

# University of Arkansas for Medical Sciences

## College of Pharmacy

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 upperclass students, requirements for major subjects and suggested courses of study are outlined. The College of Pharmacy also publishes a Student Handbook annually with information for current students regarding policies and procedures.

The University of Arkansas for Medical Sciences (UAMS) publishes similar catalogs about its other divisions — the Graduate School and the Colleges of Health Related Professions, Medicine, Public Health and Nursing. Copies of these catalogs may be obtained by writing the office of the Dean of the respective College or online at [www.uams.edu](http://www.uams.edu).

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.

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## UAMS

### Administration

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## Vision and Mission

Vision Statement: UAMS will be an internationally recognized health sciences center dedicated to improving lives through better health.

Mission Statement: To Teach: UAMS prepares excellent health care professionals and scientists who are committed to high ethical and professional standards, life-long learning, and skill advancement in health care for Arkansas, the nation, and the world. To Heal: UAMS provides comprehensive, nationally and internationally recognized, health care in many specialties and disciplines for Arkansas, the nation, and the world. To Search: UAMS conducts pioneering research that leads to new knowledge with application and integration into the health care disciplines, systems of care public policy, and economic progress for all people. To Serve: UAMS provides leadership and service in the health care disciplines and in public health policy for the benefit of the citizens and communities of Arkansas.

## 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 Arkansas Cancer Research Center (ACRC) 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 dormitories 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, as well as the University Hospital, the AHEC, the ACRC, the Harvey and Bernice Jones Eye Institute, the Stephens Spine Institute, the Myeloma Institute and the Donald W. Reynolds Institute on Aging 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 2007-2008**

#### **Fall Semester 2007**

Registration: P4 . . . . .	Monday, July 2
August Graduation . . . . .	Friday, August 10
Freshman Orientation . . . . .	August 16-17 & 20
White Coat Ceremony (Freshman) . . . . .	Sunday, August 19
Registration: P1, P3, & P2 . . . . .	Monday, August 20
P3 orientation to longitudinal EPE . . . . .	Monday, August 20
First Day of Semester . . . . .	Tuesday, August 21
Last Day to Register/Add a Class . . . . .	Friday, August 24
Labor Day Holiday . . . . .	Monday, September 3
Veteran's Day Holiday . . . . .	Monday, November 12
Thanksgiving Holiday . . . . .	November 22-23
Study Day . . . . .	Thursday, December 6
Final Exams . . . . .	December 7-14
Last Day of Semester . . . . .	Friday, December 14
December Graduation . . . . .	Thursday, December 20

#### **Spring Semester 2008**

Registration: P1, P2, P3, & P4 . . . . .	Tuesday, January 8
First Day of Semester . . . . .	Wednesday, January 9
Last Day to Register/Add a Class . . . . .	Friday, January 11
Martin Luther King Holiday . . . . .	Monday, January 21
Presidents' Day/Daisy Bates Holiday . . . . .	Monday, February 18

Spring Break	March 17-21
Final Exams*: P2	April 7-11
Early Practice Experience: P2	April 21 to May 16
Study Day: P1 & P3	Thursday, May 1
Final Exams*: P1 & P3	May 2-9
Graduate Intern application pick-up	May 8-9
Early Practice Experience P1	May 16-30
Honors Convocation (Last Day of Semester – P4s)	Friday, May 16
Commencement	Saturday, May 17
Last Day of Semester (P1s, P2s, & P3s)	Friday, May 30

\*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 11<sup>th</sup> – P2s and May 9<sup>th</sup> – P1s & P3s.

## Administration

Dean	Stephanie F. Gardner, PharmD, EdD
Associate Dean for Student Affairs	Charles K. Born, PhD
Associate Dean for Academic Affairs	Cindy D. Stowe, PharmD
Associate Dean for Development and Professional Affairs	Jonathan J. Wolfe, PhD
Assistant Dean for Experiential Education	Schwanda Flowers, PharmD
Assistant Dean for Diversity	H. Otis Tyler, MS
Assistant Dean for Finance	Louis Forst, BS
Chairman, Department of Pharmaceutical Sciences	Russell B. Melchert, PhD
Chairman, Department of Pharmacy Practice	Paul O. Gubbins, PharmD
Director, Poison Control Center	Howell Foster, PharmD
Director, Drug Information Center	J.D. Gannaway, PharmD
Associate Director, Evidence-Based Prescription Drug Program	Clay Patrick, PharmD
Director, Development	Ann Turney BA
Registrar and Assistant to the Dean	Kathy Orear, 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 provide excellent education in a stimulating environment where delivery of superb patient care is integrated with nationally and internationally recognized research. In order to achieve this mission, the college will (1) apply innovative and proven educational methods to produce pharmacists who possess the knowledge and skills required to serve their patients in an ethical and professional manner while keeping pace with rapidly evolving pharmacotherapies, (2) provide medication therapy management services that are recognized locally and nationally as models of world-class patient care,

(3) conduct competitive basic, clinical, and social and administrative science research that translates into improved pharmacy education, direct patient care and public policy, (4) model outstanding leadership and service in pharmacy education, pharmaceutical research and practice for the world community, and (5) recognize and cultivate diversity and promote cultural proficiency among our students, faculty and staff.

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 at Little Rock. 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 later professional career.

The UAMS College of Pharmacy Faculty have 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 health care 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.

### **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 and CPH 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, 2008. ACPE site-visit is scheduled for the Fall of 2007.

