MISSION OF THE DEPARTMENT

Drug therapy is the most widely used and efficacious treatment modality available for a variety of health disorders. Yet problems with the use of medications are persistent and costly. Limited access, inappropriate prescribing, inadequate monitoring and control of medications as well as misuse of medications continue to be of major concern. Research and teaching in the Department of Pharmaceutical Outcomes & Policy focus on issues related to the use of medications in society and ways to improve the drug use process.

The mission of the Department is to:
- Advance safe, effective and humane drug therapy in society
- Discover new knowledge and disseminate existing knowledge about medication use.

Graduate studies will provide the conceptual knowledge, analytical skills, and experience in problem-solving needed to conduct research in (a) pharmaco-epidemiology, (b) pharmacoeconomics and (c) patient safety and medicines use.

DEPARTMENTAL FACULTY

Faculty Profiles
There are currently eight persons in full-time, tenure-track positions who comprise the graduate faculty of the Department. These faculty members are described below:

David Brushwood, R.Ph., J.D.
Professor
- B.S. Pharmacy. University of Kansas
- B.A. History. University of Kansas
- J.D. University of Kansas Law School

Professor Brushwood currently has two streams of research; one is focused on outcomes-oriented professional regulation, and the other emphasizes pain management regulatory policy. Professor Brushwood was selected as a 1999-2000 and 2002-2003 Mayday Scholar by the American Society of Law, Medicine and Ethics. His Mayday project research addressed the subject of “collegial accountability” to improve pain management for patients, and the effectiveness of electronic prescription monitoring programs. Professor Brushwood served as Co-Investigator on a grant awarded to the University of Florida College of Medicine
by the Robert Wood Johnson Foundation. His participation in that grant led to the creation of a statewide network of clinical pharmacist pain management consultants. Professor Brushwood was Co-Investigator on a grant awarded by the National Institutes of Health, in which he and colleague Carole Kimberlin studied methods of enabling pain-related dialogue between health care providers and patients. Current research projects include “Standardizing Regulatory Response to Aggressive Pain Management Practice.”

Abraham G. Hartzema, PharmD, MSPH, PhD, FISPE, Professor and Eminent Scholar, Perry A. Foote Chair in Health Outcomes and Pharmacoeconomics

- BS Pharmacy, University of Utrecht
- MSPH, University of Washington
- PharmD, University of Utrecht
- PhD, Social and Administrative Pharmacy, University of Minnesota

Dr. Hartzema’s research interests are health outcomes research with an emphasis on pharmacoepidemiology, risk management, economics, program evaluation, and health services research. He has served as principal and co-investigator on major grants from the National Institutes of Health, government entities, foundations and the pharmaceutical industry. He has co-authored and edited three books, two of which are in multiple editions, two monographs, one of which is translated into several languages, and has published and presented more than 100 chapters, journal articles, abstracts and presentations. He is the recipient of the UF Foundation Research Award, 2007-2010. He is also a Fellow in the International Society for Pharmacoepidemiology.

Teresa L. Kauf, Ph.D.
Associate Professor

- B.A. Economics, University of North Carolina at Charlotte
- M.S. Economics, University of Illinois at Urbana-Champaign
- Ph.D. Economics, University of Illinois at Urbana-Campaign

Dr. Kauf’s research interests include technology assessment and health services research in the areas of infectious disease and diseases affecting the elderly, including congestive heart failure and osteoarthritis. She is particularly interested in Medicare policy, physician adherence to clinical practice guidelines, patient adherence to medical care and prescription drug therapy as a function of patient risk factors such as age or disease severity. Prior to joining UF, Dr. Kauf held appointments at the University of North Carolina School of Pharmacy and the Center for Clinical and Genetic Economics at Duke University. In addition to her academic research experience, Dr. Kauf worked with a variety of private and public institutions, including GlaxoSmithKline, the American Medical Association, California Medical Review Inc, and the California Department of Health Services.
Dr. Kauf's broad professional experience lends a unique perspective to her teaching and research.

Carole Kimberlin, Ph.D.
Professor, Graduate Coordinator
- B.S. Secondary Education. University of Nebraska
- M.S. Educational Psychology. University of Nebraska
- Ph.D. Counseling Psychology. University of Nebraska

Dr. Kimberlin’s research interests include patient decisions on medication use and the effects of pharmacist-patient relationship and communication variables on patient health attitudes and behaviors. She was Principal Investigator on a project funded by the National Cancer Institute which interviewed cancer patients, family caregivers, pharmacists, physicians, and nurses on barriers to effective communication regarding pain management. She served as the 2005 Donald C. Brodie Scholar in Residence at the American Association of Colleges of Pharmacy. She is currently Principal Investigator with Almut Winterstein on a project funded by the Food and Drug Administration “Expert and Consumer Evaluation of Consumer Medication Information”. She has co-authored a textbook on patient communication that is currently in the 5th edition. She is a Fellow in the American Pharmacists Association.

Earlene Lipowski, Ph.D.
Associate Professor
- B.S. Pharmacy. University of Wisconsin-Madison
- M.S. Pharmacy University of Wisconsin-Madison
- Ph.D. Pharmacy University of Wisconsin-Madison

Dr. Lipowski’s research interest revolves around decisions made by physicians, pharmacists and patients in the selection of pharmaceutical products and services. Dr. Lipowski teaches courses for pharmacy students on pharmacy management and public policy related to drug use. She was a member of the Florida Medicaid Drug Use Review Board and has published several papers about the quality of drug use under government-sponsored programs. Dr. Lipowski is a former AACP-AAAS Congressional Fellow and in 2004-2005 she served as President of the Academy of Pharmaceutical Research and Science and a member of the Board of Trustees of the American Pharmacists Association. She served as the 2006 Donald C. Brodie Scholar in Residence at the American Association of Colleges of Pharmacy and, in conjunction with that program was Principal Investigator on a conference grant “Embracing the PBRN Model to Improve the Medication Use Process” funded by the Agency for Healthcare Research and Quality in 2007. She is a Fellow in the American Pharmacists Association.
L. Douglas Ried, Ph.D.
Professor
Associate Dean

- B.S. Pharmacy, University of Washington
- M.S. Pharmacy, University of Minnesota
- Ph.D. Social and Administrative Pharmacy, University of Minnesota

Dr. Ried has a longstanding interest in psycho-geriatric pharmacy practice. He is currently conducting research into the effects of drugs on patients’ quality of life and the psychosocial aspects of elderly patients’ psychotropic drug use. He has conducted a major project investigating the link between use of different antihypertensive medications and the onset of depressive symptomology. His other research interests include metabolic syndrome and second generation antipsychotic use and treatment of post-stroke depression. He is a Fellow of the American Pharmaceutical Association, President-elect, Academy of Pharmaceutical Research and Sciences (2007-2008); President, APRS and APhA Board of Trustees (2008-2010). He currently serves as the 2008 Donald C. Brodie Scholar in Residence at the American Association of Colleges of Pharmacy.

Richard Segal, Ph.D.
Professor and Department Chairman

- B.S. Pharmacy, University of Connecticut
- M.S. Hospital and Clinical Pharmacy, University of Iowa
- Ph.D. Pharmaceutical Outcomes Research, Virginia Commonwealth University

Dr. Segal’s research interests include disease management, outcomes research, pharmacoeconomics, quality improvement, particularly in the areas of drug prescribing, pharmaceutical care, drug use evaluation, and total quality management. In addition, he has authored a number of manuscripts in the areas of the socio-behavioral aspects of drug therapy and the psychology of the medications use process. He has authored or co-authored more than 90 published papers and has received regional and national awards for his research in the areas of clinical research, hospital practice research, and pharmacoeconomics. He is also an Affiliate Professor at the College of Public Health and Health Professions at the University of Florida. In 1999, Dr. Segal was named by the University of Florida as a Research Foundation Professor.

Almut Winterstein, Ph.D.
Assistant Professor

- B.S. Pharmacy, Friedrich Wilhelm University, Bonn
Ph.D. Pharmacoepidemiology and Social Pharmacy, Humboldt University, Berlin

Almut Winterstein is presently an Assistant Professor at the College of Pharmacy and Affiliate Assistant Professor at the College of Public Health and Health Professions at the University of Florida. Her research interests focus on drug safety and effectiveness post-marketing, and the evaluation and prevention of inappropriate drug use. Her pharmacoepidemiologic work is conducted in conjunction with the Perry A Foote Laboratory for Outcomes Research and Pharmacoconomics, and concentrates on various clinical specialties, including diabetes mellitus, cardiological disorders, nephrotoxicity, and vulnerable population such as geriatrics and pediatrics. Quality improvement activities are centered around her appointment as epidemiologist at the Clinical Practice Committee and the Medication Safety Committee at UF&Shands hospital and consultant activities for the Florida Department of Rural Health. Research projects deriving from these and others include the development and evaluation of medication safety programs and clinical decision support systems and quality metrics. She is a chair of the Research Advisory Board of the American Society of Health Systems Pharmacist Research and Education Foundation, member of the scientific committee of the Pharmaceutical Care Foundation Germany, and special advisor to the Governor's Advisory Board for the Implementation of Health Information technology in Florida.

**Faculty Research and Scholarly Activity**

**External Funding**

Sources and levels of external funding are summarized in Table 1.

