

**University of Arkansas for Medical Sciences  
College of Pharmacy**

**Student Catalog  
2009-2010**

This catalog presents specific information about the College of Pharmacy. Information is given to the prospective student concerning admission requirements, registration fees, curriculum, degrees granted and course descriptions. For the upper class students, requirements for major subjects and suggested courses of study are outlined. The College of Pharmacy also prepares a Student Handbook annually with information for current students regarding policies and procedures. The Student Honor Code is also available on the College's website.

The University of Arkansas for Medical Sciences (UAMS) prepares similar catalogs about its other divisions — the Graduate School and the Colleges of Health Related Professions, Medicine, Public Health and Nursing. These catalogs may be viewed online at [www.uams.edu](http://www.uams.edu) then selecting the college/school of interest.

Pre-pharmacy advisors are located at each of the academic institutions throughout the state for the advisement of students taking pre-pharmacy courses at these institutions. Prospective students are urged to contact the College of Pharmacy directly in addition to the Pre-pharmacy Advisor.

This catalog contains information that should be accurate at the time of completion. However, regulations, fees, programs of study, and individual courses are regularly revised, and the catalog information is thus subject to change. Students are expected to keep informed concerning current regulations, policies, and program requirements in their fields of study and must meet all requirements of the degree programs in which they are enrolled. Courses that are modified or added to a curriculum and that are incorporated into the curriculum at a level beyond that at which a student is enrolled may become graduation requirements for that student. Courses which are incorporated into the curriculum at a level lower than the one at which the student is enrolled are not required for that student.

Please visit the UAMS College of Pharmacy site on the internet ([www.uams.edu/cop](http://www.uams.edu/cop)) for more information about the College, application procedures, career information and other topics.

UAMS College of Pharmacy  
4301 W. Markham #522  
Little Rock AR 72205  
501-686-5557  
FAX: 501-686-8315  
internet address: [www.uams.edu/cop](http://www.uams.edu/cop)



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## University of Arkansas Board of Trustees

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## University of Arkansas for Medical Sciences

### Administration

Chancellor (until 10/31/09)  
Chancellor (starting 11/1/09)  
Executive Vice Chancellor and Director, Jones Eye Institute  
Vice Chancellor and Dean, College of Medicine  
Dean, Graduate School  
Dean, College of Pharmacy  
Dean, College of Nursing  
Dean, College of Health Related Professions  
Dean, College of Public Health  
Vice Chancellor for Finance and CFO  
Vice Chancellor for Academic Affairs and Research Administration  
Vice Chancellor for Research  
Vice Chancellor for Administration and Governmental Affairs  
Vice Chancellor for Regional Programs  
Vice Chancellor for Development and Alumni Affairs  
Vice Chancellor for Campus Operations  
Vice Chancellor Communications and Marketing  
Vice Chancellor and Executive Director UAMS Medical Center  
Vice Chancellor for Institutional Compliance  
Vice Chancellor for Northwest Arkansas Region  
Director, Myeloma Institute  
Director, Reynolds Institute on Aging  
Director, Stephens Spine Institute  
Director, Winthrop P. Rockefeller Cancer Institute  
Director, Psychiatric Research Institute  
Director, Information Technology  
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Dr. Mark B. Mengel  
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Mr. Richard Pierson  
Mr. Robert Bishop  
Dr. Peter Kohler  
Dr. Bart Barlogie  
Dr. Jeanne Wei  
Dr. T. Glenn Pait  
Dr. Peter Emanuel  
Dr. G. Richard Smith  
Mrs. Kari Cassel  
Mr. Charles White

## Institutional Vision, Mission, & Core Values

Vision Statement: UAMS is a world-renowned academic health sciences center improving the health of Arkansans.

Mission Statement: The mission of UAMS is to improve the health, healthcare and well-being of all Arkansans and of others in the region, nation and the world through...

- Education of exemplary health care providers
- Provision of standard-setting, comprehensive clinical programs
- Scientific discovery and research
- Extension of services to the State of Arkansas and beyond

### Core Values:

- *Integrity* - We foster, encourage and expect honesty and the highest ethical standards in all that we do.  
*Respect* - We embrace a culture of professionalism with respect for the dignity of all persons, honoring the unique contributions provided by a diversity of perspectives and cultures.

- *Teamwork* - We seek to create interdisciplinary, synergistic and collegial relationships characterized by collaboration, inclusiveness and flexibility.
- *Creativity* - We encourage and support innovation, imagination, ingenuity, resourcefulness and vision.
- *Excellence* - We strive to achieve, through continuous improvement and adherence to institutional policies and best practices, the highest quality and standards in all our endeavors.

## Campus

UAMS is Arkansas' only institution of professional and graduate education devoted solely to the health and biological sciences. First founded as a School of Medicine in 1879, UAMS became a medical science campus in 1951 with the addition of the College of Pharmacy. The College of Nursing was established in 1953, and the new University Hospital was built in 1956. The College of Health Related Professions was organized as a separate college within

UAMS in 1971. The Graduate Program was organized as an extension of the Graduate School of the University of Arkansas at Fayetteville in 1943, and was approved for independent status by the Board of Trustees in 1995. The Area Health Education Centers Program (AHEC) was established in 1973. The Winthrop P. Rockefeller Cancer Institute was established in 1984. The Harvey and Bernice Jones Eye Institute was established in 1993. The Donald W. Reynolds Institute on Aging was established in 1996. The Faye Boozeman College of Public Health was established in 2001. In 2003 the Jackson T. Stephens Spine and Neurosciences Institute was established. In the 2006-2007 academic year, new residency halls were opened on campus. Today, UAMS is one of eight campuses of the University of Arkansas. It has grown into an academic health science center that encompasses broad aspects of education, research, and service. The institution offers programs that improve the physical, economic, and intellectual wellbeing of the citizens of Arkansas.

In fulfilling its educational mission, the academic units of UAMS – the Colleges of Medicine, Nursing, Pharmacy, Health Related Professions, Public Health and the Graduate School and recently the development of a Northwest satellite campus has begun. In addition, the University Hospital with its new facility, the AHEC, the Winthrop P. Rockefeller Cancer Institute, the Harvey and Bernice Jones Eye Institute, the Stephens Spine Institute, the Myeloma Institute, the Donald W. Reynolds Institute on Aging, and the Psychiatric Research Institute provide the environment and opportunities for students and practitioners alike to learn and maintain the knowledge and skills they need. These programs integrate the liberal arts with the biological, physical, and behavioral sciences, and emphasize life-long learning for practitioners in the health professions.

UAMS is the principal biomedical research center for the state of Arkansas. In its programs of research, UAMS seeks to stimulate and support scholarly inquiry for both faculty and students aimed at maintaining and preserving knowledge, and making discoveries that address the health needs of the state, nation, and world. These research programs enhance the economic and educational progress of Arkansas through technology transfer and collaborative arrangements with other qualified individuals, groups, companies and institutions. The research mission involves the quest for new information, the organization of known

information in new ways, and the sharing of this information with the scientific community.

The service mission is fulfilled by providing comprehensive health care services to meet both the educational needs of our students and the special health care needs of the state. As the only academic medical center in Arkansas, the unique role of UAMS is to provide services requiring highly specialized personnel and technology. These services are delivered in an interdisciplinary environment to all Arkansans regardless of their ability to pay.

In addition, comprehensive services in health, wellness, and rehabilitation are offered in a statewide context. Our service mission is enhanced by affiliations with Arkansas Children's Hospital, the John L. McClellan Memorial Veterans Administration Medical Center, the Arkansas Rehabilitation Institute, the Central Arkansas Radiation Therapy Institute, and the Arkansas State Hospital. Additional cooperative programs are offered with other hospitals and practitioners affiliated with the AHEC Programs. UAMS has a responsibility to provide health care services in a manner that ensures the long-range financial viability and continued quality of its programs, while providing the most cost-effective care for its patients.

The UAMS mission encompasses a responsibility to its alumni and other health care practitioners of Arkansas to help them continue to improve their professional knowledge and skills. All schools and departments offer life-long learning opportunities as appropriate to their missions. The University Library also serves as a resource for all health professionals by maintaining a portfolio of information services needed to support their information needs.

UAMS values its role of service to the general welfare of the state of Arkansas. This service includes action as a partner in science and health areas to all levels of the educational systems of the state. As the leader in health care, the institution provides educational programs, consultation, and technical advice to other institutions, agencies, and local communities for the purpose of improving and maintaining the health of citizens.

The role of UAMS in the economic life of the community is significant. A major element of the central Arkansas economy, the salaries of a highly trained work force contribute substantially to the regional economy.

# College of Pharmacy

## Academic Calendar 2009-2010

### Fall Semester 2009

Registration: P4 (9:00AM) and First Day of Semester P4s	Wednesday, July 1
August Graduation	Friday, August 7
Freshman Orientation	August 10-12
Registration: P1 (1:00PM), P2 (8:30AM), & P3 (10:00AM)	Tuesday, August 11
First Day of Semester	Thursday, August 13
White Coat Ceremony (Freshman)	Sunday, August 16
Last Day to Register/Add a Class	Wednesday, August 19
Labor Day Holiday	Monday, September 7
Fall Break (MRM 10/23-25)	October 22-23
Veteran's Day Holiday	Wednesday, November 11
Thanksgiving Holiday	November 26-27
Study Day	Thursday, December 3
Final Exams	December 4-11
Summative Exam 2 (P4s)	December 14, 15, & 16
Last Day of Semester	Friday, December 18
December Graduation	Saturday, December 19

### Spring Semester 2010

First Day of Semester – P4 students (Class meeting 12:00-2:00)	Monday, January 4
Career Fair P1 (11:00), P2 (12:00), P3 (1:00), & P4 (2:00) students	Monday, January 4
Career Fair – Interviews 9:00-2:30 (P4s only)	Tuesday, January 5
Registration P1 (12:00 PM); P2 (1:00 PM); P3 (2:00 PM) & P4 (3:00 PM)	Tuesday, January 5
First Day of Semester – P1, P2, & P3 students	Wednesday, January 6
Last Day to Register/Add a Class	Tuesday, January 12
Martin Luther King Holiday	Monday, January 18
Presidents' Day/Daisy Bates Holiday	Monday, February 15
Spring Break (APhA 3/12-15)	March 15-19
Study Day: P2s	Friday, April 16
Final Exams*: P2	April 19-23
Summative Exam 1 (P2s)	April 27-29
Study Day: P1 & P3	Thursday, April 29
Finals Week*: P1 & P3	April 30-May 7
Graduate Intern Application Pick-up (8:00 AM – 4:00 PM)	May 6-7
Honors Convocation (Last Day of Semester – P4s)	Friday, May 14
Commencement	Saturday, May 15
Last Day of Semester (Last Day of Semester – P1s, P2s, & P3s)	Friday, May 28

\*Orientation to experiential education will occur during final exams week. Attendance is required. Plan on being available for these events through end of the day on April 23<sup>rd</sup> – P2s and May 7<sup>th</sup> – P1s & P3s.

### Experiential Calendar 2010

P2 – Institutional IPPE: Session A	May
P1 – Community IPPE: Session A	May 12 to May 31
P4 – APPE Class of 2011	Start June 1
P2 – Institutional IPPE: Session B	June
P1 – Community IPPE: Session B	June 1 to June 17
P2 – Institutional IPPE: Session C	July

## Administration

Dean

Associate Dean for Administrative Affairs

Associate Dean for Development

Associate Dean for Northwest Campus

Associate Dean for Professional Education

Associate Dean for Research

Assistant Dean for Diversity

Assistant Dean of Experiential Education

Assistant Dean for Finance

Chairman, Department of Pharmaceutical Sciences

Chairman, Department of Pharmacy Practice

Director, Poison Control Center

Director, Drug Information Center

Director, Evidence-Based Prescription Drug Program

Registrar and Assistant to the Dean

Director, Development

Stephanie F. Gardner, PharmD, EdD

Renee M. DeHart, PharmD

Jonathan J. Wolfe, PhD

Eric F. Schneider, PharmD

Cindy D. Stowe, PharmD

Martin Hauer-Jensen, MD, PhD

H. Otis Tyler, MS

Schwanda K. Flowers, PharmD

Louis Forst, BS

Russell B. Melchert, PhD

Paul O. Gubbins, PharmD

Howell Foster, PharmD

J. D. Gannaway, PharmD

Dwight Davis, PharmD

Kathy Orear, BA

Ann Turney, BA

## Mission Statement

The College of Pharmacy of the University of Arkansas was established at the beginning of the 1951-52 academic year in response to demand for well-prepared individuals in practical and theoretical pharmacy and interrelated subjects. The Mission of the UAMS College of Pharmacy is to improve health of culturally diverse populations by educating pharmacy leaders to address community health needs, advancing scientific discovery to produce innovations in healthcare, and fostering progressive pharmacy practice through service to the profession. Transforming healthcare throughout Arkansas and beyond is the College's Vision Statement.

UAMS fully supports, both in spirit and practice, titles VI and VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Executive order 11246, the Rehabilitation Act of 1973 (sections 503 and 504), Titles I and II of the Americans with Disabilities Act of 1990, and Section 402 of the Vietnam Era Veterans readjustment Assistance Act of 1974, which prohibit discrimination on the basis of race, sex, color, national origin, religion, age, marital status, ethnic origin, disability and/or disabled veterans and veterans of the Vietnam era. Student complaints concerning any policy, procedure or practice prohibited by these Acts should be addressed to the Associate Dean for Academic Affairs in the College of Pharmacy, Dean's Office (501-686-5557) for assistance in addressing such concerns. The UAMS Office of Human Relations, Room M1/112, is also available to assist with these concerns.

## Curricular Outcomes

The organization of the College's curriculum in pharmacy is based upon the modern concept of pharmacy education. This requires a basic education in the physical and biological sciences and in the humanities, followed by a specialized professional and clinical education in pharmacy. Revisions in the curriculum are made as changes occur in the modern concept of pharmacy education.

The pre-professional requirements leading to the Doctor

of Pharmacy (Pharm.D.) degree may be taken on any of the campuses of the University of Arkansas or in any other regionally accredited collegiate institution. The professional education is taken at the UAMS. Thus the student has the experiences and advantages of university or college campus life, yet completes his/her education in a health science environment which will characterize much of his/her professional career.

The UAMS College of Pharmacy Faculty has identified the following outcome competency statements. These competency statements were approved by the Faculty December 18, 2006.

Domain 1: Patient Care-Ensuring Appropriate Pharmacotherapy and Therapeutic Outcomes: The graduate will provide patient-centered care in cooperation with patients, prescribers, and other members of an inter-professional health care team based upon sound pharmacotherapy principles and evidence.

- 1.1 Evaluate patient data and make an assessment:
  - a. Identify and collect information from profiles, pharmacy and medical records, and patient (caretaker) history that will influence optimal drug choice and dosage,
  - b. Obtain a medical history (e.g., chief complaint, medical, medication management, financial, social, cultural, review of systems),
  - c. Conduct physical assessment, and
  - d. Assess patient quality of life.
- 1.2 Conduct a systematic review of the patient prior to recommending any drug or non-drug therapy:
  - a. Identify drug-related problems including adverse drug reactions, drug interactions, and/or suboptimal treatment,
  - b. Recognize common signs or symptoms indicative of disease control issues or drug-related problems,
  - c. Ascertain levels of chronic disease control,
  - d. Assess and address barriers to health care, and
  - e. Collaborate with the patient or patient advocate to prioritize problems.

1.3 Design and implement an individual patient-centered pharmacotherapy plan to maximize desired effects and minimize undesired effects:

- a. Conduct a focused evidence-based review of the necessary literature to determine the best evidence to support pharmacotherapy recommendations, applying pharmaceutical science principles,
- b. Select prescription or non-prescription medications (including doses and dosage schedules), applying both pharmaceutical science and therapeutic principles,
- c. Evaluate patient factors that are relevant to selecting pharmacotherapy (e.g., sex, age, race, ethnicity, culture, and genetics),
- d. Define treatment goals and plan to monitor pharmacotherapy for safety and effectiveness,
- e. Consider non-drug therapy, therapeutic lifestyle changes, and preventive care issues,
- f. Conduct patient education including verification of patient understanding of proper use of medication/device,
- g. Implement interventions to prevent or remedy non-adherence, and
- h. Implement interventions to resolve drug-related problems and unintended drug consequences.

1.4 Document patient care activities:

- a. Document assessment and pharmacotherapy plan for individual patient encounters,
- b. Record actions taken to achieve desired therapeutic outcomes, and
- c. Document patient and provider education activities.

1.5 To demonstrate professional citizenship in the delivery of patient care:

- a. Communicate with other health care professionals to obtain and share pertinent patient information and pharmacotherapy recommendations,
- b. Perform duties in accordance with legal, ethical, social, economic, and professional guidelines,
- c. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact patient care, and
- d. Recognize and solve problems using creativity, analysis, and intuition.

#### Domain 2: Dispensing and Pharmacy Resource

**Management:** The graduate will manage and use resources of the health care system, in cooperation with patients, prescribers, and other health care providers and administrative and supportive personnel to promote health and to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution.

2.1 Demonstrate accurate, safe, and time-sensitive preparation, dispensing, and administration of pharmaceuticals:

- a. Accurately transcribe verbal and written prescriptions and ensure appropriateness of these drug orders,
- b. Accurately and safely compound and package drugs for distribution in appropriate dosage forms,
- c. Select appropriate drug product, with respect to patient preference, manufacturing source, generic availability, and third-party reimbursement, and

d. Apply appropriate labeling, including patient-specific auxiliary labels.

2.2 Manage pharmacy resources to optimize pharmacotherapy outcomes:

- a. Employ principles of personnel management to the operation of a pharmacy,
- b. Use principles of fiscal resource management,
- c. Employ medication distribution and control systems to operate the pharmacy efficiently, and
- d. Evaluate and use appropriate automation and information technology to optimize medication dispensing and patient care.

2.3 Educate patients and health care providers about requirements for effective therapy:

- a. Establish rapport with patients and other health care professionals to promote a team approach to patient care,
- b. Counsel patients regarding purposes of their medications, potential adverse drug reactions, and other required information, and
- c. Provide medication information to patients and health care providers to promote rational drug therapy.

2.4 To demonstrate professional citizenship in the distribution of medications:

- a. Communicate with patients, providers, personnel, and other stakeholders to provide accurate and safe medication dispensing and resource management,
- b. Perform duties in accordance with legal, ethical, social, economic, and professional guidelines,
- c. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact medication distribution and the pharmacy business, and
- d. Recognize and solve problems using creativity, analysis, and intuition.

Domain 3: Health Improvement, Wellness, and Disease Prevention: The graduate will promote improved health, wellness, and disease prevention.

3.1 Demonstrate skills needed to participate in or provide preventive services:

- a. Participate in disease prevention,
- b. Provide lifestyle and wellness counseling,
- c. Provide drug-therapy evaluation and monitor for medication safety, and
- d. Participate in public health education programs.

3.2 Apply research processes to inform pharmaceutical policy:

- a. Demonstrate the ability to conduct drug literature evaluations,
- b. Design quality improvement projects to improve medication use,
- c. Apply evidence-based principles when making pharmaceutical policy recommendations, including drug benefit design recommendations, and
- d. Apply principles of pharmacoeconomics and outcome assessment.

3.3 To demonstrate professional citizenship to promote wellness and prevent disease:

- a. Collaborate with various stakeholders pertaining to public health issues and pharmaceutical policy,

- b. Perform duties in accordance with legal, ethical, social, economic, and professional guidelines,
- c. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may improve disease prevention and wellness and inform pharmaceutical policies, and
- d. Recognize and solve problems using creativity, analysis, and intuition.

### Educational and Teaching Methods

In the instruction of students, the College of Pharmacy employs lectures, recitations, visual aids, simulation, small group, modern laboratory equipment, active learning activities, and practice experiences. The faculty members, the majority of whom are experienced pharmacists with doctoral degrees, are specialists who have outstanding ability to transmit their knowledge and inspiration to their students. Modern educational methods and procedures are constantly reviewed in order to utilize the most effective methods of teaching. The faculty works closely with the Office of Educational Development, which consists of specialists in the field of teaching methodology, in order to enhance teaching effectiveness.

### Educational Facilities

The student in the College of Pharmacy enjoys enviable advantages that broaden his/her understanding of the profession and its relation to the team concept of healthcare and the maintenance of public health through the multiple facilities and colleges of the UAMS campus. The various hospitals, community pharmacies, wholesale pharmaceutical outlets, the State Board of Pharmacy, and the Arkansas Pharmacists Association play an important part in this educational process.

### Graduation Rates

Graduation and attrition rates since the Doctor of Pharmacy degree was instituted in 1994 are presented below.

