79.13

**Appendix G. Teaching Cost per Student Credit Hour by Prefix and
Level - Ranked High to Low
1993-94 Data (continued)**

<u>Course Description</u>	<u>Course Prefix</u>	<u>Course Level</u>	<u>Teaching Cost Per Credit Hour</u>
Geography	GEOG	L	\$77.16
Chemistry	CHEM	L	\$75.93
Surveying Engineering	SURE	L	\$75.42
Pharmacy Practice	PHPR	U	\$73.88
Marketing	MKTG	L	\$73.49
Spanish	SPAN	L	\$73.29
Psychology	PSYC	L	\$73.03
Psychology	PSYC	U	\$72.81
Metallurgy	MATL	U	\$72.77
Mathematics	MATH	L	\$72.09
Professional Golf Management	PGMG	U	\$72.02
Professional Golf Management	PGMG	L	\$70.35
Humanities	HUMN	L	\$69.95
Insurance	INSR	E	\$69.20
Criminal Justice	CRIM	U	\$67.88
University	UNIV	L	\$66.69
Art History	ARTH	L	\$65.57
Business Law	BLAW	U	\$64.45
Business Law	BLAW	L	\$63.60
Health Education	HLTH	U	\$60.27
Professional Tennis Management	PTMG	U	\$58.46
Radiography	RADI	L	\$54.43
Sociology	SOCY	U	\$53.86
Political Science	PLSC	U	\$53.28
Physical Education	PHED	L	\$50.16
Health Education	HLTH	L	\$49.46

**Appendix G. Teaching Cost per Student Credit Hour by Prefix and
Level - Ranked High to Low
1993-94 Data (continued)**

<u>Course Description</u>	<u>Course Prefix</u>	<u>Course Level</u>	<u>Teaching Cost Per Credit Hour</u>
Advertising	ADVG	L	\$46.42
History	HIST	L	\$45.78
Business	BUSN	L	\$45.46
Physical Education	PHED	U	\$42.07
Recreation Management and Leisure Studies	RMLS	L	\$42.06
Pharmacy Administration	PHAD	U	\$41.91
Professional Tennis Management	PTMG	L	\$41.76
Sociology	SOCY	L	\$41.19
Health Care Systems Administration	HCSA	L	\$39.01
Hospitality Management	HSMT	U	\$35.67

Source: Office of Institutional Studies (Draft)

**Appendix H. Ranked Listing of Program Teaching Costs
per Student Credit Hours
1993-94 Data
(Teaching Costs Include Fringe)**

<u>Program Name and Degree</u>	<u>Credit Hours</u>	<u>Total Teaching Cost</u>	<u>Total Teaching Cost / Cr Hrs</u>
Career and Tech Educ/Career & Tech Instr MS	32	\$12,418.93	\$388.09
Career and Tech Educ/Postsec Admin MS	32	\$11,821.00	\$369.41
Pharmacy/Add-on Pharm.D (Yrs 6 & 7)	71	\$25,878.06	\$364.48
Career and Tech Educ/Human Res Dev MS	31	\$11,081.63	\$357.47
Career and Tech Educ/Admin Cert MS	32	\$10,625.14	\$332.04
Dental Technology AAS	63	\$18,706.58	\$296.93
Printing Technology AAS	76	\$19,537.38	\$257.07
Pharmacy/Track-in Pharm.D (Yrs 3,4,5 & 6)	149	\$35,754.15	\$240.77
Automotive Machine Technology AAS	72	\$15,504.51	\$215.34
Optometric Technician AAS	63	\$12,345.77	\$195.96
Technical Drafting and Tool Design AAS	67	\$12,587.64	\$187.88
Info Systems Mgt/Info Systems Emphasis MS	31	\$5,805.74	\$187.28
Welding Technology AAS	67	\$12,485.13	\$186.35
Technical Illustration AAS	64	\$11,230.53	\$175.48
Automotive Body AAS	67	\$11,731.86	\$175.10
Heavy Equipment Technology AAS	67	\$11,694.75	\$174.55
Electrical/Electronics Engr BS (Yrs 3 & 4)	78	\$13,567.11	\$173.94
Industrial Electronics Technology AAS	66	\$11,290.38	\$171.07
Wage Earning Home Economics Educati BS	103	\$17,319.15	\$168.15
Industrial Engineering Technology AAS	66	\$11,061.00	\$167.59
Business Education BS	103	\$17,258.09	\$167.55
Technical Education BS	103	\$17,217.48	\$167.16
Allied Health Education BS	104	\$17,274.18	\$166.10