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>$100,000</td>
<td>$129,000</td>
<td>$209,000</td>
<td>$499,789</td>
<td>$1,152,166</td>
<td>$1,570,166</td>
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<tr>
<td>State</td>
<td>$25,000</td>
<td>$165,683</td>
<td>$595,158</td>
<td>$279,803</td>
<td>$86,407</td>
<td>$344,097</td>
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<tr>
<td>Industry</td>
<td>$119,500</td>
<td>$194,320</td>
<td>$144,820</td>
<td>$175,256</td>
<td>$324,547</td>
<td>$701,128</td>
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<tr>
<td>Other</td>
<td>$50,000</td>
<td>$79,617</td>
<td>$5,000</td>
<td>$400,066</td>
<td>$72,618</td>
<td>$22,509</td>
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</table>

Departmental faculty members have been consistently successful in obtaining funding at the State level though the Agency for Health Care Administration. A number of faculty collaborate with investigators from the Florida Center for Medicaid and the Uninsured. Faculty have also been funded for a five year project through Florida Medical Quality Assurance, Inc., in which funding is
provided by the Florida Department of Health, on medication safety in critical access hospitals in the State.

Federal research funding has increased in recent years, primarily through funding from the Veteran’s Administration. Funding to hold a consensus conference on developing pharmacy practice based research networks was obtained from the Agency for Healthcare Research and Quality. A current project has been funded by the Food and Drug Administration. However, the ability to attract NIH funding has eluded faculty in recent years despite efforts to obtain funding.

Several faculty members have had ongoing success in attracting research funding from the pharmaceutical industry. The strengthening focus on pharmacoepidemiology and pharmacoeconomics in the department has largely driven the increased level of funding in this area.

**Publications and Presentations**

The faculty has demonstrated a commitment to scholarly activity as evidenced by a sustained record of publications and meeting presentations (see Table 2).

<table>
<thead>
<tr>
<th>Table 2: Yearly numbers of publications and presentations 2001-2007</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>Refereed Articles</td>
</tr>
<tr>
<td>Non-refereed Articles</td>
</tr>
<tr>
<td>Books and Chapters</td>
</tr>
<tr>
<td>Meeting Presentations</td>
</tr>
<tr>
<td>Invited Presentations</td>
</tr>
</tbody>
</table>

Four faculty members have authored textbooks that have been widely used in pharmacy education. In addition, six have served on the editorial boards of 16 professional journals or publications and one currently serves as editor of the *Journal of the American Pharmacists Association*. Six have served as external reviewers on 15 different grant review committees, with many serving multiple year appointments. Two have served or currently serve on NIH and/or AHRQ scientific review committees or study sections. Three have served in elective positions in pharmacy associations in the last five years, including two who served as President of the Academy of Pharmaceutical Research and Science of the APhA. One faculty member currently serves as Chair of the Research Advisory Panel of the American Society of Health-Systems Pharmacists.
Foundation. Four are Fellows in the American Pharmacists Association and one is a Fellow in the International Society of Pharmacoepidemiology.

GRADUATE STUDENTS

Student Recruitment
Student recruitment in recent years has relied on the departmental website. Faculty have decided to begin using brochures similar to those we produced a decade ago to supplement the information provided on the web.

In addition, we have embarked on a number of recruitment activities to better target our own PharmD students to enter the Joint PharmD/PhD program. Beginning last summer, we offered a $4,250 summer internship research experience to PharmD students. We had six qualified applicants and offered internships to two of them. One has since completed application to the PharmD/PhD joint program in our department. The other student is only in her second year but was an outstanding intern. We will continue to offer summer internships this year. We had seven applicants and have just made offers to three students for a summer research internship.

We have invited graduates of our Ph.D. program who are in diverse settings (industry, academia, a non-governmental organization doing international work for USAID) to address students on research they are working on as well as to offer advice to students on how they can jump start their careers. We have invited targeted Pharm.D. students to these talks and to the luncheon afterward and have had 2-3 pharmacy students attend each and express interest in the Pharm.D./Ph.D. program.

Finally, beginning 8 years ago, we started having joint seminars with the Florida A & M (FAMU) students who were in a Master’s Degree program in the Department of Economic, Social, and Administrative pharmacy. Three students have been admitted at least partly as a result of that endeavor but have not gone on to complete the Ph.D. in our department.

The number of completed applications in recent years has been between 20-30, with our number per year in the entering class ranging from 2-7 (see Table 3). We would like to maintain an entering class of 3-5 Ph.D. students per year.

Table 3: Departmental Graduate Student Recruitment Activity

<table>
<thead>
<tr>
<th>Year</th>
<th># Completed Applications</th>
<th># Applications Accepted</th>
<th>% Accepted</th>
<th># Applicants Entered</th>
<th>% Entered</th>
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<td>2007-08</td>
<td>19</td>
<td>3</td>
<td>16%</td>
<td>3</td>
<td>100%</td>
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<tr>
<td>2006-07</td>
<td>21</td>
<td>3</td>
<td>14%</td>
<td>2</td>
<td>67%</td>
</tr>
<tr>
<td>2005-06</td>
<td>29</td>
<td>9</td>
<td>31%</td>
<td>6</td>
<td>67%</td>
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<tr>
<td>2004-05</td>
<td>30</td>
<td>7</td>
<td>23%</td>
<td>5</td>
<td>71%</td>
</tr>
<tr>
<td>2003-04</td>
<td>25</td>
<td>7</td>
<td>28%</td>
<td>5</td>
<td>71%</td>
</tr>
<tr>
<td>2002-03</td>
<td>28</td>
<td>9</td>
<td>32%</td>
<td>7</td>
<td>78%</td>
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Profile of Admitted Graduate Students
Admitted students in recent years have been more likely to be international students, more likely to have a previous degree in pharmacy, and less likely to be minority students (see Table 4). Graduate Record Exam scores are consistently higher in the quantitative than the verbal subscales.

Table 4: Profile of Admitted Graduate Students

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<tr>
<td><strong>N</strong></td>
<td>N=4</td>
<td>N=7</td>
<td>N=5</td>
<td>N=5</td>
<td>N=6</td>
<td>N=2</td>
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<td>Verbal Mean (s.d.)</td>
<td>453 (35)</td>
<td>469 (108)</td>
<td>578 (130)</td>
<td>544 (112)</td>
<td>488 (74)</td>
<td>365 (78)</td>
<td>550 (157)</td>
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<tr>
<td>Quantitative Mean (s.d.)</td>
<td>633 (45)</td>
<td>601 (108)</td>
<td>678 (111)</td>
<td>724 (112)</td>
<td>672 (155)</td>
<td>700 (85)</td>
<td>740 (53)</td>
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<td>3</td>
<td>4</td>
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<td>Teaching Assistant</td>
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<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
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<tr>
<td>TA with Grinter or</td>
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<td>1</td>
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<td>Master’s</td>
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<td>2</td>
<td>4</td>
<td>2</td>
<td>5</td>
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<tr>
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<tr>
<td>Withdrew - academic</td>
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<td>1</td>
<td>1</td>
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<td>1</td>
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</tbody>
</table>
Retention of Graduate Students
During the 10 year period from the 1994-95 school year to the 2003-2004, 39 students began in the Ph.D. program with 23 (59%) receiving the Ph.D. degree and three (7%) expecting to graduate in May, 2008. This would mean that approximately two-thirds of students entering the Ph.D. program will actually obtain that degree. During that 10 year period, four persons (10%) changed career goals and finished with Master of Science in Pharmacy degrees. In addition, five individuals withdrew for academic reasons (13%), five left for personal reasons (13%), and two (5%) switched to Ph.D. programs in the Department of Health Services Research in the College of Public Health and Health Professions.

Student Financial Support
All students who enter the Ph.D. program come with financial support (see Table 4). Most who are admitted are awarded Teaching Assistantships, which currently have a base stipend level of $14,000 plus a tuition waiver and health insurance for 13 hours a week of work. We have also been successful in attracting competitive fellowships for students which involves higher stipend levels. The Named Presidential and Minority Fellowships were with $20,000 stipends, as was the Alumni Fellowship up until the 2007-08 year when that stipend was raised to $25,000. During the 07-08 admission year, the College of Pharmacy was provided with three Alumni fellowships to be awarded to the outstanding applications to graduate programs in the five departments, so these fellowships have been very competitive. In addition, many of the students provided with base stipend TA appointments have been awarded supplemental funding awards, primarily in the form of Grinter scholarships, which provide $3,000 a year for three years on top of the base stipend. There have been years when some students have been funded with supplemental support of an additional 7 hours per week (bringing them up to half-time appointments) through funding from research grants. For the students entering in 2007-08, the stipend support for ranges from $17,000-$25,000. Shands HealthCare System has supported a graduate student at $20,000 a year for three years, but that funding source will not be ongoing.

Since 2004, the department has awarded 1-2 Outstanding Teaching Assistant awards which provides a $2,000 bonus to those obtaining the award. Students are nominated for this award at the beginning of the year and, if they wish to pursue the award, they must develop objectives for improvement of their teaching, be formally evaluated in the classroom by supervisors and non-supervisory faculty, submit a portfolio containing their teaching philosophy and evidence of development of teaching skills.

Finally, the department recently was awarded a $1,000,000 gift for an endowment which will be fully funded in six years and matched with $750,000 from the State. The sole purpose of the endowment is to fund graduate students
in our department. When it is fully funded, it will generate $70,000 to support graduate students in our program.

**Placement of Ph.D. Graduates**

Of the 29 students who have received Ph.D. degrees since 1997, 15 are currently in academic positions (52%), three are in industry (10%), five are in other research positions (17%), two are in executive positions in corporations (7%), and four have other types of positions (14%).