Entering Year	# Entering Students	4 Year Graduation Rate (%)	Total Graduation Rate (%)	Academic Dismissal # (%)	Withdrawal # (%)	Attrition Rate (%)
1991	75	82.7	97.3	2 (2.7)	0 (0.0)	2.7
1992	76	84.2	96.1	1 (1.3)	2 (2.6)	3.9
1993	78	76.9	92.3	3 (3.9)	3 (3.9)	7.7
1994	77	79.2	89.6	1 (1.3)	7 (9.1)	10.4
1995	77	75.3	87.0	3 (3.9)	7 (9.1)	13.0
1996	75	84.0	92.0	3 (4.0)	3 (4.0)	8.0
1997	80	81.3	91.3	3 (3.8)	4 (5.0)	8.8
1998	77	83.1	92.2	4 (5.2)	2 (2.6)	7.8
1999	81	80.2	92.6	2 (2.5)	4 (4.9)	7.4
2000	80	86.3	97.5	1 (1.3)	1 (1.3)	2.5
2001	81	84.0	91.4	4 (4.9)	3 (3.7)	8.6
2002	83	86.7	95.2	1 (1.2)	3 (3.6)	4.8
2003	85	87.1		4	3	
2004	90	80.0		3	4	
2005	105	79.0		3	3	
2006	119			9	1	
2007	121			2	1	
2008	120			1	1	

This information is current as of 8/4/09.

### Physical Facilities

The sixth floor of the Education II (EDII) Building is assigned to the College of Pharmacy as well as half of the College of Public Health (CPH) Building sixth floor. The office of the Dean, faculty offices, some research laboratories, conference rooms, student's informatics lab, and student leadership room are located on this floor. Several faculty members of the Department of Pharmaceutical Sciences have offices and research laboratories located in the Biomedical Research Building I. Student classrooms, lecture and seminar halls, and laboratories are also located in the Education II, CPH, and I Dodd Wilson Buildings and are shared by all of the colleges and schools on the Medical Sciences Campus.

### Accreditation

UAMS is accredited by The Higher Learning Commission of the North Central Association of Colleges and Schools. The College of Pharmacy is accredited by the Accreditation Council for Pharmacy Education (ACPE) (20 North Clark St. Suite 2500, Chicago, Illinois, 60602-5109; phone 312-664-3575; FAX, 312-664-4652; website: <http://www.acpe-accredit.org/>). ACPE is the accrediting agency for all schools and colleges of pharmacy and is an affiliate member of the American Council on Education. The UAMS COP is accredited by ACPE through June 30, 2014.

### American Association of Colleges of Pharmacy

The College of Pharmacy is a member of the American Association of Colleges of Pharmacy (AACP), an organization composed of all the colleges of pharmacy in the United States. It is concerned with the promotion of all aspects of pharmacy education, research, and service.

## North American Pharmacist Licensure Examination (NAPLEX)

Pass rates for graduating seniors taking the NAPLEX on first examination are:

Year	UAMS Pass Rate (%)	National Pass Rate (%)
2002	100.00	96.74
2003	98.55	96.54
2004	98.70	97.38
2005	94.94	88.23
2006	97.37	87.51
2007	98.75	95.91
2008	100.00	96.45

The overall 2004-2008 pass rate is 97.94%. This information is consistent with the NABP website (<http://www.nabp.net/> Statistical Analysis of NAPLEX Passing Rates for First-time Candidates per Pharmacy School from 2004-2008).

## Pharmacy Licensure

Under Arkansas law, authority for the regulation of the practice of pharmacy is vested in the Arkansas State Board of Pharmacy. The Board is empowered to issue regulations it deems necessary for the legal practice of pharmacy, is the licensing agency for pharmacies, pharmacists and interns and sets the requirements for various licenses.

The Board periodically offers an examination for licensure as a pharmacist in Arkansas. To be eligible to take the examination, an applicant must be at least 21 years of age, of good moral character, and a graduate of an accredited college of pharmacy. Students in the UAMS College of Pharmacy must be registered with the Board of Pharmacy as interns. Specific information concerning internship and licensure regulations may be obtained from the Executive Secretary, Arkansas State Board of Pharmacy.

## Placement Rate

In May 2009, 91 senior students completed the College's salary survey. At this time, 96% of seniors had taken a job with most feeling that the opportunities for employment were good to excellent. The majority took jobs in retail (62%), hospital (26%), residency/fellowship (5%), and other (7%). The average salary for the 2009 graduating class taking positions other than residency/fellowships was \$108,896, an increase of 4.4% from 2008.

## College of Pharmacy Service Units Continuing Education Program

At the request of and as a service to Arkansas' pharmacy practitioners, the College of Pharmacy maintains a continuing education program designed to help pharmacists keep pace with the rapidly changing developments in pharmacy practice. Programming is designed to meet the needs of practicing pharmacists in Arkansas. The College actively cooperates with the Arkansas Pharmacists Association, the Arkansas State Board of Pharmacy and the Board's Tripartite Committee to

help satisfy the continuing education needs of Arkansas' pharmacy practitioners. The UAMS College of Pharmacy is approved by the ACPE as a provider of continuing pharmacy education.

## Nuclear Education Online (NEO) Program

The NEO Program is an educational consortium between UAMS and the University of New Mexico College of Pharmacy. This program delivers nuclear education to pharmacists, physicians, technicians, cyclotron operators, and other professions that are required to handle radioactive materials.

## Arkansas Poison Control Center

As a service to the citizens of this state, the College of Pharmacy maintains the Arkansas Poison Center. Since its establishment in 1974, the Poison Center has become the major source of emergency drug information for Arkansas' healthcare practitioners and citizens.

## Arkansas Drug Information Center

The Drug Information Center provides non-emergency drug information to the practitioners of the State of Arkansas. The Center provides a practice experience site for senior pharmacy students, a rotation for the UAMS Hospital Pharmacy Residency Program, and orientation to the Center for other UAMS Students.

## Evidence-Based Prescription Drug (EBRx) Program

The EBRx Program was created by the UAMS College of Pharmacy in November 2004. The major goals of the program are to create an evidence-based Arkansas' Medicaid Preferred Drug List that provides access to medication of clinical advantage with the opportunity to control costs, to manage its implementation through a Prior Authorization Call Center operated by the COP, and to track the long term outcomes of these decision through evaluation of medical and pharmacy claims.

## Information for Applicants

All communications regarding entrance for professional studies in pharmacy at UAMS may be addressed to the Registrar, UAMS College of Pharmacy, 4301 West Markham #522, Little Rock, Arkansas 72205-7122.

Applications are accepted no later than February 1 of each year for the class entering the following fall semester. A \$100.00 record analysis and interview fee that is neither refundable nor credited toward registration fees must accompany this application. The completed application should be mailed to the Registrar, UAMS College of Pharmacy, 4301 West Markham #522, Little Rock, Arkansas 72205-7122. A complete list of dates for the current admissions cycle is found on our website: [www.uams.edu/cop](http://www.uams.edu/cop).

It is the responsibility of the applicant to request from the Registrar of all prior colleges attended, official

transcripts of all college work completed up to the date of application. The transcript should indicate the completion of at least three semesters of course work. Transcripts of work in semesters completed after the application is on file must be submitted promptly. It is the responsibility of the applicant to see that transcripts are submitted and that all other information required for the application are up-to-date to assure completed records at the time of evaluation by the Admissions Committee. All pre-pharmacy course requirements must be completed prior to enrollment in the College.

### **Veterans Administration Beneficiaries**

UAMS is an approved institution for training of veterans and veteran's beneficiaries. Veterans of recent military service and the dependents of certain other servicemen may be entitled to educational assistance payments from the Veterans Administration.

Veterans of recent military service, widows, or children of a parent who lost his/her lives in service or who are now totally disabled as a result of service should contact the nearest Veterans Administration Regional Office for assistance in securing Veterans Administration benefits. Information on campus regarding this program may be secured from the College of Pharmacy.

### **Civil Rights Statement**

UAMS fully supports, both in practice and spirit, the full intent of Titles VI and VII of the Equal Opportunity Act. All personnel concerned with recruitment, hiring, training, assignment, promotion, use of facilities and privileges are reminded to govern personnel actions and procedures within the intent of the Equal Opportunity Act, which prohibits discrimination on the basis of race, color, religion, sex or ethnic origin and affirmatively seeks to guarantee equal opportunity for all.

### **Handicapped Students**

UAMS fully supports, both in spirit and practice, Titles VI (Americans with Disabilities Act), VII of the Civil Rights Act of 1964, Title IX of the Education Amendment Act of 1972, Executive Order 11246, and the Rehabilitation Act of 1973 (Sections 503 and 504) which prohibit discrimination on the basis of race, sex, color, religion, age, marital status, ethnic origin and/or handicap.

UAMS is taking affirmative and/or aggressive action to employ disabled veterans and veterans of the Vietnam era and eliminate bias toward the disabled veterans and veterans of the Vietnam era in all employment activities. The UAMS Office of Human Relations has been designated to coordinate efforts to comply with all laws and regulations applicable to qualified handicapped individuals, as required by the Rehabilitation Act of 1973.

### **Professional and Technical Standards**

Students graduating with the Doctor of Pharmacy degree are eligible upon licensure to become pharmacists without restrictions on their practice. Therefore, earning a

Doctor of Pharmacy degree requires mastery and demonstrated ability to apply a coherent body of knowledge and skills. The following paragraphs describe the professional and technical standards that students must possess, to be coupled with the successful completion of all academic requirements, to produce a qualified entry level practitioner. The College reserves the right not to admit any applicant who, upon completion of the interactive process, cannot meet the Professional and Technical Standards set forth below. Applicants are not required to disclose the nature of any disability or disabilities prior to admission, and reasonable accommodation for disability, if appropriate, will be provided.

1. Attitudinal, Behavioral, Interpersonal and Emotional Attributes: Pharmacy applicants and students must show the potential to communicate with and provide care, in a nonjudgmental way, for persons whose race, culture, sexual orientation or spiritual beliefs differ from their own. Applicants or students must show sufficient and stable emotional health to fully utilize their intellectual capability, to exercise good judgment, to complete their patient care responsibilities in a timely manner and to relate to patients, families and colleagues with courtesy, compassion, maturity and respect. The applicants or students must possess the ability to modify their behavior in response to constructive criticism.
2. Intellectual Skills: The applicants or students must possess an array of academic skills that allows them to master the large body of knowledge required of practitioners. Academic abilities, including factual recall, measurement, calculation and cognitive function, must be of a high level. Reasoning, analysis and synthesis abilities must be sophisticated. Ability to learn in a wide variety of academic formats is necessary. The applicants or students must demonstrate the ability to be independent learners.
3. Communication: The ability to communicate with patients, families and colleagues is essential. Clear communication in spoken (includes presentations to groups) and in written formats is required. Applicants and students must be able to communicate quickly, efficiently and effectively in English. Superior aptitude in electronic communication and interaction with information systems are necessary.
4. Motor Skills: Applicants and students must demonstrate coordination of muscle movement sufficient for the preparation of all forms of pharmaceuticals and the provision of all types of pharmaceutical care including medication administration (e.g., subcutaneous or intramuscular injections, performance of cardiopulmonary resuscitation or administration of first aid). Applicants and students must be able to withstand the physical stresses imposed by the typical daily routine of the practitioner in a variety of settings.
5. Observation: Observation requires the functional use of visual, auditory and somatic senses. The applicants or students must be able to combine the abilities of observation and evaluation in classes, laboratories and practice settings, including performing basic physical

assessments (e.g., the determination of blood glucose or cholesterol or blood pressure, use of a stethoscope). The ability to observe and evaluate the distinguishing characteristics of pre-manufactured as well as of extemporaneously compounded medications is essential.

## English Proficiency

Any applicant not born in the United States or a country where English is the official language must furnish proof of English language proficiency and academic skill proficiency by March 1<sup>st</sup> for consideration for admission for the Fall semester. This requirement includes all applicants regardless of citizenship or visa status.

English proficiency is demonstrated by presenting a minimum total score of a least 80 on the internet-based Test of English as a Foreign Language (TOEFL) including a minimum score of 20 in each of the areas: Writing, Speaking, Reading and Listening. Beginning with the entering class of 2007, all students needing to take the TOEFL will be required to take the internet-based exam. Information on testing sites and scheduling may be obtained from the TOEFL website: TOEFL.org. Tests must be scheduled from two to four weeks in advance with the results sent to the College of Pharmacy fifteen (15) working days after the exam is taken. The school code for the UAMS College of Pharmacy is 6901. TOEFL scores must be received by March 1 of the application year.

## International Students

The UAMS College of Pharmacy will consider only applicants who are U.S. citizens or have a valid Permanent Resident/Resident Alien card as of March 1<sup>st</sup> of the year of application. The applicant must submit a notarized copy of the Permanent Resident/Resident Alien card with their application and present the original document to the Registrar at the time of interview.

## Pharmacy College Admissions Test (PCAT)

The Pharmacy College Admissions Test (PCAT) is required of all applicants. The PCAT is offered on June 20, 2009; August 22, 2009; October 17, 2009; and January 23, 2010 for the Fall 2010 entering class. PCAT scores prior to June 2008 will not be accepted. The test is given at several locations throughout the state and information may be obtained from the College of Pharmacy or from the PCAT website: [www.pcatweb.info](http://www.pcatweb.info). The PCAT may be taken more than once at the discretion of the applicant.

## Applicant Residency

The College of Pharmacy is authorized to accept a limited number of nonresident applicants provided that clear ties to the state of Arkansas can be demonstrated by the applicant. All applicants must complete a Residency Evaluation Form ([http://www.uams.edu/cop/prospective\\_students/pdf\\_files/Residency\\_form\\_and\\_policy.pdf](http://www.uams.edu/cop/prospective_students/pdf_files/Residency_form_and_policy.pdf)).

## Pre-pharmacy Requirements for Applicants

Since only the professional courses are taught on the UAMS campus, applicants will first have to meet the requirements for enrollment and be enrolled at an accredited undergraduate institution. Credit for degrees or course work earned at a foreign institution may be granted by an accredited undergraduate institution. However, no more than 8 semester hours in the CORE courses and 12 semester hours in the NONCORE courses of such credit may be applied towards the pre-pharmacy requirements for admission to the UAMS College of Pharmacy. This credit must appear as specific course equivalents on the undergraduate transcript.

### CORE Courses

No more than 8 semester hours of CLEP, AP credit, or credit by examination which must appear as credit on the transcript will be accepted to meet the CORE pre-pharmacy course requirements. It is recommended that CORE courses are taken during the regular academic year.

#### Mathematics -- 3 to 5 Semester Hours

Calculus I (not survey, business or pre-calculus)

#### Chemistry -- 16 Semester Hours

College Chemistry I (3hrs lecture & 1hr lab)

College Chemistry II (3hrs lecture & 1hr lab)

Organic Chemistry I (3hrs lecture & 1hr lab)

Organic Chemistry II (3hrs lecture & 1hr lab)

All courses for chemistry majors

#### Biology -- 12 Semester Hours

Choose from: General Biology I and II (or equivalent 100 level Biology) and Microbiology. All must be courses for biology majors and have 3 hours lecture and 1 hour lab. For a specific list of other courses that meet this requirement for your school, please contact the College of Pharmacy.

#### Physics -- 4 Semester Hours

General Physics I (3hrs lecture & 1hr lab)

### NON-CORE Courses

No more than 12 semester hours of CLEP, AP credit, or credit by examination which must appear as credit on the transcript will be accepted to meet the NON-CORE pre-pharmacy course requirements.

#### English/Communication Area -- 9 Semester Hours

Choose from: English Composition I and II, Speech, Public Speaking, Technical or Creative Writing or any survey of literature course

#### Economics/Accounting -- 3 Semester Hours

Choose from: Macroeconomics, Microeconomics, a basic survey of economics course, or Accounting

#### Recommended Selectives -- 3 classes, minimum of 9 Semester Hours

Choose from: Calculus II (not business or survey), Physics II (3hrs lecture & 1hr lab), Logic, Quantitative Analysis, Statistics (math or statistics department), Cell Biology or Molecular Biology (including lab if offered), Genetics (including lab if offered), Anatomy & Physiology (including lab if offered, for biology major/minor, may be separate classes), and Biochemistry.

#### Humanities Electives -- to total 69 Semester Hours

Choose from: Survey courses in Art, Music, Theater,

Literature, Philosophy, Religion, Foreign (Spanish is recommended if available) or Sign Language, Psychology, Sociology, Anthropology, Geography, US or World History, Political Science or Ethics.

Courses which do not meet the Humanities Elective requirements are courses in: Health, Physical Education, Business, Science, Military Science, Education, Studio courses in Art, Music or Theater, Computer Science, Agriculture or any remedial course.

No course can be used to satisfy the requirements in more than one area. It is recommended that all courses with a lab are taken in person rather than on-line or by distance education. University declared exemptions from certain courses, e.g. English Composition I and/or II, or other courses which may be pre-pharmacy requirements; does not mean the College of Pharmacy pre-pharmacy requirement has been satisfied. Admission to the College requires sixty-nine hours of specific transfer credits and unless credits in semester hours are given on a transcript, students will still have to meet the pre-pharmacy requirements of transferable hours for admission to the College.

This is a general guide only — the specific course numbers which meet these requirements vary from school to school. For a specific list of the courses that meet the pre-pharmacy requirements at your school, please contact your pre-pharmacy advisor or the Registrar's office at the UAMS College of Pharmacy (501-686-5557). Students may also check the College's website (Entry Level Doctor of Pharmacy Degree Admissions section) for the pre-pharmacy requirements from the major Arkansas feeder schools.

### **Applicant Selection**

All applicants with a grade point average of 2.50, or above, on their overall college record and a minimum grade of "C" in each of the pre-pharmacy course requirements and a PCAT composite percentile score of 30 or greater, are eligible for consideration for admission to the College of Pharmacy. No application will be accepted with a cumulative GPA of less than a 2.50 or PCAT composite percentile less than 30. No applicant interview will be scheduled until the application folder is complete. All applicants with completed folders will be invited for an onsite interview. Selection of students will be made on the basis of the applicant's previous scholastic and aptitude records, PCAT scores, onsite interview, and recommendations in comparison with those of other applicants. Applicants must have completed at least eight hours of General Chemistry I and II and four hours of Organic Chemistry I with a grade of "C" or better by the February 1 application deadline. No interview will be granted to applicants whose prerequisites will not be complete by the end of the Spring 2010 semester.

### **Acceptance**

Regular meetings of the Admissions Committee will begin after the deadlines for submission of applications. All applicants will be notified of the disposition of their application in April. If an applicant has been accepted, he/she may

be denied admission prior to or at the time of enrollment if (1) he/she fails to keep his/her file current; (2) the GPA shows a significant drop or the applicant receives a grade of "D" or "F" during the spring semester; (3) information is received indicating that his/her character is such that he/she is not suited for the responsibility and privileges found in the practice of pharmacy. If an applicant is not admitted and desires to make application in subsequent years, the applicant may re-apply and pay the \$100.00 record analysis and interview fee with each application.

### **Students Transferring from another ACPE Accredited College of Pharmacy**

An Arkansas resident who has attended another ACPE accredited College of Pharmacy and is in good standing may apply to transfer to the UAMS College of Pharmacy. Transfer requests will be considered on a space available basis. The student will be required to present a transcript and catalog for evaluation. Where a correspondence exists between courses and hours in a Doctor of Pharmacy curriculum, the student may receive credit for satisfactorily completed courses (grades of "C" or better). The sequence of professional courses must be completed in the logical order required of all regular UAMS College of Pharmacy students. This may result in transferring students having to repeat a portion of one or more professional years if approved for transfer. The student must complete at least 60 semester hours in residence at the UAMS College of Pharmacy to be eligible to graduate.

The College reserves the right to revise or cancel the placement of advanced standing after a student has been in residence, in the event the student fails to meet the academic standards of the College. The College of Pharmacy does not accept transfer grades of "D", or equivalent, on required subjects of the pharmacy curriculum. It further reserves the right to reject transferred credit of "D" on any other subject.

Only officially signed transcripts will be accepted for evaluation and should include a complete record of courses pursued and the grade earned in the various courses. If additional information is needed for the proper evaluation of credit, the College may require the applicant to supply the appropriate catalog, or catalogs, of the institution, or institutions, previously attended by the student.

### **Special Student Status**

An individual who wishes to take a course for credit but who does not intend to enroll for a degree program may be admitted to the College by permission and on a space available basis. Admission as a special student does not require the submission of transcripts but the student must be in good standing at the college of last attendance. If a special student decides to work toward a degree in pharmacy, the individual must satisfy all entrance requirements and apply for admission in the manner required for all regular applicants.

## **Doctor of Pharmacy Degree**

Six academic years of college work are required to fulfill the requirements for the Doctor of Pharmacy degree. The first two years of college encompassing the pre-pharmacy courses may be taken at any accredited college or university. A pre-pharmacy advisor is available on the campus of each of the major four year colleges in the state to assist in planning the pre-pharmacy program.

The last four years of the curriculum include the professional courses offered in the College of Pharmacy at UAMS. A student's admission to the College of Pharmacy will be considered after the successful completion of the prescribed pre-pharmacy course work.