**Appendix H. Ranked Listing of Program Teaching Costs
per Student Credit Hours
1993-94 Data (continued)**

<u>Program Name and Degree</u>	<u>Credit Hours</u>	<u>Total Teaching Cost</u>	<u>Total Teaching Cost / Cr Hrs</u>
Info Systems Mgt/Acct Emphasis MS	31	\$5,071.87	\$163.61
Social Work BS	128	\$20,846.37	\$162.86
Plastics Engineering Tech BS (Yrs 3 & 4)	65	\$10,476.25	\$161.17
Mechanical Engineering Technology AAS	68	\$10,855.32	\$159.64
Manufacturing Engineering Tech BS (Yrs 3&4)	78	\$12,418.55	\$159.21
Manufacturing Tooling Technology AAS	68	\$10,759.56	\$158.23
Welding Engineering Technology BS (Yrs 3&4)	71	\$10,994.95	\$154.86
Automotive Service Technology AAS	72	\$10,968.70	\$152.34
Product Design Engineering Tec BS (Yrs 3&4)	69	\$10,497.27	\$152.13
Mathematics Education BS	115	\$17,490.00	\$152.09
Opticianry AAS	69	\$10,445.90	\$151.39
Optometry OD (Yrs 3,4,5 & 6)	163	\$24,545.22	\$150.58
Training in Business and Industry BS	100	\$15,034.98	\$150.35
Vision Science BS (Yrs 3 & 4)	82	\$12,080.45	\$147.32
HVACR Engineering Technology BS (Yrs 3 & 4)	64	\$9,261.32	\$144.71
Architectural Technology AAS	66	\$9,520.28	\$144.25
Hvy Equip Serv Eng Tec/Mfg Opt BS (Yrs 3&4)	65	\$9,245.77	\$142.24
Pharmacy BS	94	\$13,270.05	\$141.93
Automotive and Heavy Equip Mgt BS (Yrs 3&4)	70	\$9,909.24	\$141.56
Printing Management BS (Yrs 3 & 4)	64	\$9,039.79	\$141.25
HVACR Technology AAS	68	\$9,575.21	\$140.81
Hvy Equip Serv Eng Tec/Maint Opt BS(Yrs 3&4)	66	\$9,065.85	\$137.36
Ornamental Horticulture Technology AAS	65	\$8,923.58	\$137.29

**Appendix H. Ranked Listing of Program Teaching Costs
per Student Credit Hours
1993-94 Data (continued)**

<u>Program Name and Degree</u>	<u>Credit Hours</u>	<u>Total Teaching Cost</u>	<u>Total Teaching Cost / Cr Hrs</u>
Journalism AAA	63	\$8,471.91	\$134.47
Building Construction Technology AAS	63	\$8,460.94	\$134.30
Actuarial Science BS	120	\$16,086.56	\$134.05
Biology Education BS	120	\$16,050.27	\$133.75
Nursing ADN	75	\$9,699.47	\$129.33
Technical and Professional Communic BS	125	\$16,037.30	\$128.30
Chemistry Education BS	126	\$16,164.75	\$128.29
Court and Freelance Reporting AAS	71	\$9,049.41	\$127.46
Construction Management BS	136	\$17,191.78	\$126.41
Applied Mathematics BS	120	\$15,038.76	\$125.32
Child Development AAS	70	\$8,738.73	\$124.84
Medical Technology (Integrated) BS	139	\$17,334.10	\$124.71
Medical Tech (Career Mobility) BS (Yrs 3&4)	72	\$8,910.01	\$123.75
Television Production BS	129	\$15,649.84	\$121.32
Plastics Technology AAS	70	\$8,487.73	\$121.25
Rec Ldshp & Mgt/Corp Fitness-Well Track BS	119	\$13,965.33	\$117.36
Rec Ldshp & Mgt/Leisure Service Track BS	118	\$13,842.24	\$117.31
Administrative Assistant AAS	66	\$7,703.44	\$116.72
Computer Information Systems BS	127	\$14,819.79	\$116.69
Medical Laboratory Technology AAS	73	\$8,476.81	\$116.12
Accountancy/Computer Information Sy BS	127	\$14,739.97	\$116.06
Office Automation Systems BS	120	\$13,922.96	\$116.02
Facilities Management BS (Yrs 3 & 4)	67	\$7,720.46	\$115.23