**Satisfaction with the Program: Current Students**

Survey: An e-mail to all graduate students in the College of Pharmacy directing them to the questionnaire was sent by the Office of Research and Graduate Studies in October, 2007 with a cover letter from Executive Associate Dean William Millard. The Department of Pharmaceutical Outcomes & Policy also added open-ended questions to the questionnaire in order to ascertain perceived strengths and weaknesses of the program that may not have been reflected in answers to the closed-response questions. Responses were obtained from eleven of 21 current graduate students (52% response rate). Students were asked about career plans and 55% identified academia, 27% industry, with the remainder reporting a differing career goal or uncertainty about the direction they would take in their careers. In response to a question on why they had selected the University of Florida for their graduate studies, the quality of the faculty was identified as the top priority most frequently (46% gave it their top rank) followed by the reputation of the University of Florida and stipend levels (27% each) and geography (18%) as the most important consideration. Students were asked to respond to a series of questions about the quality of different aspects of the graduate experience (see Table 5). Responses were generally positive although there were a number of students rating us in the middle of the scale and at least one indicating his or her experiences to have been poor.

**Table 5: Response to question “How would you rate the following characteristics of your graduate experience?”**

1=Very Poor, 5=Excellent   N=11

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level, breadth and content of courses</strong></td>
<td>3</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Quality of instruction</strong></td>
<td>2</td>
<td>7</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mentoring guidance</strong></td>
<td>2</td>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Career guidance</strong></td>
<td>4</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Research environment</strong></td>
<td>3</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Program activities (e.g. seminar)</strong></td>
<td>3</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interactions with fellow students</strong></td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Thesis advisory committee</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Program administration</strong></td>
<td>1</td>
<td>7</td>
<td>3</td>
<td></td>
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</tbody>
</table>
Nine of the eleven respondents (82%) indicated that, if they could make the decision over again, they would attend the University of Florida. The remaining two were not sure.

Current graduate students were also asked to respond to open-ended questions identifying strengths and weaknesses of their graduate program. Ten of eleven students responding to the survey also responded to the open-ended questions. Students were asked to identify the greatest strengths of the graduate program. All of the ten identified strengths of the faculty and/or the related area of a strong research program. The strength of the faculty and research programs were often expressed as having a strong, multidisciplinary, research-oriented faculty that allowed students a variety of choice in developing their area of concentration and finding a compatible mentor. The multidisciplinary coursework as well as the “practical” oriented teaching style was also observed. One student noted “The faculty pay attention to the graduate student progress and concerns from our 1st day in the department to ensure we find a balance between our responsibilities and academics and that any problems are identified and resolved”.

The second area of strength identified was the diversity of the graduate student body. “The diversity of the student backgrounds and the unique expertise they bring together in an environment where learning and exchange of information and ideas is offered/encouraged and nurtured in this program” was identified as an important strength.

In response to the question “What has been the most rewarding part of your graduate school experience?” the most frequent response identified relationships with faculty (N=5) or the overall environment of the department (N=2). Responses include: “The close work with my advisor is very rewarding to me. I feel that a lot of responsibilities are assigned to me, but guidance is good and feedback immediate” and “our faculty is always available to the students on a regular basis and gets suggestions from students also”, “The lovely passionate environment of the department that made me feel less homesick”, and “Understanding each student situation and tailoring the program according to her/his needs.”

Four students specifically mentioned the development of research skills and the opportunity to participate in research projects while three specifically identified serving as a teaching assistant to be one of the most rewarding parts of their graduate school experience. One noted “I have really enjoyed the interaction with
the students. I have also helped the faculty to develop new ideas and strategies for delivering their course materials."

Students were asked “What suggestions would you make to faculty to improve the graduate school experience?” The suggestions fell into the following categories:

1. give more direction to students, especially giving ideas for potential dissertation projects and holding students more accountable to the timeline for graduation,
2. enrich the research experiences by providing more opportunity to participate in faculty projects, by matching junior and senior students in research, and by increasing requirements to present at national conferences,
3. hire more faculty and admit more graduate students,
4. provide more funding to support graduate student research and travel to professional meetings.
5. have all coursework be more targeted to research concentration area,
6. enrich the TA experience by assigning students to different PharmD courses rather than the same ones each year, and
7. invite more outside speakers to seminar so that the fall semester is all outside speakers and spring semester is student presentations.

The question was asked “What skill set do you think you will need to meet your career goals that you have not yet obtained.” Students identified the need for additional research skills, including software skills, research skills in the “real world” and recent concepts in research methods and/or data analysis. They also felt that they needed more writing experience, especially grant writing and manuscript submission. Several identified the need for improved presentation and other teaching skills. One respondent stated “My interest is academia so I am interested in any tools and expertise that will help me become a better educator.” Several wanted more exposure to the work environment in industry, including how to work with supervisors and subordinates and wished for the department to provide more encouragement for internships. Finally, one student identified need for improved skills in thinking creatively and communicating well.

Focus Group
In addition to the College survey, the department contracted with a neutral person with experience in qualitative research to conduct two focus groups of current graduate students to describe in more detail improvements they would like to see made in the graduate program. The groups were divided into the junior students (N=7) in their first and second year and the more senior students (N=8) who had taken their preliminary exams. In addition to clarifying and getting more specific input on items from the College survey, students in the focus groups were also asked to address a number of other issues.
First, students were asked to examine the list of competencies for the Ph.D. program (see p. 19) and describe how coursework, independent study opportunities, and research experiences contributed to development of student abilities in these areas. Junior students expressed uncertainty about how they were to learn some of the competencies. They were unsure if the competencies would be gained from coursework or from working on research. There was concern that if the advanced knowledge was to come from their coursework, then more courses should be taught within the department. There was concern that taking classes outside of the department to fulfill core competencies was not as beneficial because those courses were hard to apply to the field of pharmacy (The Theory of Measurement class in Educational Psychology was specifically identified).

Junior students were also unclear about how independent study should be structured.

- The Department does have a form that students submit that identifies the goals of the independent study, the deliverables that have been agreed to by the student and the faculty member supervising the independent study, and both the student and faculty mentor must sign off on this before the semester begins.
- In addition, the Policies and Procedures manual handed out in the departmental orientation for new students and posted on the departmental website states: “Independent study involves (1) independent reading and (2) guided independent research. It is strongly suggested that each student, with guidance from their faculty advisor, begin an independent reading and research program as early as their first semester in the program”.
- In addition, new students are asked to meet individually with each faculty member during their first month in the program to find out about research projects that are underway and others being planned so that they can identify which faculty member they might want to work with in an independent study.
- Temporary advisors are assigned at the end of these discussions and every effort is made to match student and faculty interests. It is emphasized that the assignment of temporary advisor in no way affects their choice of a major professor once they have a clearer idea of their area of concentration and research interests.

In spite of the advising mechanisms in place, the junior students were not sure how to approach faculty with a specific request to supervise them in independent studies and did not know whether the student should generate some ideas to bring to the faculty member or if the student should let the faculty member identify what the student might want to work on (e.g. define the goals for the independent study).

- Faculty discussed this sense of confusion among junior students and decided that the department needs to do a better job of communicating to
students what we think it means to be a Ph.D. student, examples of early independent research experiences they could structure for themselves with the help of a faculty mentor, and our goal developing students who are able to establish an independent research program.

- Junior students are still looking to coursework to accomplish all the objectives of the graduate program and are hesitant, out of fear and feeling that they “don’t know enough yet” to initiate discussions with faculty on ideas they have for research.

Senior students felt that the successful development of the competencies was most dependent on conducting research with their advisors. Some suggested that distribution of research experiences need to be standardized to expose every student to research experiences to a similar degree. They also expressed the desire for more opportunity to review manuscripts and develop grant-writing skills.

Specific recommendations for course changes in the core curriculum, particularly having more of the core curriculum taught by faculty members in the department, were also made. The need for a thorough curriculum review was obviously indicated based on feedback from students.

Students felt that a clearer statement of the goals of the departmental research seminar was needed. The structure has changed somewhat from year to year, mainly determined by who on the faculty was coordinating seminar for the year. Students perceived this as indicating a lack of structure and wanted goals to be more clearly defined and communicated to them.

Second, students were presented with the timeline for completion of the Ph.D. program in a four year period where milestones are laid out on a semester-by-semester basis (see p. 22). They were asked for their thoughts on the milestones and on factors that make it difficult for students to meet the milestones.

The junior students felt that more guidance was needed in planning their programs and progressing through the timeline. Among the senior students, it was stated that “if you don’t follow the timeline it doesn’t mean you haven’t done well.” Some felt that adherence to the timeline depended on the motivation of the individual.

Some senior students felt that the timeline would fit a fulltime student, but that it did not take into account TAing duties. It was recommended that the teaching duties be reduced. To do this, students recommended that the department hire more people. The senior students felt that the timeline was not enforced. They felt that the milestones were good, but that they were not taken seriously by the department. They felt that if there were important ones then the department should enforce them.
Some students felt that aspects of the timeline were unreasonable. Some thought that the timeline might not suit international students or students with family concerns. Others disagreed. Some stated that it was important to stay focused and to keep their mind on their goal. It was suggested that success at following the timeline depended on an individual’s enthusiasm and effort.

Junior students felt that generating output, such as needed to submit abstracts or manuscripts, was difficult for them. They do not feel that they have access to data. Also, they felt that without a research course they could not create products. Output was considered to be dependent on the topic of study and the faculty members that the students work with. It was also felt that if a student works with a professor with data then the student has a better chance of producing output.

Some senior students felt it was unreasonable to expect students to have their dissertation topic determined by the fourth semester. They said the third year was the earliest this could be expected. Others felt it depended on the student.

One thing that became clear from the focus groups was that students interpreted the questions they had responded to in the College survey in different ways.

- For example, some interpreted the question asking to evaluate “program administration” to mean the office staff while others assumed that the chair and graduate coordinator were meant.
- The item on mechanism for addressing grievances was answered based on whether they could remember reading a document on grievance procedures. The formal written description of how to resolve grievances with a faculty member is contained in the graduate student handbook. It will probably be important to periodically remind students about the procedures and where they can be found if a student needs to refer to them.