The College reserves the right to revise the pre-pharmacy and professional curriculum at any time it deems necessary for the improvement of pharmacy education.

Most of the Experiential portion of the curriculum is structured with 2-4 week courses taught in hospitals, clinics and community pharmacies. Each free-standing experience is an intensive course that requires a full time effort by PharmD students in the practice area. The student may be required to take these courses in practice sites away from Little Rock. The student should be prepared to incur additional expenses during the period he or she is assigned to practice sites away from Little Rock. Assignments will normally be made 2-4 months prior to starting of an experience, giving students time to secure housing and to make plans for the off-campus course. The Experiential portion of the curriculum is a required component of the curriculum. Each student must sign a statement during the application processes acknowledging that he/she understands that he/she is responsible to provide travel, room, and board expenses to complete the Experiential portion of the curriculum.

## **Curriculum**

### First Professional Year - Fall Semester - 19 hrs

PhPr3412 US Health Care System for Pharmacists, 2hrs  
PhSc3115 Anatomy/Physiology/Pathology I, 5hrs  
PhSc3414 Pharmaceutics I, 4hrs  
PhSc3214 Biological & Cellular Chemistry, 4hrs  
PhPr3422 Career Orientation & Communication, 2hrs  
PhSc3402 Pharmaceutical Calculations, 2hrs

### First Professional Year - Spring Semester - 19 hrs

PhPr3612 Drug Information, 2hrs  
PhSc3434 Pharmaceutics II, 4hrs  
PhSc3225 Principles of Drug Actions, 5hrs  
PhSc3124 Anatomy/Physiology/Pathology II, 4hrs  
PhPr3511 Nuclear Pharmacy, 1hr  
PhPr3603 Community Introductory Pharmacy Practice Experience (IPPE), 3hrs

### Second Professional Year - Fall Semester - 18 hrs

PhSc4254 Medicinal Chemistry, 4hrs  
PhSc4124 Pharmacology I, 4hrs  
PhSc4443 Basic Pharmacokinetics, 3hrs  
PhSc4454 Dispensing, 4hrs  
PhSc4423 Molecular Biology & Biotechnology, 3hrs

### Second Professional Year - Spring Semester - 17 hrs

PhSc4134 Pharmacology II, 4hrs  
PhPr4692 Nonprescription Drugs, 2hrs  
PhPr4642 Clinical Pharmacokinetics, 2hrs  
PhPr4625 Therapeutics I, 5hrs  
PhPr4604 Institutional IPPE, 4hrs

### Third Professional Year - Fall Semester - 19 hrs

PhPr5635 Therapeutics II, 5hrs  
PhPr3412 US Health Care System for Pharmacists, 2hrs  
PhPr5632 Pharmacy Law & Ethics, 2hrs  
PhSc5623 Pharmaceutical Biotechnology, 3hrs  
PhPr5643 Evidence-Based Medicine and Pharmacoeconomics, 3hrs  
Electives, 4hrs

### Third Professional Year - Spring Semester - 19 hrs

PhPr5645 Therapeutics III, 5hrs  
PhPr5734 Pharmacy Management, 4hrs  
PhPr5654 Patient Assessment & Application, 4hrs  
PhSc5142 Chemical Addiction, 2hrs  
Electives, 4hrs

### Fourth Professional Year - Fall Semester - 20 hrs

Five month-long experiences

### Fourth Professional Year - Spring Semester - 16 hrs

Four month-long experiences

## **Nuclear Pharmacy Specialist Option**

The College has approved a curricular option leading to a specialization in the field of nuclear pharmacy. This curricular option is available to any student who chooses to pursue these elective courses in addition to the required curriculum leading to the PharmD degree. The course of study outlined below will meet the didactic requirements of the Nuclear Regulatory Commission (NRC) for authorized user status. Students may complete the 500 hours of experiential training through internships or following graduation.

The courses outlined in the nuclear pharmacy curricular option are offered within the College of Pharmacy.

PhPr5583 Nuclear Physics, 3hrs  
PhPr5572 Instrumentation, 2hrs  
PhPr5512 Radiopharmacy, 2hrs  
PhPr5592 Health Physics, 2hrs  
PhPr5562 Radiation Biology, 2hrs

Courses in the nuclear pharmacy curricular option will meet the professional elective requirement of the PharmD degree. Graduates with 2000 hours of practical experience will be eligible to take the Nuclear Pharmacy Specialty Examination given by the Board of Pharmaceutical Specialties. Successful completion of requirements will allow designation as a Board Certified Nuclear Pharmacist.

## **Pharmaceutical Evaluation and Policy (PEP) Elective Track**

Students in good academic standing at the UAMS College of Pharmacy may take up to 12 credit hours of graduate credit in the Pharmaceutical Evaluation and Policy

(PEP) MS program. Each credit hour, up to 9 hours, of completed PEP graduate coursework with a grade of B will count towards satisfying the 8 hour elective requirement for the PharmD curriculum. PharmD students will enroll in the graduate courses as non-degree seeking students in the Graduate School. Students who take the maximum number of available credit hours for non-degree seeking students (12 credit hours) may be able to accelerate the time necessary to complete the MS degree requirements by at least one semester. There are no additional tuition costs to pursue graduate course work while enrolled as a full time PharmD student. Successful completion of the graduate coursework may be counted toward a MS in Pharmaceutical Evaluation and Policy should the student pursue formal admissions to the graduate program. Admission to the MS PEP program requires a separate application to the Graduate School (<http://cop.uams.edu/pep/>).

The following PEP graduate classes qualify for cross credit as transfer credit into the PharmD program for elective credit:

- PHSC5323 Foundations of Pharmaceutical Evaluation & Policy Research, 3hr
- PHSC5333 Social Behavioral Theory in Pharmacy, 3hr
- PHSC5343 Applied Research Methods using Retrospective Data Sources, 3hr
- PHSC5353 Pharmacoeconomics & Health Care Technology Assessment, 3hr
- PHSC5363 Pharmaceutical Economics & Policy Evaluation, 3hr
- BIOM5173 Quantitative Epidemiology, 3hr
- BIOM5013 Biostatistics I, 3hr
- BIOM5023 Biostatistics II, 3hr

Students must have approval of the course coordinator and PEP program director, complete the appropriate paperwork for the Graduate School, and complete the appropriate paperwork for the PharmD program.

### **MPH for PharmD/MPH Students**

The College of Pharmacy offers access to a combined Doctor of Pharmacy/Master of Public Health (PharmD/MPH) degree. The combined degree is offered in partnership with the UAMS Fay W. Boozman College of Public Health. Pharmacy students interested in this program should contact the Associate Dean for Professional Education or Dean's designee. Admission to the combined PharmD/MPH degree requires a separate application to the College of Public Health.

College of Pharmacy students enrolled in the combined PharmD/MPH degree program may apply up to 12 credit hours from the PharmD program towards credit in the MPH program and up to 8 hours of credit earned in the MPH program can be applied to meet elective course requirements (8 credit hours) for the PharmD curriculum. A minimum grade of B is required to receive cross credit in either College.

The courses in the College of Public Health meeting consideration for elective credit within the PharmD program are the Core Courses in the MPH degree curriculum. At this time, the following courses have been approved by the

College of Pharmacy faculty as electives within the PharmD program:

- PBHL5003 Intro to Public Health, 3hr
- PBHL5013 Biostatistics I, 3hr
- PBHL5113 Environmental and Occupational Health, 3hr
- PBHL5123 Health Care System, 3hr
- PBHL5133 Health Behavior Research, 3hr
- PBHL5173 Epidemiology I, 3hr
- PBHL5323 Pharmaceutical Policy in the Healthcare System\*

\*Take as College of Public Health student; same class as PhPr5263

The courses in the College of Pharmacy meeting consideration for credit within the MPH program are both didactic and experiential course work. At this time, the following are courses in the PharmD program are eligible for elective credit within the MPH program:

Didactic Course Credit (up to 9 credit hrs):

- PhPr3412 US Health Care System for Pharmacists, 2hr
  - PhSc5142 Chemical Addiction, 2hr
  - PhPr5285 Death and Dying, 2hr
  - PhSc5412 Public Health: Overview, 2hr
  - PhSc5442 Introduction to Research Methods, 2hr
- Experiential Course Credit (up to 3 credit hours):
- PhPr67X4 Advance Practice Experience\*

\*An advanced practice experience in the final professional year of the PharmD program may be allowed credit as a Preceptorship within the MPH program (3 credit hrs of the 4 allowed in the PharmD curriculum) if the student meets the PBHL5993 requirements and with the approval of the faculty of the MPH program.

Grade point averages and class standings in each program are determined without consideration of the credit hours accepted from the other programs.

Students enrolled in the combined PharmD/MPH degree program will pay College of Pharmacy tuition for their PharmD curriculum courses. Course work in the College of Public Health currently requires no additional tuition if the student is a full-time student within the College of Pharmacy; however, students should discuss other fee charges with the College of Public Health Registrar. Student financial aid will not be available through the College of Public Health for students with primary enrollment in the College of Pharmacy.

### **MBA for PharmD/MBA Students**

The College of Pharmacy offers access to a combined Doctor of Pharmacy/Master of Business Administration degree. The combined degree is offered in partnership with the University of Arkansas at Little Rock (UALR) College of Business. Students interested in this program should contact the Associate Dean for Professional Education or Dean's designee. Admission to the combined PharmD/MBA requires a separate application to UALR.

College of Pharmacy students enrolled in the Combined PharmD/MBA program may apply MBA course work taken at UALR to meet the elective course work requirement in the PharmD curriculum if a minimum grade of B is achieved. The courses meeting consideration are the Core Courses and Beyond the Core Courses in the MBA

curriculum. At this time the following courses (up to 9 credit hours or 3 courses) have been approved by the UAMS COP faculty as electives within the PharmD program:

ECON7320 Quantitative Analysis, 3hrs  
ECON7300 Economic Principles, 3hrs  
MKTG7301 Marketing Analysis, Planning & Control, 3hrs  
FINC7301 Financial Management, 3hrs  
MGMT7302 Management & Organizational Behavior, 3hrs  
MGMT7310 Organizational Behavior, 3hrs  
ECON7313 Managerial Economics, 3hrs  
FINC7311 Corporate Financial Planning, 3hrs

College of Pharmacy students enrolled in the Combined PharmD/MBA program may be allowed to apply up to 6 hours of PharmD program credit towards elective credit in the UALR MBA program if a minimum grade of B is achieved. The following are courses in the PharmD program of study eligible for elective credit within the MBA program:

Coursework starting in 2008-2009 all other students  
PhPr3412 US Health Care System for Pharmacists, 2hr  
PhPr5643 Evidence-Based Medicine & Pharmacoeconomics, 3hr  
PhPr5744 Pharmacy Management, 4hr

Grade point averages and class standings in each program are determined without consideration of the credit hours accepted from the other programs.

Students enrolled in the Combined PharmD/MBA program would pay UAMS tuition for their PharmD curriculum courses. They would pay UALR College of Business graduate tuition for their MBA courses. Student financial aid will not be available for UALR College of Business graduate courses taken in the combined degree program.

## Grading

The College of Pharmacy cumulative grade point average is based on all course work completed after admission to the College and is exclusive of pre-pharmacy course work and grades required for entrance into the College. If a student repeats a course, the grade received in the most current semester will be used to determine satisfactory completion of the course, graduation requisites and grade point average.

Grade Point System:

A = 4 points D = 1 point  
B = 3 points F = 0 points  
C = 2 points AU = 0 points

The grade "A" is given only for outstanding achievement in a course. The grade "B" represents good achievement. The grade "C" is given for average achievement and the grade "D" for poor achievement. A grade of "D" will not fail a student in an individual course; however, an excessive number of "D" grades will necessitate repeating a course or courses to rectify this deficiency prior to progressing to the next year. (Refer to Scholastic Rules and Regulations) The grade "F" denotes failure and is given for unsatisfactory work.

"I" (Incomplete) is assigned when the student, for reasons sufficient to the instructor, has not been able to complete some vital portion of the work. If the incomplete work is not made up within four weeks following the end of that semester, or if arrangements for completing the work are not made within four weeks following the end of that semester, the grade will become an "F" unless extension of time is granted by the Dean.

"W" indicates withdrawal from the College of Pharmacy. There are three mechanisms by which a student may be considered for withdrawal. A student may be withdrawn administratively or medically, and a student may withdraw voluntarily. Administrative withdrawal can result from violation of school policies. Consideration for a medical withdrawal requires written documentation from a physician caring for the student. Consideration for voluntary withdrawal requires written documentation from the student and consultation with the Associate Dean for Administrative Affairs. No withdrawals from individual courses are allowed.

"AU" Audit (AU) indicates the student has enrolled in a course, paid tuition, and successfully completed the attendance and testing requirements of the instructor.

If a student receives a grade of "D" or "F" at the College of Pharmacy and repeats the course at the College of Pharmacy, the most recent grade is used for final calculation of the student's grade point average. If a student repeats a grade of "D" or "F" earned at the College of Pharmacy with an approved course offered at another accredited College of Pharmacy, the most recent grade is transferred in but is not used in the calculation of the student's overall grade point average. Grades of "D" or "F" do not transfer to the College of Pharmacy. (See Summer School)

## Withdrawal

There are three mechanisms by which a student may be considered for withdrawal. A student may be withdrawn administratively or medically, and a student may withdraw voluntarily. Administrative withdrawal can result from violation of school policies. Consideration for a medical withdrawal requires written documentation from a physician caring for the student. Consideration for voluntary withdrawal requires written documentation from the student and consultation with the Associate Dean for Administrative Affairs. No withdrawals from individual courses are allowed. Return to the College following medical withdrawal requires a statement from the attending physician indicating that the student has recovered to the extent necessary to provide a reasonable expectation of completion of the academic and experiential requirements of the curriculum. The point where the student will reenter the curriculum will be determined by the Scholastic Standing Committee.

If a student withdraws voluntarily or is administratively withdrawn in the first professional year, then the student will be required to reapply through the Admissions Committee for admission to the College. In the event of a voluntary or administrative withdrawal in the second or

subsequent professional years, the Scholastic Standing Committee will review the circumstances of the particular case and determine if a return to the College is appropriate. If appropriate, the point in the curriculum where the student will reenter will be determined by the Scholastic Standing Committee. If return to the College is deemed inappropriate, the student must reapply for admission through the Admissions Committee. Return to the College of Pharmacy during the same academic year is unlikely and readmission is not guaranteed.

## **Student Conduct**

A College of Pharmacy student is considered to be a mature adult whose attitude, conduct, and morals are compatible with the functions and missions of the University of Arkansas as an educational institution, and with the ethical standards of the profession of pharmacy. Each student is expected to comply with requests of University officials in the performance of their duties; to obey the laws of the city, state and nation; and to refrain from conduct which would demean the ethics and integrity of the profession of pharmacy. Dishonest work will not be tolerated. Infractions are to be referred to the Honor Council or Scholastic Standing Committee for judgment. A recommended action shall be communicated to the Dean of the College for review and action. Complete information concerning procedural steps for the review of misconduct may be obtained from the Honor Code Handbook and the Student Handbook.

## **General Requirements for Graduation**

The Pharm.D. will be conferred upon the candidate who has met the following additional requirements:

1. The student must have completed a minimum of eight semesters, in an accredited college or school of pharmacy, the last four of which (including a minimum of 60 semester hours) must be in residence at the UAMS College of Pharmacy.
2. The student must have satisfied the professional curriculum requirements and have earned a minimum of 146 approved semester hours (for Spring 2010 graduates), exclusive of the pre-professional hours required for admission.
3. The student must have a minimum cumulative grade average of 2.00 on all work completed in the College of Pharmacy and offered in fulfillment of the requirements for the degree. No student may graduate if he/she has a grade of "F" in any course, or "D" grades in more than 10 semester hours of all credits earned in the College of Pharmacy.
4. The student must have paid all obligations and fees due and payable to UAMS and to the College of Pharmacy.
5. The student must possess and give evidence of satisfactory professional and moral qualifications.
6. The student must have received a recommendation for the degree by the faculty of the College of Pharmacy.
7. The student must have fulfilled all regulations of the UAMS and the College of Pharmacy, relating to the granting of degrees.

## **Graduation with Honors**

To recognize scholastic achievement, the designation of "High Honors" will be accorded to the lesser of 5% of the graduating class or those with a GPA of 3.75 or above. The designation of "Honors" will be accorded to the lesser of 20% of the class or those with a GPA of 3.50 or above. The total number of honors graduates shall not exceed 20% of the class.

The Honors in Research Program is available for academically qualified pharmacy students who desire to conduct original research in an area of health sciences. Students who complete the Honors in Research Program will receive designation on their College of Pharmacy transcripts as having graduated "With Honors in Research". Furthermore, these students will be recognized at the annual College of Pharmacy Honors Convocation and the UAMS Commencement ceremonies.

## **Mandatory Intern License & Criminal Background Checks**

All students must obtain an intern license from the Arkansas State Board of Pharmacy in order to progress in the curriculum. Students new to the College will apply for their intern license in the Fall of their P1 year. There will be no annual renewal routinely with the Board. However, the College will confirm for the Board on at least an annual basis the student status of each licensed intern. Students may be asked periodically to provide proof to the College of intern license status. The intern license is valid up to 6 months following graduation. If the student does a summer internship or a senior experience outside of the state of Arkansas, the student must obtain an intern license in that state as well.

The Arkansas State Board of Pharmacy performs mandatory criminal background checks on all applicants for a technician, intern, or pharmacist license. Students obtaining an intern license in other states for summer internships or senior experiences may be subject to a criminal background check as part of that process as well.

If a student is not eligible to be licensed as an intern, has the license revoked by or surrenders the intern license to the Arkansas State Board of Pharmacy, the student will be dismissed from the UAMS College of Pharmacy and cannot progress in the curriculum. If subsequently the student is able to obtain an intern license from the Arkansas State Board of Pharmacy, the student's return and progress in the professional curriculum is dependent upon review by the Scholastic Standing Committee.

## **Distinction between Degree and License**

The College of Pharmacy, through the University of Arkansas, grants the Doctor of Pharmacy degree to those students who successfully complete its requirements. However, in order to practice pharmacy, a license to practice must then be obtained. The license to practice is issued by the Arkansas State Board of Pharmacy, an entity

separate and distinct from the University of Arkansas. The issuance of the academic degree does not confer upon the recipient any guarantee of licensure.

### **Student Expenses & General Fees – 2009-2010**

A student is classified as an “in-state” or an “out-of-state” student for fee purposes on the basis of legal domicile of the student or that of the parents if the student is a minor. Classification for tuition purposes at any other college does not imply classification for purpose of admission to the College of Pharmacy. Complete regulations and forms for requesting a change in classification for this purpose may be obtained from the UAMS College of Pharmacy.

- Tuition & Registration Fee/semester is \$5060
- Out-of-State Tuition & Registration Fee/semester is \$10,120
- For all resident students carrying nine (9) hours or less, the fee/semester hour is \$506
- Non-resident students carrying nine (9) hours or less, the fee/semester hour is \$1,012

First year pharmacy students are expected to have a personal computer and third year students are expected to own a personal digital assistant.

### **Special Fees**

- Record Analysis/Interview Fee – Admissions is \$100.00
- Student Activity Fee (per semester) is \$29.75
- Student Health Fee (per semester) is \$77.45
- Technology Fee (per semester) is \$44.10
- Professional Liability Insurance Fee (Fall semester) is \$16.00
- Standardized Patient Fee is \$155 for P3s (\$55/Fall & \$100/Spring) and \$100 for P4s
- Pre-NAPLEX Fee (P4 first semester) is \$50.00
- Graduation Fee (P4 second semester) is \$57.90

Fees are subject to change without notice.

### **Student Health Insurance**

All students on the UAMS campus are required to have student health insurance per Board of Trustees policy number 1260.1. Students must sign a statement saying they are covered by health insurance (including hospitalization/surgical/medical coverage) at each registration. If it is determined at any time that the student is not covered by a health insurance policy, the student may be dismissed. A policy is available for purchase of either single or family coverage at registration.

### **Refund of Fees**

Any student who officially withdraws from the College of Pharmacy during a Fall or Spring semester shall be entitled to a refund of registration, tuition and fees as follows:

- Up to and including five class days – 100%
- From the sixth class day through the tenth class day – 50%
- Eleventh class day and after – No Refund

Any student who drops a course or officially withdraws from the College of Pharmacy during a summer school session shall be entitled to an adjustment of registration, tuition and fees as follows:

#### **One to four week course**

- Prior to start of classes – 100%
- First class and after – No refund

#### **Five or six week course**

- Prior to start of class/up to second class day – 100%
- Third through fifth class days – 50%
- Sixth class day and after – No Refund

#### **Seven to nine week course**

- Prior to start of classes/up to third class day – 100%
- Fourth through seventh class day – 50%
- Seventh class day and after – No Refund

#### **Ten or twelve week course**

- Prior to start of classes/up to fifth class day – 100%
- Sixth through tenth class day – 50%
- Tenth class day and after – No Refund

The amount of refund will be governed by the date on which the student notifies the Dean’s Office of intention to withdraw by submitting an application for official withdrawal with necessary signatures. Students must follow the established procedure for withdrawal including the return of all University property.