**Appendix H. Ranked Listing of Program Teaching Costs
per Student Credit Hours
1993-94 Data (continued)**

<u>Program Name and Degree</u>	<u>Credit Hours</u>	<u>Total Teaching Cost</u>	<u>Total Teaching Cost / Cr Hrs</u>
Dental Hygiene AAS	77	\$8,837.98	\$114.78
Insurance BS	124	\$14,060.06	\$113.39
Surveying Engineering BS	138	\$15,636.76	\$113.31
Health Information Management BS	127	\$14,350.63	\$113.00
Public Relations BS	127	\$14,327.75	\$112.82
Pre-Teaching (Elementary or Secondary) AA	65	\$7,270.31	\$111.85
Computer Information Systems/Market BS	142	\$15,807.61	\$111.32
Insurance/Real Estate BS	124	\$13,639.58	\$110.00
Respiratory Care AAS	73	\$7,999.40	\$109.58
Advertising BS	125	\$13,585.16	\$108.68
Rec Ldshp & Mgt/Outdoor-Adv Edu Track BS	124	\$13,456.59	\$108.52
Accountancy (Cost/Managerial Track) BS	123	\$13,306.98	\$108.19
Rec Leadership and Mgt/Aquatic Track BS	123	\$13,287.04	\$108.02
Nursing BSN (Yrs 3 & 4)	60	\$6,457.53	\$107.63
Nuclear Medicine Technology AAS	69	\$7,408.67	\$107.37
Accountancy/Finance BS	137	\$14,514.23	\$105.94
Retailing AAS	67	\$7,081.93	\$105.70
Health Information Technology AAS	66	\$6,966.40	\$105.55
Food Service Management AAS	65	\$6,832.69	\$105.12
International Business BS	127	\$13,318.47	\$104.87
Business Administration BS	121	\$12,641.79	\$104.48
Small Business Management BS	120	\$12,426.85	\$103.56
Operations Management BS	125	\$12,897.42	\$103.18

**Appendix H. Ranked Listing of Program Teaching Costs
per Student Credit Hours
1993-94 Data (continued)**

<u>Program Name and Degree</u>	<u>Credit Hours</u>	<u>Total Teaching Cost</u>	<u>Total Teaching Cost / Cr Hrs</u>
Retailing BS	127	\$13,016.93	\$102.50
Marketing/Sales BS	127	\$12,982.22	\$102.22
Quantitative Business BS	125	\$12,656.74	\$101.25
Health Systems Management BS	131	\$13,234.01	\$101.02
Nuclear Medicine Technology BS	131	\$13,110.61	\$100.08
Industrial Chemistry Technology AAS	63	\$6,269.18	\$99.51
Business Management BS	123	\$12,232.81	\$99.45
Human Resource Management BS	123	\$12,221.18	\$99.36
Finance BS	125	\$12,366.89	\$98.94
Visual Communication AAS	65	\$6,379.84	\$98.15
Real Estate AAS	62	\$6,075.39	\$97.99
Marketing/Professional Golf Managem BS	128	\$12,459.07	\$97.34
General Business AAS	63	\$6,119.63	\$97.14
Legal Assistant AAS	64	\$6,148.18	\$96.07
Marketing BS	127	\$11,997.29	\$94.47
Pre-Law AA	59	\$5,537.58	\$93.86
Marketing/Professional Tennis Manag BS	129	\$12,013.79	\$93.13
CJ/Generalist-Corrections BS (Yrs 3 & 4)	65	\$6,015.42	\$92.54
Biotechnology BS	134	\$12,395.90	\$92.51
Pre-Criminal Justice AA	63	\$5,751.40	\$91.29
Applied Biology BS	123	\$11,079.62	\$90.08
Pre-Optometry AS	101	\$8,971.17	\$88.82
Liberal Arts AA	60	\$5,309.81	\$88.50

**Appendix H. Ranked Listing of Program Teaching Costs
per Student Credit Hours
1993-94 Data (continued)**

<u>Program Name and Degree</u>	<u>Credit Hours</u>	<u>Total Teaching Cost</u>	<u>Total Teaching Cost / Cr Hrs</u>
Pre-Mortuary Science AS	66	\$5,826.65	\$88.28
Pre-Dentistry AS	62	\$5,460.48	\$88.07
Radiography AAS	82	\$6,808.78	\$83.03
Pre-Pharmacy AS	64	\$5,312.54	\$83.01
CJ/Law Enforcement Specialist BS (Yrs 3 & 4)	64	\$5,309.54	\$82.96
Hospitality Management BS (Yrs 3 & 4)	69	\$5,588.06	\$80.99