When asked why the response rate was so low, many of the junior students reported that they did not feel like the college survey was relevant to them. Some found it hard to participate or respond because of their newness in the program. Many believed their identities would be tracked even though the College said the surveys would be anonymous. Many of the students felt that the questions were ambiguous and were not sure what they were asking. Many felt that feedback was dependent on the major professor’s mentoring skills. Some reported weekly feedback. Others reported that they had trouble getting feedback from their professors. Students reported that the question on the College survey on “regular feedback” was ambiguous and that feedback needs were determined by the student’s level in the program (first year versus dissertation writing). Some students felt that the career guidance needs to be improved. Some students felt that the research environment could be enriched if the professors had more research funding. In such a case, students could be funded on research projects. Funding would allow them to travel to present the
findings of the study. It was also felt that the research environment was mentor specific and not standardized in the department. It was felt that the item on interactions with fellow students depended on the personalities of the students. It was stated that no one can get along with everyone. The junior students reported liking the large shared graduate student office because it gave the access to students who could give them guidance and suggestions.

Finally, without prompting, both groups made comments about the strengths of the program in a manner that seemed to be intended to offset the focus groups’ emphasis on areas in need of improvement. Students reported that the department is doing very well and that the program is a very good program. The staff and faculty were on the whole considered very cooperative. The coursework was considered more structured than in similar programs at other universities. Some had visited other programs and chose UF. It was noted by a junior student that they had not noticed the various problems in the program until the discussion brought them up. Among the senior students it was noted that the problems were only discussed so extensively because they were asked to point out areas in need of improvement.

Alumni

Alumni were asked to respond to the same survey questions as graduate students to evaluate their graduate experience (see Table 6). While, again, responses were generally favorable, there were some who rated aspects of their graduate student experience less positively.

Table 6: Response to question “How would you rate the following characteristics of your graduate experience?”

<table>
<thead>
<tr>
<th></th>
<th>1=Very Poor</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level, breadth and content of courses</td>
<td>3</td>
<td>10</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of instruction</td>
<td>1</td>
<td>11</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentoring guidance</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Career guidance</td>
<td>3</td>
<td>3</td>
<td>11</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Research environment</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program activities (e.g. seminar)</td>
<td>1</td>
<td>11</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactions with fellow students*</td>
<td>1</td>
<td>4</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thesis advisory committee</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Program administration</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Regular feedback regarding progress toward degree</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanism for addressing grievances</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Overall level of satisfaction</td>
<td>2</td>
<td>6</td>
<td>12</td>
<td></td>
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</tr>
</tbody>
</table>

*two missing responses
alumni also were asked to respond to open-ended questions posed by the department as a way to identify specific strengths and weaknesses of the program.

Sixteen of 20 alumni responded to the open-ended question on strengths of the graduate program. All of the respondents identified at least one of the interrelated characteristics of the quality of the faculty, the quality of the research, and the academic rigor of the program. The faculty was the most mentioned strength with specific notice of faculty expertise in diverse disciplines. The quality of faculty mentoring was also identified. Respondents noted:

- “Grad students are treated as colleagues and their opinions are valued. We were encouraged to think and argue and view ourselves as scholars”.
- “Outstanding faculty. . .They go beyond just teaching. They care about, encourage, and have faith in their students.”

Also noted was faculty involvement in local, state, and national associations that helped expose students to the Pharmacy Administration world.

The specific emphasis within the department focused on the development of research skills was identified as a strength of the program. Comments included:

- “The research skills that I learned while in the graduate program were extremely helpful. This intensive research experience is, in my mind, the most valuable asset to the program. I am also very thankful for the opportunity that we as graduate students had to critique articles and research”,
- “diverse opportunities to participate in research conduct and dissemination”, and
- “great research support system.”

The academic rigor of courses and qualifying exams were also mentioned. Other aspects identified were a friendly environment and close relationships with other graduate students.

Fifteen alumni responded to the question on the most rewarding part of their graduate school experience. The two items most frequently mentioned were related to conducting research, including being part of a research team, and developing long-lasting relationships with faculty. Comments included:

- “To work with well known researchers and be considered as part of the research team. The faculty are truly committed to their work and their dedication to research and teaching is infectious. The chair is extremely down to earth and every faculty has a true open door policy.”

Several noted that being able to reach their goal was rewarding. One noted

- “After my dissertation defense, I left the room. . . being called back as Dr. X was the most rewarding part of my graduate school experience. This
was a sign that all of my hard work and long hours had paid off and that I had finally reached my goal.”

Several mentioned being a teaching assistant as rewarding. The seminar experiences and “learning a new way to think” were also identified by different individuals.

Twelve respondents provided suggestions for improvement or identified skill sets that they needed that had not been adequately provided in their graduate program. There was a great deal of overlap in these responses, and there were also some conflicting views.

The most commonly mentioned improvement involved suggestions to enrich the research experience. This included the perceived need for more research opportunities, more work with secondary datasets, increased requirement for publications prior to obtaining the Ph.D., more exposure to SAS, requirements to write more grant proposals, especially in NIH format, and having two years of research assistantship instead of all four years as teaching assistants. Another person mentioned learning to work with clinicians and statisticians as desirable. This individual thought that the program fell down in making sure that dissertations resulted in publications and saw this as “a major weakness of the program and should be rectified.” Another noted “Emphasize publication, publication, publication. If possible, working closely with pharma and bio industry will help the graduate students to gain experience in this field. Making internships as mandatory.”

Different alumni also identified that the department should have clearer expectations of the non-coursework part of the degree, should implement student-student mentoring, should provide better training for classroom instruction, training for job selection and interviewing, and training for project management. One respondent thought that faculty should have a stronger presence in the community and develop cultural competency skills, and it was noted that “some of the faculty really need it!”

Some of the conflicting advice was that “There needs to be a little better balance between theory and practice” and another whose advice was “continued balancing of applied and theoretically-based research.”

One noted the need for increased emphasis on pharmacoeconomics, which has, in fact, happened with the recent hire of a pharmacoeconomist as well as with the efforts of the endowed chair in health outcomes and pharmacoeconomics. Another responded “Please retain the socio-behavioral and the practice-based research aspect of the program. . .I learned a lot from the faculty I worked with regarding these two areas and have been very successful in establishing very lucrative and professionally satisfying projects. All of this was possible because of my mentor at UF who told me ‘Pick an area that you are truly interested in and
resources will fall in place, rather than skipping off to a hot topic area that you are not interested in."

Several individuals noted that they thought some pharmacotherapy study should be required for non-pharmacists and one noted that the Ph.D. program is better suited for someone with a Master’s degree in statistics or a pharmacy degree. This person stated “I always recommend that people interested in EPI or HSR get a professional degree first and then consider a research degree. This supports domain expertise, confidence and desirability. I witnessed discrimination by some faculty against Ph.D. students without a background in pharmacy. . .I see this as a real problem.”

Finally, a respondent noted “When in graduate school, I was not aware that the career I have developed existed. Therefore, it was more as a result of serendipity than planning that the skills developed through the program paired well with my existing skill set and talents such that I am very uniquely qualified for the type of work I am involved in and the position I currently hold.”

CURRICULUM

Competencies:
Below are two sets of core competencies to be attained by students in our program. The first set focuses on research competencies and the second set are competencies specific to our discipline.

Research Competencies
- Students will be able to demonstrate competencies required to conduct research in our discipline.
- Theory: Describe foundation of theory of science.
- Research design: Describe essential elements of experimental, quasi-experimental and observational research designs and use them appropriately to address research questions.
- Principles of measurement: Develop instruments to measure research constructs and establish the reliability and validity of the instrument.
- Inferential statistics: Apply basic and advanced parametric and non-parametric statistical methods, including multivariate statistics; determine the appropriate tests and interpret the results of statistical analyses appropriately.
- Communication of research results: Select appropriate means to present research results to target audiences and effectively communicate those results.
- Evaluation of research: Write critical reviews of research reports, manuscripts, and proposals.
- Principles of research ethics: Apply ethical principles in use of human subjects in research.
Disciplinary Competencies

- Students completing requirements for a Ph.D. will be able to demonstrate competencies required to understand and conduct research pertinent to our discipline.
- Health care organization in the US: Describe issues related to organization, production, consumption, reimbursement, financing, access to, and delivery of health care in the United States.
- The medication use system: Describe the medication use system and its limitations; concepts involved in continuous quality improvement, pharmaceutical care, and other systems approaches to improving drug use.
- The drug product: Describe issues related to development, distribution, and evaluation of the drug product: Describe the process of drug development; the evaluation of drug efficacy, effectiveness, safety and costs and regulatory and public policy related to drug approval and withdrawal.
- Behavior of individuals in the medication use system: Examine patient and provider behavior within the medications use process; understand key ethical issues affecting relationships between providers and patients, and describe the role of theory in understanding the use of drugs in society.

Core Curriculum:
Specific coursework in the core curriculum is described in Table 8. These courses, along with requirements for research, were mapped to the competencies described above.

Table 8: Core Curriculum

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Dept</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Introduction to Pharmacy Health Care Administration I</td>
<td>POP</td>
<td>2</td>
</tr>
<tr>
<td>Introduction for new Ph.D. students to psychological, social, and ethical issues regarding medication use in society.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to Pharmacy Health Care Administration II</td>
<td>POP</td>
<td>2</td>
</tr>
<tr>
<td>Introduction to drug distribution systems, pharmacoepidemiology, economic evaluation of drugs, and databases regarding medication use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Analysis and Interpretation</td>
<td>POP</td>
<td>3</td>
</tr>
<tr>
<td>Develops skills needed to ask a research question, test a hypothesis that answers the research question and then appropriately interpret, report, and discuss the findings.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to the U.S. Health Care System</td>
<td>HSA</td>
<td>3</td>
</tr>
<tr>
<td>Health Services Research Methods I</td>
<td>HSA</td>
<td>3</td>
</tr>
<tr>
<td>Theory of Measurement</td>
<td>Ed Psych</td>
<td>4</td>
</tr>
<tr>
<td>Statistical Methods in Social Research I</td>
<td>Stat</td>
<td>3</td>
</tr>
<tr>
<td>Statistical Methods in Social Research II</td>
<td>Stat</td>
<td>3</td>
</tr>
<tr>
<td>Multivariate Analysis of Educational Research</td>
<td>Ed Psych</td>
<td>3</td>
</tr>
</tbody>
</table>
In addition to the core courses, students take the following courses from the department depending on their area of concentration:

*The Patient in the Medications Use Process (3)* Examination of psychological theory and conceptual foundations of research on the patient’s role in health care and drug use. Students critique research evaluating patient medication use and effectiveness of interventions to improve use.