### **Tuition Waivers/Discounts**

Tuition and fees are waived at UAMS for dependents of any Arkansas citizens who have been declared prisoners of war or killed or missing in action as established by the Secretary of Defense of the United States after January 1, 1960. Once a person qualifies as a dependent, there shall be no situation such as the return of the father or the reported death of the father that will remove the dependent from the provision or benefits of the act waiving tuition.

There is no University of Arkansas employee or dependent/spouse tuition discount in the professional schools of pharmacy, law and medicine.

### **Estimated Cost of Attendance for 2009-2010**

Estimated expenses for the 2009-2010 academic year are summarized to assist students in developing a budget for the ensuing year. The law mandates that the Cost of Attendance reflect those costs which are directly related to one’s obtaining an education. More specifically, “the student’s estimated cost of attendance shall not exceed the estimated cost of attendance of all students in like circumstances pursuing a similar curriculum at that school”. The law allows inclusion of tuition, fees, books, required equipment, and reasonable costs for food, housing, transportation, and miscellaneous living expenses directly related to obtaining a pharmacy education. Students will be required to live within the budget listed for the appropriate academic year. This may mean that students will have to make some important decisions with regard to lifestyle choices, priorities, etc. during pharmacy school.

Tuition for residents of the State of Arkansas will be

\$10,120 for the year. Students are required to be covered by hospitalization-surgical medical health insurance and may purchase coverage through a campus group plan if they are not already covered. Annual rates for the group plan are estimated to range upwards from \$1950, depending upon the optional coverage and deductible amount selected by the student.

Living expenses are estimated at approximately \$12,600 for the nine months school year. Books are estimated to average approximately \$600 per year. In addition, the estimated cost of a computer for P1 students is \$1575 and a personal digital assistant is \$373 for a P2 students.

The University reserves the right to change the schedule of tuition, fees, and other fixed costs as necessary. Every effort will be made to provide advance notice of any changes. Tuition is paid twice a year; once at fall registration and again at spring registration.

### **Financial Aid**

The College of Pharmacy does not administer financial aid programs on the campus. The UAMS Financial Aid Office processes financial aid applications for all pharmacy students.

Student financial aid programs are intended to remove financial barriers to education for those who are unable to pay and to ease the financial burden for those who are more able to pay. Since financial aid resources are limited, these resources must be coordinated and delivered to students in a manner which best fits their needs and the institution's resources. Therefore, a combination of types of aid is offered to students as a financial aid package. Generally, financial aid is divided into the following categories:

**Scholarships:** Scholarships are awarded to students based on academic standing and/or financial need and/or major area of study and usually are not repayable.

**Grants:** Grants are not repayable and usually are awarded to students who have exceptional financial need.

**Loans:** Loans must be repaid. Principal and interest are usually deferred until the student ceases to be enrolled at least halftime; however, certain loans require interest and/or principal payments while students are in school.

### **Employment**

College Work Study (CWS) is available to students who qualify and payment is received at the end of each pay period. In addition to filling out the usual financial aid application, students must submit a written request for CWS. Students may not begin working until CWS is awarded; the student has processed through personnel, and completed ALL forms. Since items such as loan limits and program eligibility may change annually, the Financial Aid Office prepares each year a UAMS Financial Aid brochure which outlines the financial aid process, defines eligibility requirements, and gives a complete, detailed description of the various financial aid programs available.

The UAMS Financial Aid Office uses an application form prepared by a uniform need analysis service to

evaluate the need of students who are applying for financial assistance. This application, along with the above mentioned brochure, may be obtained from the UAMS Financial Aid Office. The packet and brochure may be picked up at the office or requested by telephone at (501) 686-5451. The office is open from 8:00 a.m. to 4:30 p.m. Monday through Friday.

### **Rights and Responsibilities**

The UAMS Financial Aid Office will provide an award letter to each student who is awarded aid. This letter will state the cost of attendance, the student's family contribution, the student's financial need, the aid awarded, and the unmet need. Although every attempt is made to meet the student's financial need, limited resources means that most students will have an unmet need amount. An unmet need figure does not mean that a student is entitled to that amount of remaining funds.

All students receiving financial aid are required to keep the Financial Aid Office informed of any change in their status such as change of address or receipt of additional financial aid from outside sources. The Financial Aid Office provides an information sheet that is included with the initial award letter that provides the details of this requirement. Students in the College of Pharmacy who have received loan funds are required to have an exit interview. This is usually done in a group session the last week prior to graduation. This exit interview is required by law and is part of the campus clearance procedure needed for graduation.

Any student in the College of Pharmacy may visit the Financial Aid Office at any time to review any aspect of their financial aid award. An appointment is not necessary but it is suggested that a call be made to be sure the financial aid officer or the Director of Financial Aid is available. The UAMS Financial Aid Office exists to serve students' needs. Any student in the College of Pharmacy who has unusual financial circumstances or a dramatic change in their financial situation during the semester can visit with the Director of Financial Aid at any time.

### **Classification of Students**

Students pursuing the PharmD degree are classified for financial aid purposes as follows:

- P1 Undergraduate Student
- P2 Graduate/Professional Student
- P3 Graduate/Professional Student
- P4 Graduate/Professional Student

The College of Pharmacy informs the Financial Aid Office of the proper classification. This classification is used for financial aid awards rather than the classification the student might put on his/her application. The above arrangement for classification is designed to provide the maximum dollar amount of aid for the maximum number of pharmacy students. It also serves the purpose of providing accurate data for federal reports. When a student moves from the P1 to P2 classification they are no longer eligible

for a Pell Grant or SEOG, but they are eligible for a higher level of Stafford Loan borrowing. The exact amounts and eligibility requirements are contained in the Financial Aid brochure.

### **Required Hours**

To be considered a full-time student for financial aid purposes, a student must be enrolled for a minimum of 12 semester hours of courses that will apply to the PharmD degree. To be considered a half-time student for financial aid purposes, a student must be enrolled for a minimum of 6 semester hours of courses that will apply to the PharmD degree.

### **Dates of Application**

Students are encouraged to apply for financial aid between January and March for the academic year that begins in August. For entering students acceptance into the college is not required to apply for financial aid, but no award will be made until the College of Pharmacy notifies the Financial Aid Office that the student has been accepted. Although students are encouraged to apply as early as possible, students may apply for aid at any time during the year. However, there are deadlines for various programs. The Financial Aid Office makes information on deadlines available in the Financial Aid brochure.

### **Processing Procedures**

When a student applies for financial aid, various documents are sent to the student and the Financial Aid Office. In many cases the UAMS Financial Aid Office will request additional information such as financial aid transcripts, income tax information, etc. Written requests are mailed directly to the student requesting additional information. No action is taken on a student's file until that information is received. To avoid delays in processing, students are strongly encouraged to answer any inquiry from the Financial Aid Office immediately.

### **Award of Funds**

Financial aid funds are disbursed only at the time of registration and after registration. Funds will not be distributed prior to registration.

### **Graduate Programs**

The faculty of the College of Pharmacy, through the UAMS Graduate School, has developed programs of study leading to the Master of Science and Doctor of Philosophy degrees in the Pharmaceutical Sciences. Further information and application requirements are available from the UAMS Graduate School or by contacting the Office of the Dean of the College of Pharmacy. Information is also available on the UAMS campus website: [www.uams.edu](http://www.uams.edu). Inquiries for admission information should be directed to the UAMS Graduate School (4301 W. Markham, #601; Little Rock AR 72205).

## **Graduate School Student Catalog & Handbook**

The Graduate School at the UAMS publishes a Student Handbook which contains information for graduate students on Campus rules and regulations, various campus services and academic policies. Copies of the Graduate School Catalog and Handbook are available from the Graduate School Office or online at: [www.uams.edu/gradschool](http://www.uams.edu/gradschool).

## **Department of Pharmaceutical Sciences**

### **Professor and Chairman**

Russell B. Melchert, BS (Pharmacy), PhD  
Office: BMR 237, Phone: 686-6495

### **Emeritus Professor**

C. Allen Bradley, BS (Pharmacy), PhD  
James R. McCowan, BS (Pharmacy), PhD  
Gene D. Pynes, BS (Pharmacy), PhD  
Fred L. Underwood, BS (Pharmacy), PhD

### **Professor**

Charles K. Born, BS (Pharmacy), PhD  
Cesar M. Compadre, BS (Pharmacy), PhD  
E. Kim Fifer, BS (Pharmacy), PhD  
Bill Gurley, BS (Pharmacy), PhD  
Martin Hauer-Jensen MD, PhD  
Cherng-ju Kim, BEng, MEng, PhD  
Kim E. Light, BS, PhD  
S. Jesse Liu, BS, PhD  
Russell B. Melchert, BS (Pharmacy), PhD  
Larry D. Milne, BS (Pharmacy), PhD

### **Associate Professor**

Philip Breen, BS (Pharmacy), PhD  
R. Lilia Lopez-Becerra, BS (Pharmacy), PhD  
Grazyna Nowak, MS, PhD  
Dwight Pierce, BS, PhD  
Henry Simmons, MD, PhD

### **Assistant Professor**

Marjan Boerma, BS, MS, PhD  
Li Cui, MD, PhD (Research)  
Qiang Fu, MD, PhD (Research)  
Howard Hendrickson, BS, MS, PhD  
Elvin Price, PharmD, PhD  
Junru Wang,, MD, PhD (Research)

### **Instructor**

Snehalata Pawar, PhD

The Department of Pharmaceutical Sciences (PhSc) is composed of faculty with teaching and research expertise in the basic pharmaceutical science disciplines of Medicinal Chemistry, Pharmacology and Pharmaceutics. The Department contains one division, the Division of Radiation Health, established in 2008. The Division of Radiation Health focuses on normal tissue radiation responses as they relate to cancer patients and to the general population. The division has a strong emphasis on efforts to develop existing and novel drugs and natural products to make radiation therapy of cancer safer, and more effective as medical countermeasures against radiation accidents and radiation terrorism.

Medicinal Chemistry is the study of the chemical properties of medicinal agents, both synthetic and natural, as they relate to the stability, incompatibility, and chemical modes of action of these agents. It incorporates the

biochemical principles associated with diseases, and nutrition, as well as an understanding of the methods for qualitative and quantitative determination of drugs in dosage forms and biological specimens. This provides the pharmacy student with knowledge of biosynthesis, isolation, and evaluation of drugs originating from both plants and animals. Included in this discipline is a study of microbiological principles related to pharmaceutical products.

Pharmacology incorporates the principles of anatomy, physiology, biochemistry and molecular biology into a study of the mechanism of action, therapeutic indication, dosage, and toxicology of all drugs.

Pharmaceutics is that area of expertise concerned with the development of dosage systems that deliver medications in proper amounts to their sites of action in the body. It is concerned not only with the physical and chemical factors influencing drug delivery systems, but also the many pharmacokinetic and biopharmaceutical factors involved such as drug release, absorption, distribution and elimination.

These disciplines are designed to provide the pharmacy student with a basic pharmaceutical science foundation for other courses in the pharmacy curriculum, as well as preparing the student for programs of advanced study.

## **Course Descriptions**

### **PhSc 3115 Anatomy/Physiology/Pathology I**

This course is a study of the cellular and multicellular functions of human tissues, organs, and systems. The emphasis in this course is on introductory principles, the physiology of nerves and muscle, and the functions of the nervous systems. Lecture five hours per week.

### **PhSc 3124 Anatomy/Physiology/Pathology II**

This is a continuation of PhSci 3114 with an emphasis on cardiovascular, respiratory and renal function. Lecture four hours per week.

### **PhSc 3214 Biological and Cellular Chemistry**

Topics covered in this course include the biological, chemical and cellular roles of carbohydrates, lipids, proteins, nucleic acids, hormones, enzymes and vitamins. In addition, the chemical and cellular basis of digestion, intermediary metabolism, biological oxidation and metabolic antagonism are discussed. Lecture four hours per week.

### **PhSc 3225 Principles of Drug Actions**

This course covers the principles of drug actions from both the pharmacological and medicinal chemical perspective. General principles of drug absorption, distribution, metabolism and excretion as well as pharmacodynamic principles governing dose-response relationships are covered. Subsequently, the focus shifts to specific agents including local anesthetics, neuromuscular blockers and drugs acting on the autonomic nervous system. Lecture five hours per week.

### **PhSc 3402 Pharmaceutical Calculations**

This course is a study of the system of weights, measures and mathematical expertise requisite to the compounding, dispensing, and utilization of drugs. Typical

situational problems are used for practice in the application of this knowledge to prescription and medication procedures. Lecture two hours per week.

#### **PhSc 3414 Pharmaceutics I**

A study of the physicochemical aspects of liquid dosage forms, both aqueous and non-aqueous, with emphasis on the technology and pharmaceutical rationale fundamental to their design and development. Lecture three to four hours per week, and recitation three hours per week half of the semester

#### **PhSc 3434 Pharmaceutics II**

This course is a continuation of the study of dosage forms and pharmaceutical products with emphasis on solid and semi-solid systems. Dispensing techniques, physical and chemical incompatibilities, drug product evaluation, and aspects of drug product stability are studied in the laboratory. Lecture three hours per week, and laboratory three hours per week.

#### **PhSc 4124 Pharmacology I**

The effects, biological mechanisms, therapeutic indications, interactions and toxicities of drugs are studied. Emphasis is placed on pharmacological principles that promote the understanding and rational approach to therapeutics. Lecture four hours per week.

#### **PhSc 4134 Pharmacology II**

This course is a continuation of PhSci 4124. This is a four credit hour course.

#### **PhSc 4254 Medicinal Chemistry/Natural Products**

This course is a study of the relationship between the physicochemical properties of synthetic and naturally derived drugs and their stability, absorption, distribution, metabolism, elimination, and pharmacological mechanism of action. Lecture four hours per week.

#### **PhSc 4423 Molecular Biology & Biotechnology**

This course covers fundamental molecular biology and extends this knowledge to provide the student a basic understanding of human genetics, biotechnology, and genetic and immunologic engineering. Emphasis will be placed on clinical applications and biotechnologic drugs and therapies. This is a three credit hour course.

#### **PhSc 4443 Basic Pharmacokinetics**

This course presents the basic concepts and principles of pharmacokinetics. The necessary mathematical expressions needed to characterize the absorption, distribution, metabolism, and excretion of drugs will be discussed with respect to routes of administration. Parameters that influence pharmacokinetic and therapeutic outcomes of the most common drug regimens will be emphasized. Additionally, the principles of therapeutic drug monitoring and dosing will be explained. Lecture three hours per week.

#### **PhSc 4641 Clinical Pharmacokinetics**

This course is designed to acquaint pharmacy students with the clinical application of pharmacokinetic principles. The course will provide a framework to approach clinically based pharmacokinetic dilemmas such as disease-drug and drug-drug interactions. In addition, practical mathematical applications will be taught that will allow dosing

recommendations for patients on anticonvulsants, aminoglycosides, and vancomycin. Lecture three hours per week.

#### **PhSc 5142 Chemical Addiction**

This course deals with the development, progression, symptomology, treatment and recovery aspects of addictive diseases. Although the model most heavily emphasized is alcoholism, addiction aspects of all drugs/chemicals are presented. Students attend meetings of various self-help groups as well as present talks to public school children. Lecture two hours per week.

#### **PhSc 5623 Pharmaceutical Biotechnology**

This course provides the third year pharmacy student with an overview of the role and growing impact of biotechnology in modern pharmaceutical care. Pharmaceutical Biotechnology is defined as the use of living microorganisms, plants and animals, or cells and enzymes derived thereof, to produce a therapeutic product. This course provides coverage of the design, production, formulation, and delivery of therapeutic products that are commonly protein, lipid, or nucleic acid in their composition. Bioethics is included to provide the student with an understanding of the issues that may impact their patient's willingness to comply with the prescribed therapy. This is a three credit hour course.

### **Electives**

#### **PhSc 516V Special Problems in Pharmacology**

#### **PhSc 5152 Toxicology**

This course deals with the basic concepts of toxicology with an emphasis placed on prevention of exposure, exposure and the subsequent management of exposure of commonly found medicines, chemicals, plants and animals. Parameters that influence the toxicokinetics of these agents is emphasized.

#### **PhSc 526V Special Problems in Medicinal Chemistry**

#### **PhSc 547V Special Problems in Pharmaceutics**

#### **University of Utah School on Alcoholism and other Drug Dependencies**

Upon receipt of an official transcript showing completion of the above program, a student may receive two hours of elective credit.

## **Department of Pharmacy Practice**

### **Professor and Chairman**

Paul O. Gubbins, PharmD

Office: Ed II/6-134h, Phone: 686-6683

### **Emeritus Professor**

Bill J. Kerr, BS (Pharmacy), PharmD

K. Richard Knoll, BS (Pharmacy), PharmD

Walter J. Morrison, BS (Pharmacy), PhD

### **Professor**

Stephanie F. Gardner, BS (Pharmacy), PharmD, EdD

Paul O. Gubbins, PharmD

Nicki Hilliard, BS (Pharmacy), PharmD

Bradley C. Martin, PharmD, PhD

Cindy D. Stowe, BS (Pharmacy), PharmD

Jonathan J. Wolfe, BS (Pharmacy), PhD

### **Associate Professor**

Lois Coulter, BS (Pharmacy), PharmD

Dosha Cummins, BS (Pharmacy), PharmD

Dwight Davis, BS (Pharmacy), PharmD

Renee M. DeHart, PharmD

Eddie Dunn, BS (Pharmacy), PharmD

Howell Foster, BS (Pharmacy), PharmD

J. Thomas Frank, BS (Pharmacy), PharmD

Amy Franks, PharmD

John David (J.D.) Gannaway, BS (Pharmacy), PharmD

Jan Hastings, BS (Pharmacy), PharmD

Lisa Hutchison, BS (Pharmacy), PharmD, MPH

Jill T. Johnson, PharmD

Denise Ragland, PharmD

Eric Schneider, BS (Pharmacy), PharmD

Daniel C. Spadaro, BS (Pharmacy), PharmD

Ross E. Vanderbush, BS (Pharmacy), PharmD

T. Scott Warmack, PharmD

### **Assistant Professor**

Melanie Claborn, PharmD

Marsha Crader, PharmD

M.E. "Trey" Crumby III, PharmD

Mark Estes, PharmD

Schwanda Flowers, PharmD

Sarah Frank, PharmD

Seth Heldenbrand, PharmD

Mark Helm, BBA, MBA, MD

Ed Hesterlee, BS (Pharmacy), PharmD

Jonell Hudson, PharmD

Scott Kaufman, PharmD

Dao Le, PharmD

Chenghui Li, MA, PhD

Holly D. Maples, PharmD

Keith McCain, PharmD

Kendrea Muldrew, PharmD

Sherry A. Myatt, PharmD

Kathryn Neill, PharmD

Catherine O'Brien, PharmD

Anne Pace, PharmD

Nalin Payakachat, PhD

Darren O'Quinn, BS (Pharmacy), JD

Melanie Reinhardt, BS (Pharmacy), PharmD

Qayyim Said, MA, PhD

Michael Shepherd, PharmD

Ashley Stinnett, PharmD

Jeremy Thomas, PharmD

Eli Vinson, PharmD

John Vinson, PharmD

### **Instructor**

Martha Carle, BSE, MSE, MPH

The Department of Pharmacy Practice (PhPr) is responsible for experiential and administrative components of the curriculum. The experiential component of the curriculum teaches students to develop rational approaches to the maintenance of wellness and the treatment of disease, with an emphasis on quality of patient care and drug therapy, and with the attainment of skills in interprofessional and patient communications. The division of Pharmaceutical Evaluation and Policy is housed within the Department of Pharmacy Practice. The mission of the Division is to advance and disseminate knowledge of the economic, humanistic, and clinical impact of pharmaceutical products and services and to contribute to medication use and health policy development that benefits society.

### **Course Descriptions**

#### **PhPr 3412 US Health Care System for Pharmacists**

The objective of this course is to equip pharmacy students with a knowledge base in the areas of pharmacy marketing and health economics which will permit them to make good management decisions when providing pharmaceutical products and services for patients and other consumers. Lecture two hours per week.

#### **PhPr 3422 Career Orientation & Communications**

A course to acquaint the beginning pharmacy student with the multiple aspects of the profession of pharmacy, including discussions of the different environments of pharmacy practice and the inter- and intra-professional relationships of health care providers. The course will have a focused area of study around professional communications. Lecture two hours per week.

#### **PhPr 3511 Nuclear Pharmacy**

This course is an introduction to the basic aspects of nuclear pharmacy. Topics include the characterization, properties and detection of radioactivity, radiation biology, radiation protection elements of nuclear medicine and radiopharmaceuticals. Lecture one hour per week.