Source: Office of Institutional Studies (Draft)

Appendix I. Curricula Leading to the Doctor of Pharmacy Degree

Track-In Curriculum

First Professional Year

1st Semester

Semester Credits	Course Number	Title of Course
2	PHAD 320	Pharmacy Management Systems
2	PHAR 310	Pharmaceutical Calculations/Prescription Compounding
2	PHAR 320	Quantitative Principles in Pharmaceutics
2	PHAR 321	Pharmaceutics 1
2	PHAR 322	Pharmaceutics 2
5	PHCH 320	Biochemistry
<u>0.5</u>	PHPR 301	Pharmacy Orientation
15.5		

2nd Semester

Semester Credits	Course Number	Title of Course
5	BIOL 386	Microbiology and Immunology
3	ENGL 321	Advanced Composition
2	PHAR 323	Pharmaceutics 3
3	PHAR 330	Pharmacy Practice/Patient Education
<u>3</u>	PHCL 320	Introduction to Drug Action
16		

Summer Semester

Semester Credits	Course Number	Title of Course
2	PHAD 430	Professional Practice Management
2	PHAD 500	Sociopharmacy
3	PHCH 427	Medicinal Chemistry 1
1	PHCL 420	Pharmacology Lab
<u>4</u>	PHCL 421	Pharmacology 1
16		

Appendix I. Curricula Leading to the Doctor of Pharmacy Degree (continued)

Second Professional Year

1st Semester

Semester Credits	Course Number	Title of Course
2	PHAR 410	Drug Literature Retrieval and Evaluation
2	PHAR 420	Pharmacokinetics
3	PHCH 428	Medicinal Chemistry 2
3	PHCL 422	Pharmacology 2
2	Professional/Track Elective	
3	Social Awareness Elective ¹	
15		

¹Course should be at the 300-400 level and use either SOCY 121 or PSYC 150 as a "foundations" course

2nd Semester

Semester Credits	Course Number	Title of Course
3	PHAD 420	Jurisprudence
2	PHCH 420	Diagnostic Tests and Their Application
4	PHCH 510	Chemotherapeutics
4	PHCL 520	Pharmacotherapeutics
2	Professional/Track Elective	
15		

Third Professional Year

1st Semester

Semester Credits	Course Number	Title of Course
6	PHPR 531	Pathophysiology & Applied Therapeutics 1
3	PHPR 540	Advanced Clinical Pharmacokinetics
3	PHPR 541	Principles in Pharmacy 1
2	PHAD 510	Study Design & Literature Evaluation
2	PHAD 530	Clinical Biostatistics
16		

Appendix I. Curricula Leading to the Doctor of Pharmacy Degree (continued)

2nd Semester

Semester Credits	Course Number	Title of Course
6	PHPR 532	Pathophysiology & Applied Therapeutics 2
2	PHPR 510	Patient Communications
1	PHPR 542	Principles in Clinical Pharmacy 2
1	PHPR 561	Clinical Seminar 1
2	PHCL 510	Clinical Toxicology
<u>2</u>	PHAD 520	Administrative Science for Pharmacy
14		

Fourth Professional Year

1st and 2nd Semesters

Semester Credits	Course Number	Title of Course
1	PHPR 562	Clinical Seminar 2
<u>40</u>		Clinical Clerkships (see below)
41		

Required Rotations

PHPR 600 Internal Medicine 1
 PHPR 601 Internal Medicine 2
 PHPR 602 Ambulatory Care
 PHPR 604 Clinical Pharmacokinetics
 PHPR 606 Drug Information
 PHPR 608 Pediatric Medicine
 PHPR 640 Psychiatry

Elective Rotations

PHPR 610 Institutional Clerkship
 PHPR 620 Cardiology
 PHPR 622 Pulmonary Medicine
 PHPR 624 Critical Care
 PHPR 630 Emergency Medicine
 PHPR 636 Nutrition
 PHPR 642 Addiction Medicine
 PHPR 648 Infectious Disease
 PHPR 652 Oncologic Disease
 PHPR 660 Neonatology
 PHPR 664 Geriatrics Medicine
 PHPR 670 Clinical Research