*Pharmacoeconomics and Health Technology Assessment (3)* Introduction to major analytical techniques used in economic evaluation of medical technologies.

*Pharmacoepidemiology and Therapeutic Risk Management (3)* Examines drug safety issues and strategies to optimize the benefit/risk ratios of pharmaceutical products.

*Pharmaceutical Industry and Public Policy (2)* Course provides an overview of the pharmaceutical industry. Topics will cover issues in the development, pricing, promotion and distribution of prescription drugs in the US and abroad. The class will focus on discussions regarding current public policy debates on these issues, and an evaluation of the evidence available to support various positions on the issues.

**Areas of concentration:**

*Pharmacoepidemiology*
The study of pharmacoepidemiology involves the application of epidemiologic reasoning, methods, and knowledge to the study of drug uses and effects (beneficial and adverse) of drugs in human populations. Central to the development of skills related to pharmacoepidemiology is familiarity with at least one large database, proficiency in secondary data analysis, operationalization of definitions of exposure and outcomes using administrative or clinical datasets, query languages and relevant statistical software packages.

*Pharmacoeconomics*
Research methods from the discipline of pharmacoeconomics are applied to pharmaceutical outcomes research. Advanced training in these research methods includes:

a) economic evaluations: cost minimization, cost benefit, cost effectiveness and cost utility evaluation systematic literature reviews and meta-analyses

b) stochastic modeling: including Markov modeling and Monte Carlo simulation, Bayesian modeling

*Patient Safety and Medication Use*
The research examines factors related to the unintended adverse effects of medications and interventions to enhance the safe use of medicines by
improving medication use systems, changing provider or patient behavior, and informing public policy.

**Timeline for completion**
The timeline for completion of the Ph.D. in four years is provided to students at orientation, is posted on the website, is included in the Departmental Policies and Procedures manual also on the website, and students are regularly asked to examine it to gauge their progress in the program. This contains certain “milestones” the student should meet in order to gain the research experience and progress through the program in a satisfactory manner. The timeline is included below:

**First Year**
**Semester 1**
- Visit each graduate faculty member and learn his or her research interests by the end of the first month in the Ph.D. program.
- Write a statement of purpose, professional objectives and interests. (This statement should be shared with all faculty.)
- Develop a plan of study for core courses and independent readings.
- Begin working on a research project with your temporary advisor or with a faculty member whose research interests parallel your own. (Develop research problems and questions of interest to you).

**Semester 2 -3**
- Continue coursework.
- Continue research involvement.
- Begin preparation of manuscripts and/or submit abstracts for poster or podium presentations at UF and at national meetings.
- Discuss focus area and dissertation research interests with as many faculty as possible to help refine conceptualization of research problem and questions of interest

**Second Year**
**Semester 4**
- Complete most core courses
- Choose focus area and describe specific dissertation topic and research questions
- Choose major professor and supervisory committee

**Semester 5**
- Have initial meeting with supervisory committee and obtain approval for plan of study for focus area and dissertation research questions

**Semester 6**
- A manuscript must have been submitted OR a poster or podium presentation have been accepted or presented before student will be eligible to sit for the preliminary exam administered by departmental faculty
- Complete preliminary examination (usually end of summer term).

**Third Year**
- Complete all coursework in focus area
- Complete dissertation research proposal
- Take qualifying examination (Ph.D. candidacy exam) and present research proposal to supervisory committee
- Write proposal to fund dissertation research and provide to student stipend support for remainder of the Ph.D. program

Fourth Year
- Complete research project
- Write dissertation
- Take final oral examination (defense of dissertation)

DEPARTMENTAL RESOURCES

During the 2006-07 academic year, the department’s personnel included ten full-time faculty who were also members of the graduate faculty. One of the ten faculty (Sooyeon Kwon) was fully funded by extramural sources and one was funded 50 percent by the VA (Douglas Ried). Professor Ried has since returned full-time to the college and currently holds a full-time administrative appointment. Further, one faculty member retired in June 2007 and her open state-funded position is now frozen by the university because of budget shortfalls. As a result, the department currently has eight full-time faculty actively engaged in its core mission. The department has recently made two offers to add faculty which will be funded from the revenue produced by its distance masters program. As of February 2008, one offer has been accepted and one declined. This search will be reopened.

The department also employs three office staff members including an office manager (Linda Orr), a senior fiscal assistant (Melanie DeProspero), and a senior secretary (Bruni Piecora). The senior secretary serves as the assistant to the graduate coordinator, among her other duties. These positions are state funded. We employ a full-time Research Program Coordinator (Hannah Chaddee) in a state funded position. This individual assists faculty with grant applications, grants management, and IRB submissions and reports. We employ an Academic Program Coordinator (Michael Mueller), funded from extramural sources, who helps faculty with course management, which is particularly important considering all of the distance campuses. In addition, we have a Statistical Research Coordinator (Leo Huazhi), also funded from extramural sources, who maintains the research databases and does computer programming to support departmental research efforts.

Each faculty member has a private office. The graduate students are in one large office with everyone having a desk that can be locked and filing cabinet space available. They also have a computer room across the hall with mail boxes, a refrigerator, and printer. The department has one small conference room, a large room that can be help for meetings or graduate classes, and a third
conference room that is equipped with videotaping equipment so it can be used as a focus group facility.

In terms of computer resources, the department is operating off of a new server owned by the PA Foote Laboratory and installed in the University of Florida Health Science Center (UF-HSC) Office for Information Services. The server is a Hewlett-Packard - HP DL585 O2.6 DC 2P PC2700 US Svr 407658-001. This server is equipped with dual processors, an internal memory of 8 Giga Byte 333MHz, a 300Giga Byte hard drive, and an internal DVD-ROM drive 8x. Data storage is available on two XIOTech SAN Space 1 TB RAID ECONOClass Fibre channels data storage devices (2 Terra Byte total storage capacity). The server and the data storage units are physically located in the UF-HSC Office for Information Services, and connected with the desktop machines in the PA Foote laboratory or secure log-on through other remote sites.

The PA Foote Health Outcomes Modeling Laboratory Quantitative Core is located in the new Health Professions, Nursing and Pharmacy (HPNP) building at the University of Florida campus. It is equipped with four Dell computers – Two Dell Precision PWS670, Intel(R) Xeon(TM) CPU 3.60GHz, 3.00 GB RAM; and 465 GB hard disks; and two Dell Precision PWS650, Intel(R) Xeon(TM) CPU 2.40GHz, 1.00 GB of RAM, with hard disks sized: 258/68 GB. All computers have installed Windows XP Professional (version 2002), MS Office 2003 package, Adobe Acrobat 6.0 Professional, SigmaPlot (version 10.0), SAS package (version 9.1), SPSS (version 13.0), STATA (version 9.0), MetaWin (version 2.0), TreeAge (version 4.2), Atlas.ti, SUDAAN and others. Also installed is the encryption software PGP desktop (version 9.5.2) that provides full hard disk encryption on all computers to ensure date security. One full-time staff member is running the Quantitative Core.

In response to growing security and privacy concerns and federal and state regulations, the UF-HSC developed the Security Program for the Information and Computing Environment (SPICE). This program was designed to protect information that is owned, managed, and used by the Health Science Center in all its forms (electronic, paper, film, etc.), as well as personal identifiable information. Under the auspices of the SPICE program, the UFHSC is centrally investing in Information Technology and makes these investments available for general use. One of these investments consists of an environmentally conditioned machine room. This room is equipped with redundant cooling devices, conditioned power, 1 Gbps redundant connection to University of Florida’s campus core, secure physical environment with audited access controls, while a Tivoli Storage Manager, with off-site backup is at the heart of the disaster recovery process. A central data repository component in this datacenter consists of a XIOTech Mag3D 3000S Storage Area Network (SAN). This SAN consists of fully redundant fiberchannel fabric, redundant disk controllers, dual power supplies on all disk and controller bays, and RAID 10 fiberchannel disks.
The income available to the department consists of the annual budget allocation from the dean’s office, profits from continuing education programs and distance masters programs, indirect cost returns from the Division of Sponsored Research, and endowments. During 2006-07, the budget provided to the department from the deans office was $243,433 (see Figure for breakdown). Note that the budget includes ten state lines for graduate assistants, funded at an average of $14,402 each (taking into account annual raises). Many of these students also receive a supplement of $3,000 yearly for up to three years. Further, note that the budget allocation does not include salary and fringe benefits for faculty and staff paid from state funds. The budget also does not include salaries and benefits for graduate students funded on alumni fellowships, with stipends ranging from $20,000 to $25,000. The department currently has 3 Alumni Fellows. Thus stipends range from $14,000 yearly to $25,000, with most receiving at least $17,000 yearly, with a tuition waiver and health insurance.