#### **PhPr 3603 Community Introductory Pharmacy Practice Experience**

This course will provide structured practical experience in community pharmacy practice. To enter this course, a student must be eligible for advancement to the P2 year. This is a three credit hour, pass/fail, course.

#### **PhPr 3612 Drug Information**

This course will introduce the P1 student to the top 200 drugs available in the U.S. and to the drug and medical literature that is available at UAMS. The instructors will

emphasize how to locate, evaluate and communicate medical and drug information. The course will involve didactic lectures and assignments that will require the student to utilize the information resources available on the UAMS Library website, the UAMS Intranet and the Internet. This is a two credit hour course.

#### **PhPr 4454 Dispensing Pharmacy**

Emphasis is placed on the role of the pharmacist in medication dispensing and patient care. Pharmacist responsibilities involving patient profiles, medication monitoring, drug product selection and generic substitution are discussed. The importance of patient counseling is stressed. Emphasis is also placed on the Top 200 Drugs, compliance with Board of Pharmacy Regulations, labeling/auxiliary labeling of prescriptions, technical practice aspects and knowledge of current dosage delivery systems. This course will provide students with information and skills in the areas of IV therapy and physical assessment. Students will demonstrate competency in aseptic techniques, IV admixtures, sterile products, drug delivery systems, and drug therapy monitoring. Lecture three hours per week, and laboratory three hours per week.

#### **PhPr 4604 Institutional – Introductory Pharmacy Practice Experience**

This course will provide a structured practical professional experience in institutional pharmacy practice. Second professional year students will be assigned a four week practice experience at the end of the spring semester. To enter this course, a student must be eligible for advancement to the P3 year. This is a four credit hour, pass/fail, course.

#### **PhPr 4625 Therapeutics I**

Utilizing a pathophysiological approach, the therapeutics curriculum focuses on the structural and functional consequences of disease on various organ systems in the body. Each block of instruction begins with a discussion of the nature and causes of disease in an organ system. This is expanded through a discussion of the etiology, pathogenesis, diagnosis and treatment of the major disease states of that organ system. Emphasis is placed on the considerations for the drug therapy used, therapeutic goals, plans of treatment, dosage regimens, therapeutic alternatives and therapeutic endpoints. The goal of the course is to enable the student to assist in the development of the safest and most rational plan of drug therapy for a given patient. This is a five credit hour course that includes recitation.

#### **PhPr 4692 Non-Prescription Medications**

This course is a study of the legal, economic, social and professional aspects surrounding nonprescription drugs and their proper use. Since the pharmacist is the only health care practitioner who routinely has contact with patients using nonprescription medications, it is essential that students have a broad knowledge base in this area and be able to interact appropriately with patients concerning the proper use of these medications. This is a two credit hour course.

#### **PhPr 5532 Pharmacy Law & Ethics**

This course will provide students with information and skills in the areas of communication and pharmacy law. Students will be provided resources aimed at improving and utilizing communication skills in diverse pharmacy practice settings. The course will also cover the study of law, regulations and court decisions on federal, state, and local levels and the ethical considerations which control and influence pharmacy practice. Professional ethics will be covered in this course. Lecture two hours per week.

#### **PhPr 5635 Therapeutics II**

This course is a continuation of PhPr 5625, Therapeutics I. This is a five credit hour course that includes recitation.

#### **PhPr 5643 Evidence-Based Medicine & Pharmacoeconomics**

This core course will teach the student to formulate a focused clinical question, to improve the student's literature critical appraisal skills, to determine the appropriateness of various biostatistical analyses, and to apply pharmacoeconomic techniques to inform drug product selections. The course will integrate statistical analysis and study design concepts into practical applications. This is a three credit hour course.

#### **PhPr 5645 Therapeutics III**

This course is a continuation of PhPr 5635, Therapeutics II. This is a five credit hour course.

#### **PhPr 5654 Patient Assessment & Application**

The course will provide the student the opportunity to develop basic skills in physical assessment that include examination techniques, basic anatomy and physiology, and examples of abnormalities. In addition, longitudinal early practice experiences such as shadowing, wellness and health screenings, and free clinics. Other experiences will be reviewable by the course coordinator. Lecture equivalents of 2 hours per week (on-line primarily), instructional lab two hours per week, 40 hours of experiences.

#### **PhPr 5734 Pharmacy Management**

Course is designed to teach students the requisite skills needed to perform managerial functions in a community and institutional pharmacy. Includes planning an integrating professional services, budgeting, inventory control, human resource management topics. This is a four credit hour course.

#### **Advance Pharmacy Practice Experiences**

Nine four-week experiences designed to aid the student in developing and applying skills and information previously presented in formal coursework toward the practice of pharmacy. Five experiences are required in Direct Patient Care (Acute/Primary Care-3, Ambulatory Care-1, & Advanced Community Pharmacy-1). Two experiences are required in Indirect Patient Care (Health System Management-1 & Community Management-1) and two other experiences are chosen as electives from any approved experience. Emphasis will be placed on the student's ability to function as a clinician in a practice setting, along with development of the skills and attitudes related to communication skills, problem-solving skills, and self-assessment skills. Student are precepted by pharmacists

in a 1-2:1 ratio of students to preceptor.

Experiences are as follows:

**PhPr 6714 Experience - Direct Patient Care - Acute Care**

This experience allows students to apply didactic knowledge to direct patient care activities. Students will concentrate on patient specific pharmacotherapy, evidence based medicine, and effective communication with patients and healthcare professionals. Students will apply their knowledge of pathophysiology, pharmacology, and pharmacokinetics to optimize patient care in a hospital setting.

**PhPr 6724 Experience - Direct Patient Care - Ambulatory Care**

This experience allows students to apply didactic knowledge to direct patient care activities. Students will have the opportunity to provide clinical pharmacy services in an outpatient setting. Student will concentrate on patient specific pharmacotherapy, evidence based medicine, and effective communications with patients and healthcare professionals

**PhPr 6734 Experience - Direct Patient Care - Community**

This experience allows students to apply didactic knowledge to direct patient care activities. Students will have the opportunity to provide clinical pharmacy services utilizing pharmacotherapy, evidence based medicine, and physical assessment in a community/retail setting. This experience will focus on disease state management, medication therapy management, non-prescription medications, and effective communication skills.

**PhPr 6744 Experience - Indirect Patient Care - Community Management**

This experience teaches effective management skills to students through direct skill training and mentoring. This experience occurs in a community/retail setting and concentrates on marketing, operations, resource, and financial management, as well as effective communication skills.

**PhPr 6754 Experience - Indirect Patient Care - Health-System Management**

This experience teaches effective management skills to students through direct skill training and mentoring. This experience occurs in a hospital or institutional setting and concentrates on resource management, drug distribution, regulatory bodies, and communication with patients and healthcare professionals.

**PhPr 6764 Experience - Specialty Pharmacy Practice**

These experiences allow students the opportunity to practice pharmacy in a variety of specialty settings. Students can focus on specific areas of interest including nuclear pharmacy, compounding, regulatory, professional associations, industry, etc.

## Electives

**PhPr 5242 Topics in Women's Health**

This elective course exposes the student to a variety of topics related to women's health including the prevention, diagnosis and management of conditions that may be unique

to women. Sex- and gender-based differences in health and disease will also be presented. 2 credit hours

**PhPr 5263 Pharmaceutical Policy in the Healthcare System**

Interdisciplinary course taught with the UAMS College of Public Health provides an overview of pharmaceutical policies and their effect on the healthcare system. 3 credit hours

**PhPr 5282 Political Advocacy**

The course will present an orientation to political advocacy for the pharmacy profession. Lecturers from a variety of state, national and professional settings will give their perspective on issues facing the profession. 2 credit hours

**PhPr 5285 Death and Dying**

Interdisciplinary course preparing student to manage end-of-life care, particularly through (1) exploring personal issues related to mortality; (2) learning roles of participants in such care; (3) developing communication skills needed for caregiving; (4) examining ethical issues related to death; and (5) examining economic and social aspects of funeral practices. 2 credit hours

**PhPr 5292 Diabetes Management**

This course will provide a multidisciplinary foundation in the principles of comprehensive diabetes management. It will develop students' knowledge base and ability to assess, manage, educate, and monitor patients with diabetes. The format of the course uses on-line and face-to-face sessions. Combination on-line and discussion sessions 2 credit hours

**PhPr 5323 Foundations of PEP Research**

Provides students with the introductory skills to perform research in pharmaceutical evaluation and policy. 3 credit hours

**PhPr 5332 Special Problems in Clinical Practice, 2 credit hours**

**PhPr 5342 Geriatric Therapeutics**

The course will provide a concentrated introduction to the management of common geriatric pathologies. 2 credit hours

**PhPr 5362 Drug Induced Disease**

This course explores the most appropriate interventions for prevention, detection and management of drug induced diseases. 2 credit hours

**PhPr 5412 Public Health: Overview**

An introduction to basic and contemporary issues of public health. 2 credit hours

**PhPr 5442 Introduction to Research Methods**

This hands-on course in study design is intended for students with an interest in research or post-graduate opportunities such as residencies, fellowships or graduate studies. The course will provide the basics of study design and presentation to prepare for participation in all types of future research. 2 credit hours

**PhPr 5452 Patient Care Services in a Community Pharmacy**

The class will focus on how to develop and implement patient care services in a community pharmacy setting. Students will learn about all the necessary steps to start a patient care service. Students will also learn about medication therapy management services (MTM) including

how to perform them utilizing the different platforms currently available. The students will be required to perform MTM cases. 2 credit hours

#### **PhPr 5462 Relationship Marketing**

Relationships refer to “a state of connectedness between individuals”. This course will provide an in-depth examination of the process of building, managing, and enhancing strong and enduring relationships. It will further explore the process by which these relationships can enhance your access to professional and personal opportunities that can be very rewarding. 2 credit hours

#### **PhPr 5472 Problem Based Learning in Pediatric Therapeutics**

This PBL course emphasizes a self-directed approach to work through simulated cases focused on pediatric pharmacy issues. The complexity of the decision making process will increase throughout the semester. 2 credit hours

#### **PhPr 5512 Radiopharmacy**

Explores the chemical, physical, and biological properties of radiopharmaceuticals used in nuclear medicine. Production, quality control, and regulations of imaging agents will be examined. Emphasis will be placed on clinical applications of radiopharmaceuticals. 2 credit hours

#### **PhPr 5562 Radiation Biology**

Introduction to the interactions of radiation and biological systems, including chronic and delayed effects through physical and chemical changes from radiation. 2 credit hours

#### **PhPr 5572 Nuclear Instrumentation**

Operational principles of radiation detection equipment to include statistical application and quality control. 2 credit hours

#### **PhPr 5583 Nuclear Physics**

Concepts and physical properties governing the atom to include systems and units of measure, atomic and nuclear structure, and particulate and electromagnetic radiation. 3 credit hours

#### **PhPr 5592 Health Physics**

A review of the legal, biological and administrative aspects of radiation protection in nuclear medicine. Emphasis on practical means of minimizing radiation exposure to the patient, staff and general public. 2 credit hours

#### **PhPr 5622 Advanced Non-Prescription Medications**

This course is designed to continue the students understanding of nonprescription disease states and their treatment. It will also provide an opportunity to begin the process of applying OTC drug knowledge to make specific patient recommendations through the use of case studies. The student will be equipped to convey reliable and objective information to patients and health care providers. 2 credit hours

#### **PhPr 5662 Professional Ethics Seminar**

This course presents foundational instruction in ethics, then instruction in professional ethics particular to pharmacy. The format of the course will be lecture and lecture/discussion. 2 credit hours

#### **PhPr 5702 Personal Finance**

Provides future pharmacists the informational and decision-making tools needed for planning and implementing a successful personal financial plan. 2 credit hours

#### **PhPr 5742 Special Problems in Pharmacy Administration**

#### **PhPr 5752 Entrepreneurship**

This course is designed to enhance a student’s knowledge in leadership, business, and financial skills in pharmacy practice while learning if he/she possesses an entrepreneurial spirit. The goal of the course is to provide students with ‘hands-on’ experience in starting a business or new service, owning and running your own business, and general management and leadership skills. 2 credit hours

#### **PhPr 5832 Veterinary Pharmacy**

Provides a working understanding of veterinary pharmaceuticals. 2 credit hours

#### **PhPr 5842 Medication Error Reduction**

The course will review the types and causes of most common medication errors. The student will then consider separately errors related to sterile products, then to non-sterile products. 2 credit hours

#### **PhPr 5852 Spanish for Pharmacists**

This course will provide pharmacy students with essential communication skills for the delivery of quality pharmaceutical service to Limited English Proficient Latino American/Hispanic customers/patients. The topics include written and spoken Spanish, Latinos’ customs and culture, federal and state regulations; ethical, political and social trends. 2 credit hours

#### **PhPr 5862 Landmark Studies**

This elective is intended for students interested in improving their clinical skills, especially those considering a pharmacy residency. Landmark studies and consensus statements will be reviewed in order to support decision-making in clinical situations. 2 credit hours

#### **PhPr 5892 Problem Based Learning in Therapeutics**

This elective utilizes a simulated case management format with emphasis on evaluating patient and agent variables and formulating appropriate therapeutic decisions. 2 credit hours

#### **PBHL 5843 Racial & Ethnic Health Disparities: Theory, Experience, & Elimination**

This course explores racial and ethnic health disparities in the US. This course uses traditional approaches to learning (such as didactic lectures, assigned readings, analysis and discussion) combined with personal and group experiential learning. Students will be required to participate in service learning activities which will include preparation, reflection, and practice components. 3 credit hours

Elective courses that are part of the combined MBA/PharmD, MPH/PharmD, and electives in the PEP MS are options for meeting elective requirements and are listed on page 14 – 15, respectively.

## **Special Awards and Scholarships**

Through the generosity of various organizations, companies and alumni, numerous awards are made to students with high scholastic records or other achievements worthy of recognition such as leadership, professional attainments and participation in extracurricular activities.

- **Alumni Scholarship Award**

This scholarship is made available through the donations of the alumni of the College of Pharmacy.

- **American Pharmacists Association Recognition Certificate**

This certificate is awarded to a senior student making substantial contributions to the Academy of Students of Pharmacy chapter at UAMS.

- **April Abston Williams Scholarship Award**

A scholarship presented to a student to honor the memory of April Abston Williams, a 1994 graduate of the College of Pharmacy.

- **Arkansas Association of Health-Systems Pharmacists Scholarship**

A scholarship awarded to a student with a demonstrated interest in health-systems pharmacy. The recipient must exhibit a high level of service, leadership and professionalism.

- **Arkansas Pharmacists Association Award**

A plaque is awarded to the graduating student showing the greatest potential for the delivery of total pharmaceutical care to the citizens of his/her community.

- **Aventis Pharmaceuticals Award for Excellence in Medicinal Chemistry**

A cash award and a plaque are presented to a student for excellence in Medicinal Chemistry.

- **Award of Excellence in Non-Prescription Medication Studies**

An award presented to a graduating senior for his/her academic excellence in the area of non-prescription medication studies.

- **Buice Drug Endowed Scholarship**

The Buice Drug Store/George Wimberly Endowed Scholarship in Pharmacy was established through the gift of the Hon. George Wimberly honoring his partner, the late Mr. James Worley Buice, whose name remains on Mr. Wimberly's drug store on Markham street in Little Rock. The scholarship is awarded to a student based on need and academic achievement.

- **Cardinal Healthcare Nuclear Pharmacy Award**

An award by Cardinal Healthcare to a student interested in a career in Nuclear Pharmacy. The award is based on leadership, achievement, and interest in Nuclear Pharmacy.

- **Cardinal Healthcare Outstanding Senior Student in Nuclear Pharmacy Award**

This award recognizes the achievements of a senior student in the Nuclear Pharmacy elective courses as selected by the Nuclear Pharmacy faculty.

- **Class of 1952 Endowed Scholarship**

A scholarship endowed by members of the Class of 1952, the first graduating class from the College of Pharmacy.

- **College of Pharmacy Scholarship**

Funding provided by the 2005-06 Arkansas Legislature made scholarships possible for pharmacy students. Students submit application and essay for consideration.

- **Covidien Nuclear Pharmacy Scholarship**

An award presented to a student with an interest in nuclear pharmacy.

- **CVS/Caremark Scholarship**

An award presented to a student in good academic standing who desires to enter community pharmacy practice.

- **Deepa Patel Memorial Scholarship**

A scholarship honoring the memory of Deepa Patel is awarded by the Northeast Arkansas Clinic Charitable Foundation to a pharmacy student from northeast Arkansas.

- **Emmanuel Scholarship**

This award has been endowed by generous gifts from pharmacists engaged in community and compounding practices. The Emmanuel Scholarship benefits students who wish to pursue careers with similar interests.

- **Excellence in Pharmacy Informatics Award**

This award recognizes a student for creative efforts in the use of computer technologies for the enrichment of the profession of pharmacy.

- **Facts and Comparisons Award of Excellence in Clinical Communications**

The Facts and Comparisons Award of Excellence in Clinical Communications consists of a complete library of Facts and Comparisons publications and a set of marble bookends. The award is presented to a graduating senior who is in the top 25 percent of his/her class and has demonstrated superior verbal and written clinical communication skills.

- **Faculty Gold Key Award**

A specially designed, engraved lapel pin is awarded to the member of the graduating class who has the highest scholastic record during four years of enrollment in the College of Pharmacy.

- **GlaxoSmithKline Patient Care Award**

This award is presented to a graduating senior for superior achievement in clinical pharmacy. The award consists of two plaques - one to the recipient, and the second for permanent exhibit at the College of Pharmacy to which each recipient's name will be added.

- **Harps Foods Pharmacy Scholarship**

A scholarship award presented to a student exhibiting traits of character and leadership and a desire to enter community pharmacy practice.

- **Harvest Foods Pharmacy Scholarship**

A scholarship award presented to a student exhibiting traits of character and leadership and a desire to enter community pharmacy practice.

- JC Baker and Family Endowed Scholarship in Pharmacy

This scholarship was established by the Baker Family of Arkansas to honor the members of their family who are well-known for their significant and ongoing contributions to the practice of pharmacy in the state. The student recipient is selected on the basis of interest in community practice, academic achievement and leadership ability. The Baker Pharmacies have made it possible to endow this scholarship.

- Jack McCormack Endowed Scholarship

A scholarship endowed to honor the memory of Jack R. McCormack, Ph.D., professor at the UAMS College of Pharmacy who was committed to educating students to be caring and competent community pharmacists. This scholarship is awarded to a third year student with an interest in community pharmacy.

- John Swaim Endowed Scholarship

A scholarship established to honor the memory of John Swaim, a 1989 graduate of the College of Pharmacy. His friends, classmates and co-workers at Baptist Hospital pharmacy endowed this scholarship in his memory. The scholarship is presented to a third year student.

- Jordin Scholar Program

Eligibility for the prestigious Jordin Scholar Program is based on academic achievement, leadership and dedication to the profession. Donations by the alumni of this College make this program possible, honoring Dr. Marcus Jordin for 35 years of meritorious service to the College and the profession of pharmacy.

- Kappa Psi Endowed Scholarship

A scholarship presented by the Gamma Omega chapter to a member of the fraternity who has demonstrated leadership within both the College of Pharmacy and the profession, involvement in College of Pharmacy organizations and leadership and innovative activity within Kappa Psi.

- Karrol and Vicki Fowlkes Excellence in Community Pharmacy Endowed Scholarship

This scholarship was established by Drs. Karrol and Vicki Fowlkes to foster an interest in community pharmacy and to support independent pharmacy ownership. Third year students are eligible for this scholarship based on letters of recommendation from preceptors and a student essay detailing future goals for community practice.

- Kroger Pharmacy Scholarship

An award presented to a deserving third year student with an interest in community pharmacy.

- Leonard Kremers Endowed Scholarship

A scholarship established to honor the memory of Leonard Kremers, a 1969 graduate of the College of Pharmacy. Following his death in 1991, family and friends established and endowed this scholarship. This scholarship is awarded to a student who will contribute to the profession with the same zeal and compassion that Leonard Kremers exhibited in his life.

- Lester E. Hosto Endowed Scholarship

This scholarship honors the memory of Dr. Lester E. Hosto. The student recipient is selected on the basis of interest in community practice, academic achievement and leadership ability. Colleagues and friends throughout the United States have made it possible to endow this scholarship.

- LD Milne Endowed Scholarship

A scholarship established by friends of the College to honor Dr. L. D. Milne, Dean of the College of Pharmacy from 1977 to 2003.

- Lilly Achievement Award

The Lilly Achievement Award is a gold medal presented to a graduating senior for superior scholastic and professional achievement. Leadership qualities, as well as professional attitude, will be considered along with academic performance in the selection of the individual for this honor.

- Lloyd R. Thompson Endowed Scholarship

This scholarship honors the memory of Dr. Lloyd R. Thompson, a faculty member for many years at the College of Pharmacy. The student recipient is selected on the basis of interest in community practice, academic achievement and leadership abilities.