Appendix I. Curricula Leading to the Doctor of Pharmacy Degree (continued)

Post-B.S. Curriculum

First post-B.S. Year

1st Semester

Semester Credits	Course Number	Title of Course
6	PHPR 531	Pathophysiology & Applied Therapeutics 1
3	PHPR 540	Advanced Clinical Pharmacokinetics
3	PHPR 541	Principles in Pharmacy 1
2	PHAD 510	Study Design & Literature Evaluation
<u>2</u>	PHAD 530	Clinical Biostatistics
16		

2nd Semester

Semester Credits	Course Number	Title of Course
6	PHPR 532	Pathophysiology & Applied Therapeutics 2
2	PHPR 510	Patient Communications
1	PHPR 542	Principles in Clinical Pharmacy 2
1	PHPR 561	Clinical Seminar 1
2	PHCL 510	Clinical Toxicology
<u>2</u>	PHAD 520	Administrative Science for Pharmacy
14		

Fourth Professional Year

1st and 2nd Semesters

Semester Credits	Course Number	Title of Course
1	PHPR 562	Clinical Seminar 2
<u>40</u>		Clinical Clerkships (see below)
41		

Required Rotations

PHPR 600 Internal Medicine 1
 PHPR 601 Internal Medicine 2
 PHPR 602 Ambulatory Care
 PHPR 604 Clinical Pharmacokinetics
 PHPR 606 Drug Information
 PHPR 608 Pediatric Medicine
 PHPR 640 Psychiatry

Elective Rotations

PHPR 610 Institutional Clerkship
 PHPR 620 Cardiology
 PHPR 622 Pulmonary Medicine
 PHPR 624 Critical Care
 PHPR 630 Emergency Medicine
 PHPR 636 Nutrition
 PHPR 642 Addiction Medicine
 PHPR 648 Infectious Disease
 PHPR 652 Oncologic Disease
 PHPR 660 Neonatology
 PHPR 664 Geriatrics Medicine
 PHPR 670 Clinical Research

Appendix I. Curricula Leading to the Doctor of Pharmacy Degree (continued)

Extended Post-B.S. Curriculum

First Year

1st Semester

Semester Credits	Course Number	Title of Course
3	PHPR 540	Advanced Clinical Pharmacokinetics
2	PHPR 541	Principles in Clinical Pharmacy 1
<u>2</u>	PHAD 510	Study Design and Literature Evaluation
7		

2nd Semester

Semester Credits	Course Number	Title of Course
2	PHPR 510	Patient Communications
2	PHAD 520	Administrative Science for Pharmacy
1	PHPR 542	Principles in Clinical Pharmacy 2
<u>2</u>	PHCL 510	Clinical Toxicology
7		

Second Year

1st Semester

Semester Credits	Course Number	Title of Course
6	PHPR 531	Pathophysiology & Applied Therapeutics
<u>2</u>	PHAD 530	Clinical Biostatistics
8		

2nd Semester

Semester Credits	Course Number	Title of Course
6	PHPR 532	Pathophysiology & Applied Therapeutics
<u>1</u>	PHPR 561	Clinical Seminar 2
7		

Appendix I. Curricula Leading to the Doctor of Pharmacy Degree (continued)

Third and Fourth Years

Semester Credits	Course Number	Title of Course
1	PHPR 562	Clinical Seminar 2
<u>40</u>		Clinical Clerkships (see below)
41		
	<p>Required Rotations</p> <p>PHPR 600 Internal Medicine 1</p> <p>PHPR 601 Internal Medicine 2</p> <p>PHPR 602 Ambulatory Care</p> <p>PHPR 604 Clinical Pharmacokinetics</p> <p>PHPR 606 Drug Information</p> <p>PHPR 608 Pediatric Medicine</p> <p>PHPR 640 Psychiatry</p>	<p>Elective Rotations</p> <p>PHPR 610 Institutional Clerkship</p> <p>PHPR 620 Cardiology</p> <p>PHPR 622 Pulmonary Medicine</p> <p>PHPR 624 Critical Care</p> <p>PHPR 630 Emergency Medicine</p> <p>PHPR 636 Nutrition</p> <p>PHPR 642 Addiction Medicine</p> <p>PHPR 648 Infectious Disease</p> <p>PHPR 652 Oncologic Disease</p> <p>PHPR 660 Neonatology</p> <p>PHPR 664 Geriatrics Medicine</p> <p>PHPR 670 Clinical Research</p>