During the 05-06 and 06-07 academic years, $152,988 in revenue was generated by the department’s continuing education programs, resulting in a net profit of $78,162 for the two-year period. During odd-years, pharmacists are required to report their continuing education credits to the Florida Board of Pharmacy for the preceding two-year period, therefore our CE programs generate greater revenue during odd years. Thus, when considering revenue streams and profits to the department, the average over the two year period is a better reflection of the annual contribution from CE to the department’s financial health. Thus, we generate about $35,000 to $40,000 yearly in net profit from our CE programs.

The department received $3,476 in indirect cost returns during 05-06, which does not include IDCs contribution to centers or to the investigators. The department’s distance masters program shares five percent of its gross margin with both the department and the college. Since the program is in its growth phase, the department’s share is being reinvested in the program to aid its expansion from one distance masters offering to four beginning in August 2008. The department also received, during 06-07, $5,510 from the Liberty Endowment Fund to help needy students who will be traveling to professional meetings. Graduate students may also apply for up to an additional $300 in travel support to central administration if they are presenting a paper at a professional meeting. The
department does not provide dissertation research support to students. Students are encouraged to apply for extramural support to fund their research. They may also ask their advisors for financial assistance.

In summary, our graduate programs are funded by the college through (1) stipend and tuition waiver support for 10 state graduate assistantships and 3 alumni fellowships; (2) an annual allocation for graduate student travel from an endowment (usually about $300) and travel support for an additional $300 from central administration for those who apply. Looking into the future, one of the graduate assistantship lines will be transferred to the department of Pharmacy Practice beginning in July 2008. This loss will be offset by a recent $1 million endowment to the department, which will be matched at 75% by the state. The endowment will eventually generate $70,000 yearly for graduate student support once the final contribution on the endowment is made in six years.

FACULTY PERCEPTIONS OF STRENGTHS AND WEAKNESSES

Faculty members were also asked to respond to open-ended questions on their perceptions of strengths and weaknesses and/or unmet needs of the Ph.D. program.

Strengths
The most commonly mentioned strength of the program was the quality and diverse expertise of faculty in the department. Noted was the expertise of the faculty in specific areas of research, namely pharmacoepidemiology, pharmacoeconomics, drug safety, patient communication, regulation and public policy. Faculty also noted that students have numerous opportunities for independent study and collaboration with faculty. It was also thought that students have good data access for studies using secondary data.

A second area of strength was the presence of an endowed chair in the department and the support that is tied to that position that benefits the research efforts of the entire faculty in the department.

The expanded course offerings within the department in recent years were also noted. This includes the introduction of two foundation courses which introduce new students to the variety of research areas in our discipline as well as course offerings in the different concentrations that attract students from other programs in the University, especially students in the MPH program.

Being in a research intensive University was seen to have benefits for research collaborations as well as affording coursework outside the department (e.g. biostatistics, the broader health care system, measurement) taught by persons with expertise in these areas.
It was noted that we probably have among the larger departments in the country in terms of number full-time faculty and number of Ph.D. students.

Individuals noted that we have supportive people in staff and department chair positions as well as a good learning environment among students. It was also noted that students who complete the Ph.D. leave with good job opportunities.

**Weaknesses and unmet needs**

Having an open faculty line “frozen” just as we were ready to bring in applicants for interviews was a major blow to the department. The “aging” of many of the current faculty and the current economic climate in the state which restricts our ability to bring in young, junior faculty is of concern.

Faculty felt a need for better recruitment of graduate students, particularly those trained in the United States with PharmD degrees. Various new strategies to attract these students, including summer internships and appointment of a senior faculty member who is in charge of organizing recruitment and publicity efforts for the department, should help meet this goal over the long term. All research faculty need to be involved in providing summer research experience for PharmD students and assist in publicizing research activities and accomplishments of faculty and graduate students in our department.

There is an acknowledged need for a steady stream of extramural funding to support an expanded infrastructure needed for a robust research program. Individuals noted that the College leaves it up to departments to provide infrastructure for support of research and that “running after funding” is not conducive to development of a focused stream of research.

Faculty thought there needed to be better application of coursework to the research experiences available to students. While there was seen to be good relationships with faculty who teach courses in the core curriculum from outside the department, these courses are not always offered at predictable intervals. The newly approved Ph.D. program in epidemiology and biostatistics in the College of Public Health may help expand the coursework available and be more predictable in future offerings.

Concern was expressed that some students can flounder without being held to high standards. These problems are manifested as a delay in forming a committee resulting in delay in having a plan of study for the concentration area that is approved by the committee. Some of the delay is caused by an inability to commit to a research question for the dissertation and related uncertainty as to the best person to be the external committee member on the supervisory committee. Other delays involve students who do not get involved in a research project early in their programs, students who must remediate and/or retake the preliminary exam, and students who do not finish dissertations in a timely manner.
Other issues identified included the desire to develop a Post-Doc program, for which funding is being sought. It also was noted that we need to do more to provide students with research experiences where they can apply what they are learning in coursework to research they are involved with.

One concern that was noted was that the distribution of graduate students to major professors is very imbalanced. It was noted that some of the faculty have greater numbers of advisees compared to the other faculty. There were several possible explanations, some of which could involve disciplinary fit or personality fit. Of concern was the possibility that there is perceived to be a difference in the level of rigor demanded by the advisor. Another possibility is that the level of funding a professor has to support dissertation research and graduate student travel to professional meetings may attract students to a major professor.

Finally, there was expressed a desire for more on-going help in teaching in the PharmD curriculum. Required courses in the Pharm.D. program have typical enrollments of 330 students distributed across four campuses. This structure significantly increases the effort required to coordinate a course. Faculty members in the department pride themselves on teaching in an active-learning, problem-based style, which is particularly challenging with distance campuses. Teaching in the Pharm.D. program is perceived to limit time available and willingness to offer more coursework for Ph.D. students within the department. The hiring of an academic program coordinator to assist in course management has helped but the teaching assistance provided by TAs is limited for all but exceptional graduate students along with the fact that there is frequent turnover (hopefully) with students graduating.

**When was the last time your curriculum was reviewed? How were changes implemented?**

A comprehensive review of the curriculum took place during the 2001-2002 school year, with major restructuring of the curriculum taking place starting with the 2002-2003 school year. This review was systematic and involved consensus agreement on competencies expected and mapping of these to both course offerings and “milestones” students would be expected to meet through involvement in research prior to the dissertation. As a department, we have just completed review and change to the PharmD curriculum, have added new Master’s degree programs, have changed the name of the department to be more congruent with the areas of concentration within the department, and it is now time once again to revisit the core requirements for the Ph.D. program.

**Is there a mechanism in place for helping faculty improve graduate student advising?**

Certainly, we have senior faculty who are available for suggestions. However, the main mechanism in place is that the decisions affecting graduate education are discussed in departmental faculty meetings. These decisions include
admissions, annual reviews of each graduate students progress in the program, preliminary exams, curricular changes, and student discipline issues. Recommendations are decided by the entire faculty. For any decision on student progress, including performance on preliminary exams, annual review of progress, and disciplinary actions, consensus documents are developed and provided to students during meetings with major professors and/or the graduate coordinator or department chair. These documents become part of the student file.

While major decisions are thoroughly vetted by the department, it is thought that we should spend more time sharing our approaches to other issues such as the level of help that is provided in selecting topics and carrying out dissertation research, expectations for funding of research and travel for graduate students, and how we respond to special requests from students. The department has provided a small amount of travel support to professional meetings, but student requests are often for additional funding for professional meetings, including for international conferences.

**What changes would you make if extra resources were not available? If they were available?**

**Without:**
- Develop a better marketing of our graduate program and accomplishments of faculty, graduates, and graduate students. New recruitment strategies being developed as well as the implementation of summer research internships should help with recruitment in the next few years.
- Revamp curricular offerings based on input from graduates, current students, and faculty and match to desired outcomes.
- Assess current research infrastructure and identify unmet needs and strategies to strengthen infrastructure.
- Streamline the advising process with the major professor being the gateway for information and other academic issues for the student.
- Increase accountability for students to meet “milestones” for research papers and publications as well as submission of grant proposals prior to dissertation research.
- Increase accountability for TA performance.

**With additional resources:**
- Increase stipend for TA support
- Hire faculty
- Strengthen research infrastructure with support for writing proposals, editing manuscripts, etc.
- Develop a Practice-Based Research Network
- Build a sentinel system for adverse reactions
- Enhance data processing capacities
- Establish a Center for Therapeutic Risk Management

**What are the mechanisms for dealing with disciplinary issues?**
The main concerns about disciplinary issues are: academic honesty, progress toward degree, and, for some, performance as TAs.

The new student orientation in the department includes a component on academic honesty and the consequences of being dishonest. It is also the focus of required readings in the first foundations class for new graduate students. Concerns about a particular student are raised in faculty meetings based on as thorough an analysis of the issue as possible and, usually, the input of the student involved. Faculty decide on the consequences to the student based on the seriousness of the event and whether there is a pattern of repeated behavior. Faculty may decide to refer the case to the Academic Honor Court in the Health Sciences Center but rarely is that path used unless the student wishes to use that vehicle when he or she feels the department's decision is not appropriate. Issues of academic and research integrity have been addressed promptly, with more than adequate discussion among the faculty and with opportunity for student response, and appropriate sanctions.

It is the disciplinary issues associated with infractions of a less serious nature that tend to drag out and suffer from a lack of clear remediation criteria, good follow-up and prompt resolution. Students who wish to appeal departmental decisions would be referred to resources available at the University level, which has a well-developed structure in place.

**PLANS FOR IMPROVEMENT**
Graduate faculty and graduate students will engage in a quality improvement process to reach the following goals. The process will include opportunities for input and review by all faculty and graduate students in the program.

Goal 1: Implement thorough review of core curriculum
It has been five years since the last comprehensive curriculum review, even though some modifications have been implemented in the interim. However, it is
felt that a comprehensive review is needed at this time. Carole Kimberlin as graduate coordinator will be charged with organizing this effort.