- Merck Award

Copies of the Merck Manual and the Merck Index are awarded to a graduating senior demonstrating personality, initiative, and superior attitude as a practitioner in the profession of pharmacy.

- Mylan Pharmaceuticals Excellence in Pharmacy Award

This award is given to a graduating senior who must be in the top 25% of the graduating class. The recipient shall have demonstrated high professional motivation and superior proficiency in the provision of drug information.

- National Association of Chain Drug Stores Education Foundation Pharmacy Alliance Scholarship

A scholarship presented to a third year pharmacy student demonstrating an interest in community pharmacy.

- Natural Medicines Comprehensive Database Recognition Award

A certificate and new edition of Natural Medicines Comprehensive Database are presented to a graduating student who has demonstrated promise in improving patient care and shows an appreciation for scientific inquiry and an evidence-based approach to evaluating natural medicines.

- A. Nelson Voldeng Pharmacy Student Research Fellowship

The fellowship is a stipend awarded to a first, second, or third year student to support his/her research in medicinal chemistry, pharmaceuticals, or pharmacology for 10 weeks during the summer. Selection is based on cumulative GPA for all pre-pharmacy coursework and the cumulative GPA in all coursework in Medicinal Chemistry, Pharmaceuticals, and Pharmacology up to, and including the semester immediately preceding the deadline for application, and letters of recommendation from College of Pharmacy faculty, and interviews.

- Student Summer Research Fellowship

A fellowship awarded to a first, second, or third year student to support his/her research in Pharmaceutical Sciences or the community, clinical or administrative areas of Pharmacy Practice. Selection is based on high scholastic achievement, letters of recommendation and a personal statement of interest.

- Pharmacist's Mutual Scholarship Award

This scholarship is presented to a second or third year student who desires to be a community practitioner and has shown excellence in community practice courses.

- National Pharmacists Association of Arkansas Endowed Scholarship

These scholarships are awarded annually to students from historically under-represented minority backgrounds who wish to pursue a career in pharmacy.

- Robert H. Manley and Robert N. Manley Endowed Scholarship

A scholarship awarded to a first year pharmacy student from Johnson, Pope or Franklin counties with significant diversity of background and an interest in community pharmacy.

- Roche Pharmacy Communications Award

An engraved plaque is presented to a graduating senior who exhibits excellent pharmacist/patient communication skills.

- TEVA Pharmaceuticals USA Student Award

A plaque is presented to an outstanding senior student who excelled in the study of pharmacy.

- USA Drug Pharmacy Student Scholarship

A scholarship presented by USA Drug to third year students with an interest in and experience working in a community pharmacy.

- Walgreens Pharmacy Student Scholarship

A scholarship presented to a third year student demonstrating outstanding leadership, communication skills, along with an interest in providing pharmaceutical care.

- Walgreens Pharmacy Student Diversity Scholarship

A scholarship recognizing a student who has made significant efforts towards raising awareness about cultural competency and diversity related matters impacting the pharmacy professions.

- Wal-Mart Pharmacy Student Scholarship

Wal-Mart Stores, Inc. provides this scholarship for a second or third year student with high scholastic standing, strong leadership qualities and showing a desire to enter community pharmacy practice.

- Wilma Knoll Endowed Geriatric Scholarship

This scholarship was established to honor the memory of Mrs. Wilma Knoll of Stuttgart, mother of long-time faculty member and graduate of the College of Pharmacy, Dr. Richard Knoll. This scholarship is awarded to a third year student with an interest in geriatrics and long-term care.

## **Faculty**

Marjan Boerma, B.S., M.S., (Wageningen University); Ph.D. (Leiden University); Assistant Professor of Pharmaceutical Sciences

\*Charles K. Born, B.S. (University of Arkansas for Medical Sciences); M.S., Ph.D. (Purdue University); Professor of Pharmaceutical Sciences

\*C. Allen Bradley, B.S. (University of Arkansas for Medical Sciences); M.S., Ph.D. (Purdue University); Professor Emeritus of Pharmaceutical Sciences

\*Philip J. Breen, B.S., Ph.D. (Massachusetts College of Pharmacy); Associate Professor of Pharmaceutical Sciences

Martha Carle, B.S.E., M.S.E. (University of Arkansas Fayetteville) M.P.H. (University of Arkansas for Medical Sciences); Instructor

\*Melanie Claborn, Pharm.D. (Southwestern Oklahoma State University); Assistant Professor of Pharmacy Practice

\*Cesar M. Compadre, B.S. (National University of Mexico); Ph.D., (University of Illinois); Professor of Pharmaceutical Sciences

\*Lois Coulter, Pharm.D. (University of Nebraska); Associate Professor of Pharmacy Practice

\*Marsha Crader, Pharm.D. (University of Louisiana Monroe); Assistant Professor of Pharmacy Practice

\*M.E. "Trey" Crumby, III Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

Li Cui, M.D. (Hubei Medical University), Ph.D. (Osaka University Medical School); Research Assistant Professor of Pharmaceutical Sciences, Division of Radiation Health

\*Doshia Cummins, B.S. (Millsaps College), Pharm.D. (University of Mississippi), Associate Professor of Pharmacy Practice

\*Dwight Davis, BS, Pharm.D. (University of Arkansas for Medical Sciences); Associate Professor of Pharmacy Practice

\*Renee M. DeHart, Pharm.D. (University of Florida); Associate Professor of Pharmacy Practice, Associate Dean for Administrative Affairs

\*Eddie B. Dunn, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Associate Professor of Pharmacy Practice

\*Mark Estes, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*E. Kim Fifer, B.S. (University of Arkansas for Medical Sciences); Ph.D. (University of Mississippi); Professor of Pharmaceutical Sciences

Schwanda Flowers, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice, Assistant Dean of Experiential Education

\*Howell R. Foster, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Associate Professor of Pharmacy Practice, Director of Poison Control Center

\*John Thomas Frank, B.S. (University of Arkansas for Medical Sciences); Pharm.D. (Medical University of South Carolina); Associate Professor of Pharmacy Practice

\*Sarah Frank, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*Amy Franks, Pharm.D. (University of Arkansas for Medical Sciences), Associate Professor of Pharmacy Practice

Qiang Fu, M.D. (Jiangxi Medical College) M.S., Ph.D. (Cellular Immunology Center); Research Assistant Professor of Pharmaceutical Sciences, Division of Radiation Health

\*John David Gannaway, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Associate Professor of Pharmacy Practice, Director of the Drug Information Center

\*Stephanie F. Gardner, B.S., Pharm.D. (University of North Carolina) Ed.D. (University of Arkansas Little Rock); Professor of Pharmacy Practice, Dean of the College of Pharmacy

\*Paul O. Gubbins, Pharm.D. (University of Illinois-Chicago); Professor of Pharmacy Practice, Chairman of the Department of Pharmacy Practice

\*Billy Joe Gurley, Jr., B.S. (Tennessee Technological University); B.S., Ph.D. (University of Tennessee); Professor of Pharmaceutical Sciences

\*Jan K. Hastings, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Associate Professor of Pharmacy Practice

\*Seth Heldenbrand, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

Mark E. Helm, B.B.A (University of Georgia), M.B.A. (Pennsylvania State University), M.D. (Mercer University School of Medicine); Part-time Assistant Professor of Pharmacy Practice, Medical Director of the Evidence-Based Prescription Drug Program

Howard Hendrickson, B.S. (University of Arkansas), M.S. (University of Kansas), Ph.D. (University of Arkansas); Assistant Professor of Pharmaceutical Sciences

\*Ed Hesterlee, B.S., Pharm.D. (University of Missouri, Kansas City); Part-time Assistant Professor of Pharmacy Practice

\*Nicki Hilliard, B.S. Pharm.D. (University of Arkansas for Medical Sciences); M.S. (University of Arkansas Little Rock); Professor of Pharmacy Practice

Martin Hauer-Jensen, M.D. (University of Oslo); Ph.D. (University of Oslo), FACS; Professor of Pharmaceutical Sciences, Associate Dean of Research & Head of the Division of Radiation Health

\*Jonell Hudson, B.S. (University of Arkansas); Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*Lisa Hutchison, B.S., Pharm.D. (University of Tennessee), M.P.H. (University of South Florida); Associate Professor of Pharmacy Practice

\*Jill T. Johnson, Pharm.D. (University of Arkansas for Medical Sciences); Associate Professor of Pharmacy Practice

\*Scott Kaufman, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*Billy J. Kerr, B.S., M.S., Pharm.D. (University of Arkansas for Medical Sciences); Professor Emeritus of Pharmacy Practice

Cherng-ju Kim, B. Eng (Korea University), M. Eng. (Manhattan College), Ph.D. (McMaster University); Professor of Pharmaceutical Sciences

\*K. Richard Knoll, B.A. (Hendrix College); B.S., Pharm.D. (University of Arkansas for Medical Sciences); M.S.(Butler University); Emeritus Professor of Pharmacy Practice

\*Dao Le, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

Chenghui Li, M.A., B.S. (St. Vincent College); M.A., Ph.D. (Indiana University); Assistant Professor of Pharmacy Practice, Division of Pharmaceutical Evaluation and Policy

Kim E. Light, B.S. (Indiana State University); M.S., Ph.D. (Indiana University); Professor of Pharmaceutical Sciences; OADAP Professor of Alcohol and Drug Abuse

Shi (Jesse) Liu, B.S. (Taiwan Normal University); Ph.D. (Duke University); Professor of Pharmaceutical Sciences

\*R. Lilia Lopez-Becerra, B.S., M.S. (National University of Mexico); Ph.D., (University of Illinois), Associate Professor of Pharmaceutical Sciences

\* Holly D. Maples, Pharm.D. (Ohio Northern University), Assistant Professor of Pharmacy Practice

\*Bradley C. Martin, Pharm.D. (University of Illinois); Ph.D. (University of Georgia); Professor of Pharmacy Practice, Head of the Division of Pharmaceutical Evaluation and Policy

\* Keith McCain, Pharm.D. (University of Arkansas for Medical Sciences), Assistant Professor of Pharmacy Practice

\*James R. McCowan, B.S., M.S., (University of Colorado); Ph.D. (University of Florida); Professor Emeritus of Pharmaceutical Sciences

\*Russell B. Melchert, B.S., Ph.D. (University of Oklahoma), Professor of Pharmaceutical Sciences, Chairman of the Department of Pharmaceutical Sciences

\*Larry D. Milne, B.S. (University of Kansas); Ph.D. (University of Iowa), Professor of Pharmaceutical Science and Vice-Chancellor

\*Dennis Moore, B.S. (University of Arkansas for Medical Sciences); Pharm.D., (University of Tennessee); Associate Professor of Pharmacy Practice,

\*Walter J. Morrison, B.S. (University of Arkansas for Medical Sciences); M.S. Ph.D., (Purdue University); Professor Emeritus of Pharmacy Administration

\*Kendrea Muldrew, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*Sherry Myatt, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*Kathryn Neill, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

Grazyna Nowak, M.S., (University of Poznan); Ph.D. (Jagiellonian University); Associate Professor of Pharmaceutical Sciences

\*Catherine O'Brien, B.S. (University of Arkansas at Little Rock ); Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*Anne Pace, Pharm.D. (Drake University); Assistant Professor of Pharmacy Practice

\*Nalin Payakachat, B.S. (Khon Kaen University School of Pharmacy) M.Sc. (Mahidol University School of Pharmacy) Ph.D. (Purdue University); Assistant Professor of Pharmacy Practice, Division of Pharmaceutical Evaluation and Policy

\*M. Darren O'Quinn, B.S. (University of Arkansas for Medical Sciences); J.D. (University of Arkansas at Little Rock); Part-time Assistant Professor of Pharmacy Practice

Kathy M. Orear, B.A. (California State University-Sacramento); Assistant Instructor, Registrar

Snehalata Pawar, B.S. (University of Bombay); M.Sc. (Maharaja Sayajirao University); Ph.D. (University of Pune); Instructor of Pharmaceutical Sciences Division of Radiation Health

Dwight Pierce, B.S. (Iowa State University); Ph.D. (University of Iowa); Associate Professor of Pharmaceutical Sciences

\*Elvin Price, Pharm.D. (University of Florida A&M); Ph.D. (University of Florida), Assistant Professor of Pharmaceutical Sciences

\*Gene D. Pynes, B.A. (Hendrix College); B.S., M.S., Pharm.D., Ph.D. (University of Arkansas for Medical Sciences); Emeritus Professor of Pharmaceutical Sciences

\*Denise Ragland, Pharm.D. (University of Arkansas for Medical Sciences); Associate Professor of Pharmacy Practice

\*Melanie Reinhardt, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

Qayyim Said, M.A. (University of Essex); Ph.D. (University of Utah); Assistant Professor of Pharmacy Practice, Division of Pharmaceutical Evaluation and Policy

\*Eric Schneider, B.S. (St. Louis College of Pharmacy); Pharm.D. (Medical University of South Carolina); Associate Professor of Pharmacy Practice

\*Michael Shepherd, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

Henry Simmons, M.D. (University of Arkansas); Ph.D. (University of Arkansas); Associate Professor of Pharmaceutical Sciences, Medical Director Poison Center

\*Daniel C. Spadaro, B.S. (Ohio State University); Pharm.D. (Medical University of South Carolina); Associate Professor of Pharmacy Practice

\*Ashley Stinnett, B.S. (University of Arkansas at Fayetteville), Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*Cindy D. Stowe, B.S., Pharm.D., (University of Kentucky); Professor of Pharmacy Practice, Associate Dean for Professional Education

\*Jeremy Thomas, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*Fred L. Underwood, B.S., Ph.D. (University of Georgia); Pharm.D., (University of Arkansas for Medical Sciences); Professor Emeritus of Pharmaceutical Sciences

\*Ross E. Vanderbush, B.S. (University of South Dakota); Pharm.D. (University of Tennessee); Part-time Associate Professor of Pharmacy Practice, Division of Pharmaceutical Evaluation and Policy

\*Eli Vinson, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

\*John A. Vinson, Pharm.D. (University of Arkansas for Medical Sciences); Assistant Professor of Pharmacy Practice

Junru Wang, M.D. (Third Medical University, SW Hospital), Ph.D. (Beijing Institute for Cancer Research); Research Assistant Professor of Pharmaceutical Sciences, Division of Radiation Health

\*T. Scott Warmack, Pharm.D. (University of Arkansas for Medical Sciences); Associate Professor of Pharmacy Practice

\*Jonathan J. Wolfe, B.A. (Hendrix College); B.S. (University of Arkansas for Medical Sciences); M.A., Ph.D. (University of Virginia); Professor of Pharmacy Practice, Associate Dean for Development

### **Clinical Faculty**

\*Chris Allbritton, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Rahemat Naseem Amarshi, Pharm.D. (University of Tennessee); Clinical Assistant Professor of Pharmacy Practice

\*Christi Amerson, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Eddy Arnold, B.S. (University of Arkansas for Medical Sciences); Clinical Instructor of Pharmacy Practice

\*Madina Barkat, Pharm.D. (University of Louisiana Monroe); Clinical Instructor of Pharmacy Practice

\*Donna Baxter, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Simone Bellamy, Pharm.D. (University of Louisiana Monroe); Clinical Assistant Professor of Pharmacy Practice

\*Justin Boyd, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Zhiva Brown, B.S., B.A. (University of Arkansas at Little Rock); Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Deborah Caldwell, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Willie Capers, Pharm.D. (Texas Southern University); M.B.A., (Arkansas State University); Clinical Assistant Professor of Pharmacy Practice

\*Nikiah Carver, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Michael Chandler, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Jennifer Cole, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Marcus Costner, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Lori Crawford, Pharm.D. (Xavier University); Clinical Instructor of Pharmacy Practice

\*Eric Crumbaugh, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Andrea Donaldson, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Ashley Earley, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Instructor of Pharmacy Practice

\*Amanda Ferstl, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Larry Franklin, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Rebecca Franklin, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Angela Gordon, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Rockridge Hannah, B.S. (University of Arkansas for Medical Sciences); Pharm.D. (University of Kentucky); Clinical Assistant Professor of Pharmacy Practice

\*Jason Hawkins, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*John Hawley, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Erin Beth Hays, B.S. (University of Central Arkansas); Pharm.D. (University of Arkansas for Medical Sciences); Clinical Instructor of Pharmacy Practice

\*Shannon Hays, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Vanessa Hill, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Tamara Hughes, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Brian Jolly, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Ashley Jones, Pharm.D. (University of Louisiana, Monroe); Clinical Assistant Professor of Pharmacy Practice

\*Karen B. King, B.S. (University of Arkansas for Medical Sciences); Pharm.D. (Medical University of South Carolina); Clinical Assistant Professor of Pharmacy Practice

\*Tabitha King, B.S., (University of Arkansas at Little Rock); Pharm.D. (University of Tennessee Health Science Center); Clinical Assistant Professor of Pharmacy Practice

\*Sonda Lloyd, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Starr McLain, Pharm.D. (Samford University); Clinical Instructor of Pharmacy Practice

\*Michael Malone, Pharm.D. (University of Kentucky); Clinical Assistant Professor of Pharmacy Practice

\*Maggie Miller, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Christina Minden, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Leslie Mooney, B.S. (University of Arkansas); Pharm.D. (University of Arkansas for Medical Sciences); Clinical Instructor of Pharmacy Practice

\*Tracy Mosby, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Tuyet Ngo, Pharm.D. (Xavier University); Clinical Instructor of Pharmacy Practice

\*Lynn Nguyen, Pharm.D. (University of Louisiana, Monroe); Clinical Assistant Professor of Pharmacy Practice

\*Adam Pate, Pharm.D. (University of Mississippi); Clinical Instructor of Pharmacy Practice

\*Kristen Pate, Pharm.D. (University of Mississippi); Clinical Instructor of Pharmacy Practice

\*Jen Perry, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Instructor of Pharmacy Practice

\*Melanie Pilcher, Pharm.D. (University of the Pacific); Clinical Assistant Professor of Pharmacy Practice

\*Sabrena Polston, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Angela Powell, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Lisa Rawlings, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Bill Reeves, B.S., (University of Louisiana, Monroe) Clinical Instructor of Pharmacy Practice

\*Rob Richardson, B.A., B.S., M.S., Pharm.D. (University of Arkansas for Medical Sciences) Clinical Assistant Professor of Pharmacy Practice

\*Holly Rickman, B.S. Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Jennifer Roberts, B.S. (University of Arkansas for Medical Sciences) M.S. (University of Houston); Clinical Assistant Professor of Pharmacy Practice

\*Kevin Robertson, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Tonya Robertson, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Melissa Santiago, B.S. Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Lanita Shaverd, Pharm.D. (Xavier University); Clinical Assistant Professor of Pharmacy Practice

\*Maria Shin, Pharm.D. (Rutgers University); Clinical Instructor of Pharmacy Practice

\*Jim Smith, B.S. Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Ashley J. Stubblefield, B.S., Pharm.D. (University of Mississippi); Clinical Instructor of Pharmacy Practice

\*Kelly Thomas, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Lindsey Turnbow, B.S. (University of the Ozarks); Pharm.D. (University of Arkansas for Medical Sciences); Clinical Instructor of Pharmacy Practice

\*Sharon Vire, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Emily Wallis, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Kimberly Watson, Pharm.D. (University of Arkansas for Medical Sciences); Clinical Assistant Professor of Pharmacy Practice

\*Jennifer West, Pharm.D. (University of Tennessee Health Sciences Center); Clinical Instructor of Pharmacy Practice

\*Alisa Whitmore, Pharm.D. (University of California San Francisco); Clinical Assistant Professor of Pharmacy Practice

### **Adjunct Faculty**

Joe Baker, B.A. M.B.A. (University of Central Arkansas); Adjunct Assistant Professor of Pharmacy Practice

Max Baker, B.A. (Arkansas College), M.S. (University of Arkansas for Medical Sciences), Ph.D. (University of Texas); Adjunct Instructor of Pharmacy Practice

\*Charles S. Campbell, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Adjunct Professor of Pharmacy Practice

Mani V. Chidambaram, M.S., Ph.D. (University of Baroda, India) Adjunct Assistant Professor of Pharmaceutical Sciences

Jerry A. Darsey, B.S., Ph.D. (Louisiana State University); Adjunct Associate Professor of Pharmaceutical Sciences

\*Shane David, B.S., (Arkansas State University); Pharm.D., (University of Arkansas for Medical Sciences); Adjunct Assistant Professor of Pharmacy Practice

Antone C. El Khoury M.S., Ph.D. (Oklahoma State University); Adjunct Assistant Professor of Pharmacy Practice, Division of Pharmaceutical Evaluation and Policy

\*William Freeman, B.S. (University of Arkansas for Medical Sciences); Adjunct Assistant Professor of Pharmacy Practice

\*H.C. "Trey" Gardner III, Pharm.D. (University of Arkansas for Medical Sciences); Adjunct Assistant Professor of Pharmacy Practice

\*Jane Gault, B.S., Pharm.D. (University of Arkansas for Medical Sciences); Adjunct Assistant Professor of Pharmacy Practice

\*Gene Graves, B.S. (University of Arkansas for Medical Sciences) M.A. (Columbia Pacific University); Adjunct Assistant Professor of Pharmacy Practice

Rahul Ganguly, B.Pharm., M.Pharm. (Birla Institute of Technology); Ph.D. (University of Georgia); Adjunct Assistant Professor of Pharmacy Practice, Division of Pharmaceutical Evaluation and Policy

\*Jerry Jones, B.S.,(University of Arkansas for Medical Sciences); Adjunct Instructor of Pharmacy Practice

Jackson O. Lay, Jr. B.S. Ph.D. (University of Nebraska); Adjunct Assistant Professor of Pharmaceutical Sciences

\*James Myatt, B.S., (Southwest Oklahoma State University); Adjunct Instructor of Pharmacy Practice

\*Marita Nazarian, B.S., M.S. (University of North Carolina Chapel Hill); Adjunct Assistant Professor of Pharmacy Practice

Anna Radomska-Pandya, M.S. (University of Warsaw), Ph.D. (Polish Academy of Sciences); Adjunct Professor of Pharmaceutical Sciences

\*Mike Parr, Pharm.D. (University of Nebraska); Adjunct Associate Professor of Pharmacy Practice

Martin D. Perry, B.S. (Arkansas Tech University) Ph.D. (Oklahoma State University); Adjunct Assistant Professor of Pharmaceutical Sciences

Weida Tong, B.S. Ph.D. (Fudan University); Adjunct Assistant Professor of Pharmaceutical Sciences

Ronald H. Winters, B.A. (San Fernando Valley State College); Ph.D. (Oregon State University); Adjunct Professor of Pharmaceutical Science

## Preceptors

The pharmacists listed below have been named as clinical preceptors for the 2009-2010 year in the Department of Pharmacy Practice. Each of these individuals has assumed the role of a professional role model for pharmacy students. The experiential education component of the pharmacy curriculum is essential to the education and training of all pharmacists. The College of Pharmacy gratefully acknowledges the voluntary contribution of personal time and expertise that is made by these preceptors.

(All experiential sites are in Little Rock or North Little Rock unless indicated otherwise.)

Rick Acosta, Pharm.D.; Walgreens #5260 (Fort Smith, AR)  
Kimberly Albright, P.D.; Kroger #0540 (Maumelle, AR)  
Jane Alexander, P.D.; Miller's Pharmacy (Harrison, AR)  
Sam Alexander, P.D.; Sam Alexander Pharmacy (Harrison, AR)

Nita Allison, Pharm.D.; Wal-Mart #10-0070 (West Memphis, AR)

Nick Alsbrook, Pharm.D.; Cardinal Health #130 (Jonesboro, AR)

Alice Arnold, P.D.; DeQueen Medical Center (DeQueen, AR)

Bubba Arnold, Pharm.D.; St. Vincent Infirmiry Medical Center

Lynn Arnold, Pharm.D.; Walmart #7 (Sherwood, AR)

Latona Austin, Pharm.D.; IHS (Pine Ridge, SD)

Jonathan Bailey, Pharm.D.; USA Drug #11 (Newport, AR)

James Baker, Pharm.D.; Sav-On Drugs (Conway, AR)

Michael Baker, P.D.; Baker Pharmacy (Marshall, AR)

Joseph Baltz, P.D.; Wal-Mart Pharmacy #10-0071 (Pocahontas, AR)

David Banks; M.D. – FDA (Bethesda, MA)

Vince A (Tony) Bari, P.D.; Woodsprings Pharmacy (Jonesboro, AR)

Roger Barker, Pharm.D.; United Medical Home Infusion (Fayetteville, AR)

John Barksdale, Pharm.D.; USA Drug Bryant (Bryant, AR)

Kelly Barlow, Pharm.D.; Pharmacy Express (Van Buren, AR)

James Barr, Pharm.D.; Target #2204 (Bryant, AR)

Wendy Barr, Pharm.D.; Wal-Mart (Mountain Home, AR)

Gary Bass, Pharm.D.; City Pharmacy

Eddie Beard, P.D.; Beard Drug (Star City, AR)

Bart Beggs, Pharm.D.; USA Drug #8022 (Danville, AR)

Sally Bentley, P.D.; Kroger #0615

Marion Berry, Pharm.D.; Wal-Mart (Conway, AR)

Mike Bess, P.D.; Fred's #1291 (Conway, AR)

James Bethea, Pharm.D.; Coker Hampton Drug Co. (Stuttgart, AR)

Jennifer Beyhan, P.D.; Safeway #2004 (Farmington, NM)

David Bintliff, P.D.; Clinton HealthMart (Clinton, AR)

Justin Bintliff, Pharm.D.; Clinton Drug (Clinton, AR)

Tommy Black, P.D.; Tommy's Rexall (DeWitt, AR)

Judith Blalock, Pharm.D.; North Caddo Medical Center (Vivian, LA)

Andy Blansett, P.D.; Medicine Shoppe

Bill Bloodworth, P.D.; Park West Pharmacy

Gene Boeckmann, P.D.; Wynne Apothecary (Wynne, AR)

Ashley Boes, Pharm.D.; Sam's Club  
 Natalie Bohannon, Pharm.D.; North Little Rock Baptist  
 William Bond, P.D.; Super D #0039 (West Memphis, AR)  
 Katy Bostic, Pharm.D.; Brookshire's (Camden, AR)  
 Kriston Bottrell, P.D.; Baxter Regional Medical Center  
 (Mountain Home, AR)  
 David Boudreaux, P.D.; Red River Pharmacy (Texarkana,  
 TX)  
 Suzette Bridges, P.D.; DHS (Medicaid)  
 Dennis Brooks, Pharm.D.; White River Medical Center  
 (Batesville, AR)  
 Aaron Brown, Pharm.D.; Don's Pharmacy  
 Debra Brown, Pharm.D.; Summit Medical Center (Van  
 Buren, AR)  
 Jamie Brown, Pharm. D.; Ouachita County Medical Center  
 (Camden, AR)  
 Michael Brown, P.D.; Collier Drug (Pea Ridge, AR)  
 Mike Broyles, P.D.; Five Rivers Medical Center  
 (Pocahontas, AR)  
 Stacy Bryan, P.D.; Fred's Pharmacy #2326 (Mountain  
 Home, AR)  
 Yolanda Bryan, P.D.; Wal-Mart Pharmacy #10-0083  
 (Magnolia, AR)  
 Cheryl Bryant, Pharm.D.; Walgreens District Office  
 Steve Bryant, Pharm.D.; Bryant Pharmacy and Health Care  
 Center (Batesville, AR)  
 E.P. Buerkle, Jr. P.D.; Buerkle Drugs (Stuttgart, AR)  
 Stephen Burch, P.D.; Wal-Mart #10-2744 (Fort Smith, AR)  
 Lisa Burgess, P.D.; USA Drug #1044  
 Ralph Burns, P.D.; Fred's Pharmacy #2596 (Pea Ridge, AR)  
 Alison Burroff, P.D.; Medical Center of South Arkansas (El  
 Dorado, AR)  
 Cheryl Bush, Pharm.D.; Medicine Shoppe #1324 (Cabot,  
 AR)  
 Michael Bush, P.D.; PETNet (Dallas, TX)  
 Gary Butler, P.D.; Village Health Mart Drug (Hot Springs  
 Village, AR)  
 Scott Butterfield, P.D.; Walgreens (El Dorado, AR)  
 Alan Byrd, P.D.; Walmart #10-279 (De Queen, AR)  
 Larry Byrd, P.D.; Super D Drug #1022 (Pine Bluff, AR)  
 Kevin Caldwell, Pharm.D.; Wal-Mart (Mountain View, AR)  
 Max Caldwell, P.D.; Caldwell Discount Drug Co. (Wynne,  
 AR)  
 Sara Caldwell, R.Ph.; IHS (Pine Ridge, SD)  
 Angela Calhoon, P.D.; Albertsons LLC 4111 (Texarkana,  
 AR)  
 Lance Calhoon, P.D.; Wadley Regional Hospital  
 (Texarkana, TX)  
 Donna Camp, P.D.; Camp Medical Pharmacy (Jonesboro,  
 AR)  
 Krissy Canada, Pharm.D.; Walgreens Pharmacy #6765  
 (Jonesboro, AR)  
 William Canada, P.D.; Meador Pharmacy (Dumas, AR)  
 Marty Cannon, Pharm.D.; Wal-Mart Pharmacy #10-0281  
 (Heber Springs, AR)  
 Stanley Carmack Pharm.D.; Arkansas Methodist Medical  
 Center (Paragould, AR)  
 Paige Carman, Pharm.D.; Kroger Pharmacy #0642  
 Bill Carpenter, P.D.; Big World Drug #2 (Booneville, AR)

Chris Chamberlain, Pharm.D.; Home IV Specialists  
 (Jonesboro, AR)  
 Alton Chambless, P.D.; Economy Drug (DeWitt, AR)  
 Matt Champ, P.D.; Cardinal Health #007 (Virginia Beach,  
 VA)  
 Scott Chance, P.D.; Eastern Isotopes (Romeoville, IL)  
 Kailey Chatelain, Pharm.D.; Target #2204 (Bryant, AR)  
 Stan Chester, P.D.; Smith-Caldwell Drug (Benton, AR)  
 Christy Childers-Campbell, P.D.; Lowery Drug Mart #2  
 (Searcy, AR)  
 Rob Christian, Pharm.D.; Baptist Health Medical Center  
 Pat Chitmon, P.D.; Pat's Super V Drugstore, Inc.  
 (Jonesboro, AR)  
 Alan Clary, P.D.; Collom and Carney Pharmacy  
 (Texarkana, TX)  
 Dawn Clontz, Pharm.D.; Dale's Pharmacy (Pine Bluff, AR)  
 Rob Cockerill, P.D.; Fred's Pharmacy #1046 (Arkadelphia,  
 AR)  
 Carl Collier, P.D.; Collier Drug – Dickson (Fayetteville,  
 AR)  
 Sheila Collins, P.D.; Fred's Pharmacy #3696 (Malvern, AR)  
 Jim Cook, P.D.; United Medical (Home Care)  
 Kyle Cook, P.D.; Highland's Oncology Group Pharmacy  
 (Fayetteville, AR)  
 Brandon Cooper, Pharm.D.; Soo's Drug & Compounding  
 Center (Jonesboro, AR)  
 Van Cooper, P.D.; Super D Drug #0045; (Forrest City, AR)  
 Chad Corbin, Pharm.D.; Wal-Mart Pharmacy #10-0359  
 (Fayetteville, AR)  
 Dave Cornwell, P.D.; PETNet Pharmaceuticals  
 Brian Cox, P.D.; GE Healthcare (Culver City, CA)  
 Karen Cree, Pharm.D.; Clinic Health-Care Pharmacy  
 (Morrilton, AR)  
 Stan Crisler, Pharm.D.; Wal-Mart #10-36 (Paragould, AR)  
 Tamara Criswell, P.D.; Sparks Regional Medical Center  
 (Fort Smith, AR)  
 Mike Cronin, Pharm.D.; GE Healthcare (Melbourne, FL)  
 Carrie Crotts Hampton, Pharm.D.; St. Edward Mercy MC  
 (Fort Smith, AR)  
 Luke Cullins, P.D.; Kananak Hospital BBAHC  
 (Dillingham, AK)  
 Charles Culpepper, P.D.; Kroger (Hot Springs, AR)  
 Ken Culpepper, P.D.; USA Drug #1017 (Benton, AR)  
 Kelly Curd, Pharm.D.; Clark Drug Store (Bald Knob, AR)  
 Scott Curd, Pharm.D.; Health-Way Pharmacy (Judsonia,  
 AR)  
 Will Cyphers, P.D.; Garden Oaks Pharmacy (Camden, AR)  
 Andy Dallas, Pharm.D.; Tanglewood Drug  
 Barry Dallas, P.D.; Fred's Pharmacy #1291 (Conway, AR)  
 Jimmy Darling, P.D.; Darling Medi-Sav Pharmacy  
 (Newport, AR)  
 Terri Dart, Pharm.D. Harp's Pharmacy (Fort Smith, AR)  
 Larry Davis, P.D.; Collier Drug-Dickson (Fayetteville, AR)  
 Marsh Davis, Pharm.D.; Davis Drug Store (Hardy, AR)  
 Mary Davis, Pharm.D.; Norman and Baker Pharmacy  
 (Newport, AR)  
 Steven Davis, Pharm.D.; Medic Sav On Drug (Searcy, AR)  
 Ken Day, P.D.; Infectious Disease of NW Arkansas  
 (Fayetteville, AR)  
 Amanda Decker, Pharm.D.; Branson Drug (Branson, MO)

Shari Dees, P.D.; Magnolia City Hospital (Magnolia, AR)  
James DeFreece, Pharm.D.; Siloam Springs Memorial Hospital (Siloam Springs, AR)  
Kelly Dickey, Pharm.D.; AllCare- Pharmacy Care of Arkansas (Arkadelphia, AR)  
Jason Dobbs, Pharm.D.; CAVHS – LR  
Alan Dodd, P.D.; American Home Patient Infusion (Fort Smith, AR)  
Yolanda Dreher, Pharm.D., J.D.; Walgreens Pharmacy #3413  
Drew Driskell, P.D.; Cardinal Health (Nuclear) (Austin, TX)  
Chris Duffy, P.D.; Wal-Mart Corporate Office (Bentonville, AR)  
Larry Dunn, P.D.; Larry's Rexall (El Dorado, AR)  
Marsha Duvall, P.D.; Wal-Mart Pharmacy #10-5458 (Russellville, AR)  
Danny Eaker, P.D.; Baker Rexall Drug  
Gil Eaton, P.D.; Wal-Mart Pharmacy #10-2203 (Bentonville, AR)  
George Edwards, P.D.; City Pharmacy (Pocahontas, AR)  
Larry Emory, P.D.; Wal-Mart Pharmacy #10-0169 (Lonoke, AR)  
Garry Enderlin, P.D.; Arkansas Children's Hospital  
Bob Erstine, P.D.; Drew County Memorial Hospital (Monticello, AR)  
Tina Erwin, P.D.; Target Pharmacy (Conway, AR)  
John Eubanks, P.D.; Wal-Mart Pharmacy #10-0016 (Van Buren, AR)  
Calvin Euler, P.D.; Arkansas Heart Hospital  
Rob Evans, Pharm.D.; People's Pharmacy (Murfreesboro, AR)  
Phil Fagala, Pharm.D.; Kroger Pharmacy #0636  
Chad Fellers, Pharm.D.; NMHCRx (Little Rock, AR)  
Jeff Fenwick, P.D.; National Pharmacy (Fort Smith, AR)  
Shanda Ferguson, Pharm.D.; Little Rock Baptist Health Extended Care (Little Rock, AR)  
Janet Fifer, Pharm.D.; PharMerica North  
Dawn Fincher, Pharm.D.; USA Drug  
Tim Finley, Pharm.D.; West Side Pharmacy (Benton, AR)  
Tammy Foster, Pharm.D.; Kroger Pharmacy #0644  
Lyn Fruchey, Pharm.D.; Freiderica Pharmacy  
Traci Gale, P.D.; Indian Health Service (Sitka, AK)  
Sheri Gardner, Pharm.D.; Park West Pharmacy  
Gary Garner, P.D.; Medicine Shoppe (Mena, AR)  
Carol Garnett, P.D.; Wal-Mart Pharmacy #10-0024 (Jacksonville, AR)  
Cynthia Garris, Pharm.D.; St. Bernard's Regional Medical Center (Jonesboro, AR)  
John Garton, P.D.; Medicine Shoppe #1397 (Batesville, AR)  
Dadrion Gaston, P.D.; Wal-Mart Corporate Office (Bentonville, AR)  
Anthony Gentry, P.D.; Wal-Mart Pharmacy #10-1065 (Hope, AR)  
Amy Gibbons, Pharm.D.; Anderson's Discount Pharmacy (Fort Smith, AR)  
Kenneth Gibson, P.D.; Gibson's Pharmacy (Jonesboro, AR)  
Robert Glander, Pharm.D.; St. Edward Mercy Medical Center (Fort Smith, AR)  
Eddie Glover, P.D.; College Pharmacy (Conway, AR)  
Stephanie Goodart-O'Neal, P.D.; Wynne Medical Pharmacy (Wynne, AR)  
Cathy Goodman, Pharm.D.; Wal-Mart Pharmacy #10-0235 (Corning, AR)  
Stuart Goudy, Pharm.D.; Kroger Pharmacy  
John Gray, P.D.; Wal-Mart Pharmacy #10-0714 (West Helena, AR)  
Steve Gray, Pharm.D.; IHS – (Fr. Thompson, SD)  
Donna Green, P.D.; Wal-Mart Pharmacy #10-0083 (Magnolia, AR)  
Shane Greene, Pharm.D.; East End Pharmacy  
Brandon Griffin, Pharm.D. Blue Cross/Blue Shield  
John Griffin, P.D.; Shannon Hills Pharmacy (Mabelvale, AR)  
Tim Grifford, P.D.; Wal-Mart Pharmacy #10-0085 (Benton, AR)  
Debora Hale, P.D.; USA Drug #1003  
Mike Hambuchen, P.D.; Vilonia Drug (Vilonia, AR)  
William Hamill, Pharm.D.; Lowery Drug Mart #1 (Searcy, AR)  
Rebecca Hancock, Pharm.D.; Walden Drug Inc. (Paragould, AR)  
Scott Hansen, Pharm.D.; Walgreens Pharmacy #5237 (Rogers, AR)  
Richard Hanry, P.D.; Medic Pharmacy of El Dorado (El Dorado, AR)  
Tony Hardage, Pharm.D.; Baptist MC (Arkadelphia, AR)  
Shan Hardage, Pharm.D.; National Park Medical Center (Hot Springs, AR)  
Shawn Hardesty, P.D.; North Carolina Nuclear Pharmacy (Greensboro, NC)  
William Hardoashe, P.D.; Collier Drug – Willow Creek (Johnson, AR)  
Stacy Hargrove, Pharm.D.; CAVHS NLR (North Little Rock, AR)  
Rob Harkness, P.D.; Medicine Shoppe #1085 (Atkins, AR)  
Richard Harmon, P.D.; Rose Drug (Dover, AR)  
Roger Harmon, P.D.; St. Bernard's Regional Medical Center (Jonesboro, AR)  
Harvene Harrell, P.D.; Super D Drug #1008 (Jonesboro, AR)  
Kelly Harrell, Pharm.D.; Cabot Medical Park (Cabot, AR)  
Fred Harris, P.D.; AllCare Institutional Pharmacy #5 (Arkadelphia, AR)  
Kenny Harrison, Pharm.D.; Cornerstone Pharmacy  
Aubrey Harton, Pharm.D.; Cornerstone Pharmacy at Chenal  
Ray Harvey, P.D.; Palace Drug Store - Des Arc (Des Arc, AR)  
Kimberly Haverstick, Pharm.D.; UAMS Hospital Pharmacy/ ACRC  
Zeta Hayes, R.Ph.; Cardinal Health (Nuclear) (New Orleans, LA)  
Bryan Hays, Pharm.D.; Haney's Pharmacy (Atkins, AR)  
Donald Hedden, P.D.; McCoy Tygart Drug, Inc. (Sheridan, AR)  
Danny Henderson, P.D.; Kroger Pharmacy #0617 (Russellville, AR)  
Ed Henley, P.D.; Bruce Drugs, Inc. (Smackover, AR)