- The review will begin with examination and confirmation or modification of the competency statements for the Ph.D. program.
- The second step will be to conduct an environmental scan of coursework available throughout the University that may help students meet the competencies. There was a new Ph.D. program in Epidemiology and one in Biostatistics approved last year in the College of Public Health and Health Professions, which will mean new coursework becoming available that fit some of the competencies we desire in students.
- We will consider some of the suggestions that faculty and students have made for consideration in a revised curriculum. Some examples of suggestions include:
  - Leverage some of the coursework in the PharmD curriculum for Ph.D. students (e.g. require the PharmD course in evidence-based pharmacy which teaches research methods and the PharmD course in Pharmacoeconomics for first year graduate students.)
  - Replace Theory of measurement course with material taught within the department
  - Replace a Multivariate Statistics course requirement with any advanced statistics course taken with approval of the major professor.

Goal 2: Examine requirements and goals for Independent Study credits and more clearly communicate these to graduate students.

We need to more clearly communicate to incoming students how to begin their involvement in research. We may specifically describe different ideas on what can be done for early independent study, including conducting a systematic review of literature, conducting a qualitative study to better understand an issue of interest, conducting a small scale survey (e.g. surveying a class in which you serve as TA), and using a free database to answer a question of interest. It is important to convey that access to data does not just involve access to secondary data or working on an existing research project but can also involve primary data collection on the part of the student.

Grades assigned for independent research credits must reflect the extent to which the goals agreed to at the start of each term are met. Faculty mentors must help assure that the goals defined at the beginning of a term are feasible and then we must hold students accountable for meeting those goals. If students do not meet goals, they should receive an “Incomplete” instead of a “Satisfactory” grade. At the end of the following semester, any incomplete grades would automatically become failing grades, which would affect the student’s ability to continue in graduate school. At the present time, faculty members are letting student “slide” in meeting research goals or progress goals that they have defined for their own course of study.
Goal 3: Reach consensus on goals for graduate research seminar and more clearly communicate goals, procedures for review of graduate student presentations, and feedback mechanisms for graduate student presenters. This description also should include what we expect in terms of providing helpful feedback from people attending the seminar.

Goal 4: Review timeline and milestones for completion of Ph.D. within a four-year period. Some of these milestones are dictated by University rules, which may not be clearly communicated to graduate students. Forming a supervisory committee and having an approved plan of study for the area of research concentration (which can always be revised to address changes in dissertation proposals, etc.) is critical to having students progress through the program in a timely manner. Faculty advisors must emphasize this more adamantly.

Goal 5: Strengthen recruitment efforts for Ph.D. students
Several initiatives have been started to attract Pharm.D. students into the graduate program. These include having Dr. Hartzema spearhead efforts to publicize the department as well as accomplishments of faculty and students in the program. A booth was set up at PharmD student Career Days, which attracted a lot of interest among professional degree students. The summer research internship has also attracted attention from PharmD students and, in the one year it has been in existence with two summer interns, has resulted in an applicant for the combined PharmD/PhD program in our department. This internship program will continue next summer. Maintaining the new recruitment initiatives and developing new strategies will be crucial to strengthening the graduate program in our department.

Goal 6: Improve the communication among faculty and graduate students
Junior students especially seem to feel adrift and uncertain about how to navigate through the program. Having more frequent meetings between new students and temporary advisors with a check-list of specific items to be discussed over the course of the first year may help focus the discussion. At present, there is a required initial interview with temporary advisors and there may then be little guidance (depending on the assertiveness of students and expectations of different faculty members) until students are ready to register for classes for the Spring term. While the orientation program held before classes begin for incoming students is important, it probably represents “information overload” and items that are discussed at orientation need to be reintroduced during the first year. It is at this time that students will likely be better able to absorb information and place it in some experiential context.
Our charge was to review the graduate program of the newly renamed Department of Pharmaceutical Outcomes and Policy (POP) at the University of Florida College of Pharmacy. Extensive preliminary materials were received prior to the visit and the visit was March 24 – 26, 2008.

The initial materials, including the Departmental Self-study, were very helpful to our review. To the best of our ability to observe, we can confirm that the written self-study was accurate and we can validate its findings.

Over the past several years the POP Department has transformed from one type of graduate program focus into another – expanding its original concentration on patient care models / patient behavior to a broader scope with growing emphasis on pharmacoepidemiology and pharmacoeconomics. The Department has had a strong, positive presence in the discipline with a successful track record of graduates. The faculty are recognized nationally and internationally in research and education. One area, pharmacoepidemiology, is well recognized as a strong PhD training concentration. Individuals on faculty are recognized as being among the top researchers in their fields. This all creates a strong environment for PhD education.

As requested, our evaluation is presented as a series of strengths and areas that need attention which we call weaknesses. The report concludes with recommendations. We found the POP department to deliver a sound, high quality graduate education. That the amount of text devoted to challenges exceeds that for strengths, reflects our desire to provide helpful, critical analysis for improvement.

FACULTY

Strengths

- Well recognized faculty; known for their theory-based and applied science.
- Faculty have the culture of continuous quality improvement, noted here in graduate education.
- Department has a culture of working together frequently (i.e., often on a weekly basis) to discuss and plan for the program execution and evolution.
The Self-study effort was a very positive activity for the faculty and appears to have energized them to analyze and effect significant changes to their program. Faculty are very engaged in the review process and self-study has already stimulated discussion about change—especially curriculum revision.

Weaknesses

Recent faculty losses and responsibility shifts have had a significant impact on faculty workload. There appears to be three faculty changes affecting the graduate program -- one person is moving into full time administration (Ried), one has retired and the uncertainty on the future of the position is a concern (Berardo) and one person is shifting focus to a different graduate program that will, in the future, be integrated to some extent into the PHD student educational offerings,(Brushwood). The position loss, or at least perception of its loss, and the additional concern about what will happen when one member of POP assumes a full time administrative role in the college has increased uncertainty regarding adequate faculty numbers to deliver the mission.

ADMISTRATIVE ISSUES

Strengths

- Great confidence from faculty and graduate students in leadership, both with the department chair (Segal) and graduate coordinator (Kimberlin) positions.
- Community of shared governance is evident.
- Well defined policy and procedure manual with specific deadlines.
- Administrative support for a wide range of issues related to graduate education that is available for POP faculty and graduate students is appreciated by both the graduate students and faculty.
- Facilities and resources available for graduate students are very good and appreciated by the students.

Weaknesses

- Application of PhD progression timeline and enforcement of the policies and procedures is uneven. Policy and procedures are not applied by all faculty mentors in a consistent manner across students. Students see and want consistency; some but not all faculty recognized this as an issue.
- Systematic written, annual evaluations of research progress and teaching performance are not uniformly applied for all graduate students at all years. In particular, results of evaluations done by the POP faculty as a group do not appear to always be provided to students.
• Student grant writing experience seems deficient. Students need and want more writing experience – faculty have thought about this and students recognize some get this experience and others do not.
• In the conversations with faculty and students it was not clear where theoretical foundations are taught. All presented a heavy emphasis on applied / skill sets. This may not be an issue, but the faculty should consider whether we just failed to observe where theoretical frameworks are taught or if these concepts are not comprehensively provided as a part of the program.

CURRICULUM

Strengths

• There are three clearly defined emphasis areas within the graduate program in POP.
• Self-study has already initiated a curriculum review and revision process.
• There is openness across scientists in involving graduate students on projects.
• Preliminary examinations (at 2 years) are valued by both the graduate students and faculty. This is a very positive component. It provides feedback and allows remediation. The program does this extremely well.
• Access to secondary data sources is good.
• Outside speakers are well received and appear to be a regular part of the educational environment.
• The online MS programs that are being developed appear to be great opportunities for the PhD curriculum. Once fully developed this point could be better assessed.
• Connections with the new College of Public Health appear to be emerging and healthy additions.

Weaknesses

• Graduate program plan timelines appear not to be closely and consistently monitored. Some students are not following them and a few faculty do not appear to agree with them.
• It is unclear what the role of the graduate seminar is meant to serve throughout student’s career.
• Annual reports of student progress are inconsistently managed. Not all students are receiving annual feedback on annual progress or on the teaching evaluations. Some students are not aware of the teaching portfolio requirement and many stated policies and procedures – supporting that they are not held to requirements consistently.
• The nine credit hour limit per semester rule for students with Graduate Teaching or Research Assistantships is a constraint to progression. In a small PhD group like this, teaching courses every other year is often necessary. Students need to take courses when they are offered and this may result in the need to take more than nine credits. The
alternate of offering courses more often to smaller groups of students is not optimal. In addition, when students ‘see’ the need for additional coursework to enhance their dissertation, they should be able to take these courses. These constraints create difficulty in assuring timely breadth of coursework. We are aware that more credits can be taken if the tuition is paid, but the out-of-state tuition costs are prohibitive to individual students and the department as a whole. Based upon the experience of the review team, taking modestly more than nine credits should not provide an overload burden to most students.

- The issue of time to degree is creating concern and confusion among program participants, both faculty and students. Students and faculty talk about the pressure to meet a four-year timeline, although the sources of the timeline pressure are not clear. It is difficult for students to accomplish all the coursework, fulfill their substantial teaching responsibilities and complete their dissertations in four years. For the student, when courses are offered (timing) is critical. TA assignments slow down the progression and more senior students tend to have increased teaching responsibilities. This was reported on by the students at length. Students are encouraged to take on research projects as a way of learning their craft and getting mentoring. The system shows that these projects challenge meeting the four year timeline and students confirm that they do. Projects need to be better incorporated into the curriculum and curriculum timeline. We suggest beginning with an agreed upon time to graduation that is less than 60 months and then work toward the 48 month goal, recognizing that individual circumstances may require exceptions.