Kathy Herriman, Pharm.D.; Harps Pharmacy (Fayetteville, AR)  
 Suzanne Hiland, Pharm.D.; Wal-Mart Pharmacy Division (Bentonville, AR)  
 Leon Hines, P.D.; Junction City Pharmacy (Junction City, AR)  
 Deborah Hobson, P.D.; City Drug (Mt. Ida, AR)  
 Robert Hodge, Pharm.D.; Prescription Shop (Paragold, AR)  
 Mike Hogan, Pharm.D.; Wal-Mart Pharmacy #54-125 (Fort Smith, AR)  
 Drew Holder, Pharm.D.; I Care of Arkansas, Inc.  
 Paul Holifield, Pharm.D.; Econo-Mart Pharmacy (Batesville, AR)  
 Nancy Holleman, Pharm.D.; Drug Emporium  
 Jeanie Horton, Pharm.D.; Marshall Medic Pharmacy (Marshall, AR)  
 Scott Hudek, R.Ph.; Covidien (Denver, CO)  
 Kevin Hughes, Pharm.D.; Cardinal Health  
 Shannon Hughes, P.D.; Fred's Pharmacy #2206  
 Casey Hydro, R.Ph.; Cardinal Health (Nuclear) (Ashville, NC)  
 Patricia Ingels, P.D.; Smith's Country Club Drug  
 Bob Irwin, P.D.; GE Healthcare (Cordova, TN)  
 James Isom, P.D.; Wal-Mart Pharmacy (Conway, AR)  
 Charles Jackson, P.D.; College Hill Drug (Texarkana, AR)  
 Cindy Jackson, Pharm.D.; Walgreens Pharmacy #7284 (Little Rock, AR)  
 Dennis Jackson, Pharm.D.; Walgreens Pharmacy #3425 (Hot Springs, AR)  
 Jeremy Jackson, Pharm.D.; Wal-Mart District Office (Paragould, AR)  
 Mandy Jackson, Pharm.D.; Walgreens Pharmacy #2774 (West Memphis, AR)  
 Matthew Jackson, P.D.; Delta Drug (Manila, AR)  
 Roger Jackson, P.D.; Wal-Mart #10-5383 NW Clinic (Bentonville, AR)  
 Beth James, Pharm.D.; Wal-Mart Pharmacy (Bryant, AR)  
 Bridget Johnson, Pharm.D.; Medicaid  
 Jim Johnson, Pharm.D.; Mercy Health System of NW AR (Rogers, AR)  
 Lisa Johnson, Pharm.D.; Walgreen's # 11345  
 Michelle Johnson, P.D.; Ozark Health (Clinton, AR)  
 Tommy Johnson, P.D.; Johnson Pharmacy (Quitman, AR)  
 Bernard Jones, P.D.; Harps Pharmacy #177 (Fayetteville, AR)  
 Mike Jones, P.D.; Ambulatory Care Pharmacy (Texarkana, TX)  
 Steve Jones, P.D.; Crittendon Memorial Hospital (West Memphis, AR)  
 Phillip Judd, P.D.; The Drug Store  
 Clinton Jumper, Pharm.D.; Forrest City Medical Center (Forrest City, AR)  
 Kyle Kadivi, R.Ph.; Cardinal Health (Nuclear) (Dallas, TX)  
 Lovleen Kandhan, Pharm.D.; CVS Pharmacy (New York, NY)  
 Phayboun Kattaviravong, Pharm.D.; Cardinal Health #130 (Jonesboro, AR)  
 Patrick Kauffman, P.D.; Medic Pharmacy of Bryant (Bryant, AR)  
 Byrum Kelly, P.D.; Prescription Shop (Hazen, AR)  
 James Kelley, P.D.; Kelley Drug & Selections (McGehee, AR)  
 Harold Kimball, P.D.; Cardinal Health #151 (Baton Rouge, LA)  
 Josh Kimbrow, Pharm.D.; Select Specialty Hospital (Fort Smith, AR)  
 John Kirtley, Pharm.D.; Arkansas State Board of Pharmacy  
 Timothy Koch, P.D.; Wal-Mart Corporate Office (Bentonville, AR)  
 Keith Koontz, R.Ph.; Cardinal Health (Nuclear) (Indianapolis, IN)  
 Mary Kremzner, P.D.; FDA Office of Special Health Issues (Rockville, MD)  
 C.A. Kuykendall, P.D.; Village Pharmacy (Ozark, AR)  
 Sherrie Lane, P.D.; Johnson Regional Medical Center (Clarksville, AR)  
 Keith Larkin, Pharm.D.; Medi-Sav Pharmacy #2 (Fort Smith, AR)  
 Cassie Lawson, Pharm.D.; Summit MC (Van Buren, AR)  
 Whitney Leder, Pharm.D.; Stuttgart Regional Hospital (Stuttgart, AR)  
 Warren Lee, Pharm.D.; Lee's Pharmacy (Fort Smith, AR)  
 Guy Lessenberry, P.D.; Economy Drug (Berryville, AR)  
 Westy Leslie, Pharm.D.; Kroger Pharmacy #0630  
 Gary Lewis, Pharm.D.; Holly's Healthmart (Prescott, AR)  
 Lise Liles, Pharm.D.; AllCare Pharmacy (Texarkana, AR)  
 Brian Litchford, Pharm.D.; HealthSouth Rehab Hospital (Fayetteville, AR)  
 Kass Lomax, Pharm.D.; Jonesboro Pharmacy Solutions, Inc. (Jonesboro, AR)  
 Kenny Lomax, P.D.; Monette Discount Drug (Monette, AR)  
 Jacklyn Lopez, R.Ph.; NCPA (Washington, DC)  
 Mary Ann Lourien, Pharm.D.; Kroger Pharmacy #0445 (Jonesboro, AR)  
 Doug Lowery, P.D.; Conway Regional Health Systems (Conway, AR)  
 Laura Lumsden, Pharm.D.; USA Drug #1005  
 Mike Luter, P.D.; Medicine Shoppe #1172 (Jacksonville, AR)  
 Debbie Mack, P.D.; Wal-Mart Corporate Office (Bentonville, AR)  
 Donald Mahan, Pharm.D.; AR Surgical Hospital North Little Rock  
 Mark Marak, Pharm.D.; Wal-Mart #10-2743 (Sherwood, AR)  
 Laura Martin, Pharm.D.; Family Pharmacy (Hope, AR)  
 Greg Martindale, Pharm.D.; Wal-Mart Pharmacy #10-0468 (Texarkana, AR)  
 Jennifer Mayo, P.D.; Wal-Mart Pharmacy #10-0359 (Fayetteville, AR)  
 Kathy Mayo, Pharm.D.; Fred's Pharmacy #1311 (Conway, AR)  
 Tiffany McCain, Pharm.D.; Advanced Care Hospital (Hot Springs, AR)  
 Sheree McConkey, Pharm.D.; AR Heart Hospital  
 Charles McCracken, P.D.; USA Drug #1026 (Harrison, AR)  
 Jeremy McDonald, P.D.; USA Drug #1001  
 Michael McFarlin, Pharm.D.; McFarlin's Pharmacy, Inc. (Monette, AR)  
 David McGaha, P.D.; USA Drug #0004 (Warren, AR)

Brian McGalliard, Pharm.D.; Allcare Family Pharmacy (Arkadelphia, AR)

David McKinney, P.D.; McKinney Drug (Springdale, AR)

Ramona McLean, Pharm.D.; Washington Regional Medical Center (Fayetteville, AR)

Kit McMahan, P.D.; National Park Medical Center (Hot Springs, AR)

Mark McMurray, P.D.; Arch St. Pharmacy

Blenda McVey, P.D.; Health Way Sav-On Drugs (Beebe, AR)

Connie Medsker, Pharm.D.; Medsker's Family Pharmacy (Carlisle, AR)

Mark Meeker, P.D.; USA Drug #8006 (Hot Springs, AR)

Joseph Michalls, Pharm.D.; Wadley Regional Medical Center (Texarkana, TX)

Angie Milam, P.D.; Wal-Mart Pharmacy #10-2203 (Bentonville, AR)

Kirk Milam, P.D.; Walmart Clinic Pharmacy (Rogers, AR)

Ken Miller, P.D.; Miller's Pharmacy (Magnolia, AR)

Kimberly Miller, Pharm.D.; St. Bernard's Regional Medical Center (Jonesboro, AR)

Rama Miller, P.D.; Wal-Mart Pharmacy #10-0007

Randy Miller, P.D.; Wal-Mart Pharmacy

Robert Mitchell, P.D.; Cardinal Health #057 (Denver, CO)

Debbie Montgomery, P.D.; Wal-Mart #10-5244

Clay Morris, Pharm.D.; Red River Pharmacy Services, Inc. (Texarkana, TX)

Phillip Moss, Pharm.D.; Fred's Pharmacy #2296 (Marion, AR)

Randy Mounts, R.Ph.; Howard Memorial Hospital (Nashville, AR)

Nancy Myers, Pharm.D.; USA Drug #0009 (Searcy, AR)

Kelly Namour, P.D.; Fred's Pharmacy #1806 (Heber Springs, AR)

Carrie Neundorfer, R.Ph.; Covidien (Houston, TX)

Bill Newton, P.D.; Newton Pharmacy (Russellville, AR)

Susan Newton, Pharm.D.; St. Mary's Regional Medical Center (Russellville, AR)

Amanda Nichols, P.D.; Walgreens Pharmacy #1952 (Jonesboro, AR)

Patricia Nicholson, P.D.; Wal-Mart Pharmacy (Monticello, AR)

Richard Nickel, P.D.; Covidien Corporate Office (Hazelwood, MO)

Harold Norman, P.D.; Harp's Pharmacy #119 (Springdale, AR)

Roger Nutt, Pharm.D.; Arkansas Heart Hospital

Scott Pace, Pharm.D.; APA

Scotty Parker, Pharm.D.; White County MC (Searcy, AR)

Stacie Patterson, Pharm.D.; Cross Ridge Community Hospital (Wynne, AR)

Zinda Payne, P.D.; Wal-Mart Pharmacy #10-0530 (El Dorado, AR)

Marcia Peeples, P.D.; Pleasant Grove Pharmacy (Texarkana, TX)

Amy Peevey, Pharm.D.; Kroger Pharmacy #0465 (Blytheville, AR)

Gary Perdue, P.D.; Arkansas Children's Hospital

Hugh Perkins, P.D.; Medicine Man Pharmacy

Julie Petty, Pharm.D.; Wal-Mart Pharmacy #10-0289 (McGehee, AR)

Diana Phillips, Pharm.D.; Arch St. Pharmacy

Shelley Piazza, P.D.; Frewsburg Pharmacy (Frewsburg, NY)

Danny Ponder, P.D.; Ponder Drug (Mountain Home, AR)

Mark Porter, Pharm.D.; Jefferson Regional Medical Center (Pine Bluff, AR)

Bruce Power, P.D.; USA Drug #0006 (Springdale, AR)

Jeff Price, Pharm.D.; Fred's Pharmacy #1621 (Forrest City, AR)

Jennifer Priest, Pharm.D.; CAVHS - LR

Jeff Prince, P.D.; Prince Pharmacy (Magnolia, AR)

Linnea Putnam, P.D.; Indian Health Service (Rapid City, SD)

Andrea Puyear, Pharm.D.; Cardinal Health (Nuclear) (Wichita, KS)

Melissa Qualls, P.D.; Wal-Mart Pharmacy #10-0119 (Batesville, AR)

Roth Rabb, P.D.; City Pharmacy of Rison (Rison, AR)

David Rainbolt, Pharm.D.; USA Drug #0015

Kelly Rappeport, P.D.; Medi-Sav Pharmacy #3 (Fort Smith, AR)

Lori Ray, P.D.; Collier Drug – Dickson (Fayetteville, AR)

Shawn Rayburn, P.D.; AllCare Pharmacy (Texarkana, AR)

Melinda Reams, P.D.; C&D Drug (Russellville, AR)

Clint Rectenwald, Pharm.D.; Genuine Care Pharmacy (Gassville, AR)

James Reed, Pharm.D.; St. Anthony's Healthcare Center (Morrilton, AR)

Kristi Reed, P.D.; Pat's Super V Drugstore (Jonesboro, AR)

Shelly Reid, Pharm.D.; Wal-Mart Pharmacy #10-4 (Siloam Springs, AR)

Mike Renick, Pharm.D.; Saline Memorial Hospital (Benton, AR)

Raymond Reynolds, P.D.; American Drug (Greenbrier, AR)

Kenneth Rhodes, P.D.; Jepson Drug Store (Siloam Springs, AR)

Mike Richardson, P.D.; Sullivan's Main Street Pharmacy (Harrison, AR)

Sara Richardson, P.D.; Covidien – Memphis (Memphis, TN)

Kristin Riddle, Pharm.D.; US Compounding (Conway, AR)

Casey Rissinger, Pharm.D.; Price Cutter Pharmacy (Springdale, AR)

Donni Roach, P.D.; John & Frank Pharmacy (Marked Tree, AR)

Cliff Robertson, P.D.; Robertson's North Heights Pharmacy (Texarkana, AR)

Gary Robertson, P.D.; Redfield Pharmacy (Redfield, AR)

Raymond Robertson, P.D.; Robertson's Family Pharmacy (Springhill, LA)

Robert Rosen, P.D.; Reed Collier Drugstore (Pine Bluff, AR)

Tom Ross, P.D.; North AR Regional MC (Harrison, AR)

Gabe Roy, Pharm.D.; Collier Drug – Dickson (Fayetteville, AR)

Roger Rozell, P.D.; Target Pharmacy (Fayetteville, AR)

Keith Rubottom, Pharm.D.; Super D Drug #1008 (Jonesboro, AR)

Jeffrey Ruff, Pharm.D.; Target Pharmacy #1114

Greg Ryan, P.D.; GE Healthcare – Phoenix (Phoenix, AZ)  
 William Ryan, P.D.; Wal-Mart Pharmacy #10-0002  
 (Harrison, AR)  
 Brittney Sanders, Pharm.D.; Walgreen's #2364  
 (Jacksonville, AR)  
 Kathryn Sanders, P.D.; Country Drug (Searcy, AR)  
 Mike Scribner, P.D.; Collier's Pharmacy (Fayetteville, AR)  
 Ruth Scroggs, Pharm.D.; FDA Office of Special Health  
 Issues (Rockville, MD)  
 Carlette Seng, P.D.; Apria Healthcare  
 Margaret Senn, P.D.; North Arkansas Regional Medical  
 Center (Harrison, AR)  
 Lee Shinabery, Pharm.D.; Shinabery's Compounding  
 Pharmacy (Jonesboro, AR)  
 Mark Shinabery, P.D.; Custom Compounding Centers  
 Randy Shinabery, P.D.; Nyal Drug Store (Marked Tree,  
 AR)  
 Eric Shoffner, P.D.; Wal-Mart District Office (Fort Smith,  
 AR)  
 Jenny Sims, P.D.; Kroger Pharmacy #0613 (Cabot, AR)  
 Linda Singleton, Pharm.D.; Kroger Pharmacy #0637  
 (Benton, AR)  
 Don H. Sloat, P.D.; Kroger Pharmacy #625 (Conway, AR)  
 Mike Smets, P.D.; Coleman Pharmacy (Fort Smith, AR)  
 Brian Smith, P.D.; Fred's Pharmacy (Monticello, AR)  
 Dale Smith, P.D.; Health Care Center Pharmacy  
 (Texarkana, TX)  
 Darla Smith, Pharm.D.; Summit Medical Center (Van  
 Buren, AR)  
 David Smith, P.D.; Medicine Shoppe (Conway, AR)  
 Gwen Smith, P.D.; Harps Pharmacy #178 (Bentonville, AR)  
 Jeannie Smith, P.D.; Medicine Shoppe #1324 (Cabot, AR)  
 Kim Smith, P.D.; St. Vincent Rehabilitation Hospital  
 (Sherwood, AR)  
 Kim Smith, Pharm.D.; Wal-Mart Pharmacy #8 (Morrilton,  
 AR)  
 Kurt Smith, Pharm.D.; Walgreen's #3416  
 M. Smith, P.D.; Kroger Pharmacy #0619 (Hot Springs, AR)  
 Melissa Smith, Pharm.D.; Family Medical Pharmacy  
 Michael Smith, Pharm.D.; Medical Arts Pharmacy  
 (Fayetteville, AR)  
 Steve Smoker, P.D.; Hyde Pharmacy (Paragould, AR)  
 Jody Smotherman, Pharm.D.; White River Medical Center  
 (Batesville, AR)  
 Mark Spanel, P.D.; Baptist Health MC (Heber Springs, AR)  
 Aduston Spivey, P.D.; USA Drug #1027 (Hot Springs, AR)  
 Alice Stacey, P.D.; Baylor Medical Center (Irving, TX)  
 Mike Stafford, Pharm.D.; USA Drug #0017  
 Randy Stayton, P.D.; Walmart Pharmacy #66 (Clarksville,  
 AR)  
 Casey Stephenson, Pharm.D.; K-Mart Pharmacy  
 David Stewart, Pharm.D. Medical Park Hospital (Hope,  
 AR)  
 David Stover, P.D.; The Drug Room (Pine Bluff, AR)  
 Mike Stover, Pharm.D.; Chapel Pharmacy (Pine Bluff, AR)  
 Jeff Strickland, P.D.; Kroger #0608  
 Elise Sutton, Pharm.D.; CAVHS - LR  
 Allison Sweeney, Pharm.D.; Kroger Pharmacy #0616  
 Christine Swigert, P.D.; Fred's Pharmacy #1866  
 (Harrisburg, AR)

John Tabb, P.D.; Radiology Services of Hampton Roads  
 (Chesapeake, VA)  
 Larry Talley, P.D.; Talley's Pharmacy (Centerton, AR)  
 Steve Taylor, R.Ph.; Covidien (Memphis, TN)  
 Larry Thomerson, P.D.; Thomerson's Drug Store (Gurdon,  
 AR)  
 Theresa Toigo, R.Ph.; FDA Office of Special Health Issues  
 (Rockville, MD)  
 Randy Towell, Pharm.D.; UAMS Outpatient Pharmacy  
 Allen Townsend, Pharm.D.; Music City Nuclear Pharmacy  
 (Nashville, TN)  
 David Trang, P.D.; Wal-Mart Corporate Office  
 (Bentonville, AR)  
 Kenneth Trantham, P.D.; Walgreens Pharmacy #3413  
 Carolyn Tucker, P.D.; Children's Medical Center of Dallas  
 (Dallas, TX)  
 Ray Turnage, P.D.; Market Place Pharmacy  
 Nick Utyesonich, P.D.; St. Joseph's Mercy Health Center  
 (Hot Springs, AR)  
 James Vaughn, P.D.; Vaughn Drug (Fort Smith, AR)  
 Kristin Veteto, Pharm.D.; Regency Hospitals of Arkansas  
 (Springdale, AR)  
 Jeremy Veteto, Pharm.D.; Collier Drug Store (Fayetteville,  
 AR)  
 Matthew Voldeng, P.D.; Wal-Mart Pharmacy #10-5260  
 (Rogers, AR)  
 Debbie Waggoner, P.D.; NuTech (Wichita Falls, TX)  
 R. Walker, P.D.; C&D Drug (Russellville, AR)  
 Don Warner, P.D.; GE Healthcare (Dallas, TX)  
 Stephen Warrick, P.D.; Wal-Mart #10-261 (Hot Springs,  
 AR)  
 Donald Warriner, Pharm.D.; Jefferson Regional Medical  
 Center (Pine Bluff, AR)  
 Tom Warmack, P.D.; Watson Pharmacy (Fordyce, AR)  
 Chris Watson, Pharm.D.; Mayflower Food & Drug  
 (Mayflower, AR)  
 Dean Watts, P.D.; Dean's Pharmacy #1 (DeWitt, AR)  
 Mark Wear, Pharm.D.; Cardinal Health #155 (Fort Smith,  
 AR)  
 Pamela West, P.D.; Cardinal Health #055 (Houston, TX)  
 Adam Wheeler, Pharm.D.; Tanglewood Drug  
 Floyd White, P.D.; Great River Medical Center (Blytheville,  
 AR)  
 Tammy White, Pharm.D.; Fred's Pharmacy #2981 (Star  
 City, AR)  
 Gary Wiles, P.D.; Wal-Mart Pharmacy #10-1054  
 (Springdale, AR)  
 Frank Williams, P.D.; USA Drug #0002 (Pine Bluff, AR)  
 James Williams, P.D.; Ouachita County Medical Center  
 (Camden, AR)  
 Leslie Williams, P.D.; Wal-Mart Pharmacy #10-3331 (Pine  
 Bluff, AR)  
 Wade Williams, Pharm.D.; Wal-Mart Pharmacy #10-0157  
 (Searcy, AR)  
 Coy Williamson, Pharm.D.; Red River Pharmacy Services,  
 Inc. (Texarkana, TX)  
 Penny Wilson, Pharm.D.; Wal-Mart Pharmacy #10-5260  
 (Rogers, AR)  
 Royce Wilson, P.D.; Wilson Wil-Sav Pharmacy (Batesville,  
 AR)

Tommy Woodard, P.D.; Wal-Mart Pharmacy #10-0126  
Jon Woodward, P.D.; Positron Diagnostics (Geodax-PET)  
(Pittsburgh, PA)  
Dana Woods, P.D.; Woods Pharmacy (Mountain View, AR)  
Danny Wooley, Pharm.D.; St. Vincent Infirmary Medical  
Center  
Ron Workman, P.D.; Baptist Health Medical Center - LR  
Wendell Workman, P.D.; National Park Pharmacy (Hot  
Springs, AR)  
Rick Wride, P.D.; Covidien (Portland, OR)  
Ed Wright, Pharm.D.; Hickory Hill Pharmacy (Helena, AR)  
Maribeth Wright, P.D.; Morrison's Pharmacy (Camden, AR)  
Robert Wright, P.D.; Economy Drugs, Inc. (Helena, AR)  
Jim Yarbrough, P.D.; AllCare Pharmacy #29 (Arkadelphia,  
AR)  
Darla York, P.D.; Salem Drug Co. (Salem, AR)  
Greg Young, P.D.; Cardinal Health #068 (Nashville, TN)