- Independent research study is not a systematic process across the program students. We became aware that a form for this does exist, but does not appear to facilitate a systematic approach.

- Students do not file and update their plans of study in a timely fashion.

FINANCING

Strengths

- Funding environment from the College consistently provides 11 (soon to be 10) graduate student stipends, including opportunities for stipend augmentation. Other funding opportunities are consistently available.

- Department has found ways to creatively augment student stipends to reasonable, if not necessarily competitive levels.

- Modest, but available travel funding for graduate students.

- Currently meeting program needs with existing resources.
Weaknesses

- Low stipends for graduate students relative to peer institutions. The minimum level of funding reflected in a 13 hour commitment is likely a contributing factor to recruitment challenges. Most stipends must be augmented by other funds.
- The department relies too heavily on college of pharmacy funded graduate teaching assistant lines. This affects research development of students and may be a reason it takes longer to degree, reduces student experience on grant-related research and may decrease overall student experience in research. Program size is related to Collegiate and University funding.
- Like many universities, the cost of supporting a graduate student who devotes less than full time to research is close to that of a full time, well trained research scientist and/or post-doc who can get the work done faster with more focus. This creates incentives for faculty to NOT fund graduate students. The College and/or University needs to find incentives that encourage the funding of graduate students on extramural sources of funds.
- The anticipated loss of academic program coordinator funding will increase challenges to teach professional degree students in multiple settings, potentially decreasing faculty time for graduate education.

ADMISSIONS

Strengths

- A strong history of excellent graduates from the program reflect on positive admissions.
- Ideas for attracting more US pharmacist admissions are among the best and most creative in the country. Using a summer research program, connecting with ‘feeder’ schools and optimizing recruitment to the PharmD/PhD are all excellent. This situation is a discipline-wide problem. We have no better answers and recognized that this program has done more than most.

Weaknesses

- Examine balance of faculty interests and student interests upon admission. Having more students interested in a particular mentor or group of mentors than is functionally reasonable should be managed through initial admissions while not compromising the quality of students.
- A better balance between domestic and international students would broaden the program environment. Having more domestic students would provide increased opportunity to take advantage of financial support sources available only to United States citizens.
- The program non-completion rate for admitted students is high. The explanations provided for individual cases are very logical and reflect a combination of high standards and changes in student interests. However, the effects of this rate need to be considered.
RECOMMENDATIONS

The recommendations provided below are those that we find most important to address. Other recommendations are stated or implied in the previous sections and should also be considered.

- Commend and encourage the faculty on their culture of continuous quality improvement when it comes to graduate education.
- Commend the leadership, both at the chair (Segal) and graduate coordinator (Kimberlin) positions on the caring, effective way they work with the graduate program.
- Commend the dedication of faculty to active learning styles of teaching.
- Encourage faculty to continue to pursue curriculum revision.
- Review the admissions process—consider selecting students each year based on how well their interests may link to faculty availability for mentoring at the time of admission.
- Revise the progression timeline to one that is supportable, manageable and consistently applied.
- Examine the time to degree goal – look at a 48-60 month schedule. Create a less than 5 year time line and then work to reduce time from there. We do not see this program as easily, or rapidly changing student progression to a 48 month window. Annually review for potential outliers.
- Communicate with faculty about the recent faculty changes to the graduate program and the anticipated loss of the academic program coordinator. Work with them to develop a clear understanding of the future and faculty resources they can expect in the near (3-5 year) future.
- Consistently enforce student requirements across students. Faculty may want to review and revise requirements so that they are easier to support across all students. Revise the progression timeline to one that can be more consistent across students.
- Uniformly apply systematic evaluation procedures of graduate students for all graduate students at all years. Especially focus on the progress toward degree and teaching performance.
- Establish competitive graduate student stipend levels. For the most part, students get sufficient funding to be at a reasonable level through additional sources. However, setting such a low advertised standard (~$14,000) has an effect on student and potential student perceptions.
- Begin to shift graduate student support to extramural funding, especially during the final dissertation phases of study. The department relies too heavily on college of pharmacy funded graduate teaching assistant lines. This affects research development of students and time to degree, reduces student experience on grant related research and may decrease overall student experience in research. Program size will be limited by Collegiate and University funding.
- Formally review the program non-completion rate and determine if there are ways to enhance retention or strengthen admission policies.
- Maintain the process and procedures for preliminary and qualifying examinations.
• Work with the University of Florida Graduate College to find flexibility in the 9 credit hour limit for teaching and research assistants.
• Work within the College and/or University to find incentives that encourage the funding of graduate students on extramural sources of funds.
PLANS FOR IMPROVEMENT
Graduate faculty and graduate students will engage in a quality improvement process to reach the following goals. The process will include opportunities for input and review by all faculty and graduate students in the program.

Goal 1: Implement thorough review of core curriculum.

The review team recommended that we continue the process of curriculum revision. This process has been started and significant changes have already been made.

- Modification of the competency statements for the Ph.D. program were approved.
- Required coursework for senior PharmD students in evidence-based pharmacy and pharmacoeconomics will be required for incoming Ph.D. students. We will get approval for a separate course number but use the same lectures as for the PharmD students. Extra assignments and small group discussions will be added for the Ph.D. level course.
- The faculty approved a new course on measurement issues in pharmacy research.

Goal 2: Reexamine timeline and milestones to evaluate that students are making appropriate progress toward completion of their graduate program.

The review team recommended

1. enforcing policies and procedures, particularly in regard to the timeline that we expect students to meet in making progress through the program.
2. reviewing the proposed timeline and milestones and the goal of completing the Ph.D., within a four-year period. The review team felt that a 4-5 year timeline for a Ph.D. was more realistic.

In response,

- The faculty has reviewed the timeline and has identified key milestones that students must meet before being allowed to move ahead in the program. For example, a manuscript must now be submitted for publication before a student will be allowed to sit for their qualifying exam.
- other items have been dropped so that only the most critical items are retained. An example is that a teaching portfolio is recommended for those who may be considering an academic career but will not be a requirement for all students in the Ph.D. program. We recognize the need for a better system of tracking whether students meet the various milestones. As a result, we are developing personal folders for each PhD student housed on the COPSHARE server that can be accessed by the individual student and members of the graduate faculty.
- It will be the responsibility of each student to post to the personal folder various deliverables that are identified as milestones such as a plan of
study for the concentration area that has been approved by the supervisory committee, the proposal for the dissertation that has been approved by the committee, manuscripts submitted, and posters presented.

- Faculty will post annual letters of evaluation and TA evaluations.
- This will increase transparency and accountability on the part of both students and faculty.

**Goal 3: Increase base stipend levels for teaching assistants and increase the amount of support for graduate stipends provided by external funding.**

- The faculty agrees with the review team that we need to increase the amount of external funding. This is seen to be an important goal for the department.

- The review team also recommended that the College and University create more incentives for faculty to fund graduate students on grants. While the faculty agrees with this, it was seen as outside our control at least at the present time.

- We will pursue more external funding and will provide more encouragement for graduate students to submit proposals for funding their own stipends and dissertation research. One of our graduate students did just receive a fellowship from the American Foundation for Pharmaceutical Education. In addition, the $1,000,000 gift from Lawrence DuBow to the department to support graduate students will be used to raise base stipend levels.

**Goal 4: Examine requirements and goals for Independent Study credits and early research experience and more clearly communicate these goals to graduate students.**

- We need to more clearly communicate to incoming students how to begin their involvement in research. We may specifically describe different ideas on what can be done for early independent study, including conducting a systematic review of literature, conducting a qualitative study to better understand an issue of interest, conducting a small scale survey (e.g. surveying a class in which you serve as TA), and using a free database to answer a question of interest. It is important to convey that access to data does not just involve access to secondary data or working on an existing research project but can also involve primary data collection on the part of the student.

- Grades assigned for independent research credits must reflect the extent to which the goals agreed to at the start of each term are met. Faculty mentors must help assure that the goals defined at the beginning of a term
are feasible and then we must hold students accountable for meeting those goals. If students do not meet goals, they should receive an “Incomplete” instead of a “Satisfactory” grade. At the end of the following semester, any incomplete grades would automatically become failing grades, which would affect the student’s ability to continue in graduate school. At the present time, faculty members are letting student “slide” in meeting research goals or progress goals that they have defined for their own course of study. The proposed electronic records of milestones with individual folders in COPSHARE should help assure that effective oversight of student progress is provided.

Goal 5: Reach consensus on goals for graduate research seminar and more clearly communicate goals, procedures for review of graduate student presentations, and feedback mechanisms for graduate student presenters.

The faculty has made progress on this goal since the self-study was begun. A syllabus for departmental seminar that clarifies the goals and the priorities of the research seminar has been developed and is under faculty review.

Goal 6: Strengthen recruitment efforts for Ph.D. students with a goal of selecting students evenly across the three areas of concentration in the department and also improve the retention of students in the program.

- Several initiatives have been started to attract more U.S. trained Pharm.D. students into the graduate program.
- One of these, the summer research internship, has attracted attention from numerous PharmD students and, in the one year it has been in existence with two summer interns, has resulted in an applicant for the combined PharmD/PhD program in our department. This internship program will continue this summer.
- Maintaining the new recruitment initiatives and developing new strategies will be crucial to strengthening the graduate program in our department.

The review team encouraged faculty to consider selecting students each year based on interests in line with faculty availability for mentoring.

- While we agree that this is a worthwhile goal, it requires that we attract more highly qualified applicants in the different areas of concentration. The recruitment efforts are beginning to be effective and should broaden the pool of qualified applicants.

- The review team also recommended that we reduce non-completion rates. Increasing the quality of applicants and raising standards for admission should help meet this recommendation.