### **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.

## 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	90.1	4 (4.9)	4 (4.9)	9.9
2002	83	86.7		1	3	
2003	85	87.1		4	3	
2004	90			4	3	
2005	105			2	2	
2006	119			2	1	
2007	120			0	0	

This information is current as of 9/4/07.

### Pass Rates for 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

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 2002-2006)

### 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 2007, 80 senior students completed the College's salary survey. At this time, 95% of seniors had taken a job with most feeling that the opportunities for employment were good to excellent. The majority took jobs in retail (53%), hospital (25%), residency/fellowship (12%), and other (10%). The average salary for the 2007 graduating class taking positions other than residency/fellowships was \$97,522.

## **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.

### **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 for Admission

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

International students must meet the appropriate English Proficiency requirements listed above. An applicant who is not a citizen of the United States must follow the normal admissions procedure, including requirements pertaining to applicants whose first language is not English.

International applicants must also meet the requirements to be considered a resident of Arkansas for purposes of admission to the UAMS College of Pharmacy. A student on any temporary visa, including an F1 visa, will be classified as a foreign student and hence a non-resident of the state of Arkansas for purposes of admission. An applicant must submit a copy of their resident alien or permanent resident card with their application and present the original to the Registrar at the time of interview. Please note that residency status at an undergraduate Arkansas institution for purposes of tuition does not imply that the applicant would be considered a resident for purposes of admission to the College of Pharmacy.

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 coursework earned at a foreign institution may be granted by an accredited undergraduate institution.

## **Pharmacy College Admissions Test (PCAT)**

The Pharmacy College Admissions Test (PCAT) is required of all applicants. The PCAT is offered in June 2007, August 2007, October 2007, and January 2008 for the Fall 2008 entering class. PCAT scores prior to June 2005 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.

## **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 and lab (3 hrs lecture, 1 hr lab)

College Chemistry II and lab (3 hrs lecture, 1 hr lab)

Organic Chemistry I and lab (3 hrs lecture, 1 hr lab)

Organic Chemistry II and lab (3 hrs lecture, 1 hr 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 (3 hrs lecture, 1 hr 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 (3 hrs of lecture, 1 hr 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 UAMS College of Pharmacy pre-pharmacy requirement has been satisfied. Admission to the College of Pharmacy 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 of Pharmacy.

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.

## **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. Such transcripts 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 of Pharmacy 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 in Little Rock. 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 of Pharmacy reserves the right to revise the pre-pharmacy and professional curriculum at any time it deems necessary for the improvement of pharmacy education.

The Experiential portion of the curriculum is structured with 2-4 week courses taught in hospitals, clinics and community pharmacies. Each 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 hours  
PhSci 3115 Anatomy/Physiology/Pathology I, 5 hrs  
PhSci 3414 Pharmaceutics I, 4 hrs  
PhSci 3215 Biological & Cellular Chemistry, 5 hrs  
PhPr 3423 Pharmacy Practice I, 3 hrs  
PhSci 3402 Pharmaceutical Calculations, 2 hrs

First Professional Year -- Spring Semester -- 20 hours  
PhSci 3234 Pharmaceutical Microbiology, 4 hrs  
PhSci 3434 Pharmaceutics II, 4 hrs  
PhSci 3225 Principles of Drug Actions, 5 hrs  
PhSci 3124 Anatomy/Physiology/Pathology II, 4 hrs  
PhPr 3511 Nuclear Pharmacy, 1 hr  
PhPr 3602 Introduction to Community Practice, 2 hrs

Second Professional Year -- Fall Semester -- 16 hours  
PhSci 4254 Medicinal Chemistry, 4 hrs

PhSci 4124 Pharmacology I, 4 hrs  
PhSci 4445 Pharmacokinetics, 5 hrs  
PhSci 4453 Dispensing, 3 hrs

Second Professional Year -- Spring Semester -- 18 hours

PhSci 4134 Pharmacology II, 4 hrs  
PhPr 4692 Nonprescription Drugs, 2 hrs  
PhPr 4613 Drug Lit Evaluation/Biostatistics, 3 hrs  
PhPr 4625 Therapeutics I, 5 hrs  
PhPr 4604 Early Practice Experience, 4 hrs

Third Professional Year -- Fall Semester -- 18 hours

PhPr 5635 Therapeutics II, 5 hrs  
PhPr 5723 Pharmacy Administration, 3 hrs  
PhPr 5633 Pharmacy Practice II, 3 hrs  
PhSci 5623 Pharmaceutical Biotechnology, 3 hrs  
Electives, 4 hrs

Third Professional Year -- Spring Semester -- 18 hours

PhPr 5644 Therapeutics III, 4 hrs  
PhPr 5733 Pharmacy Administration Selective, 3 hrs  
    a. Community Management  
    b. Institutional Management  
PhPr 5655 Pharmacy Practice III, 5 hrs  
PhSci 5142 Chemical Addiction, 2 hrs  
Electives, 4 hrs

Fourth Professional Year -- Fall Semester -- 20 hours

Five month-long experiences

Fourth Professional Year -- Spring Semester -- 16 hours

Four month-long experiences

### **Nuclear Pharmacy Specialist Option**

The College of Pharmacy 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 experi-

ential training through internships or following graduation.

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

PhPr 5583 Nuclear Physics, 3 hrs  
PhPr 5572 Instrumentation, 2 hrs  
PhPr 5512 Radiopharmacy, 2 hrs  
PhPr 5592 Health Physics, 2 hrs  
PhPr 5562 Radiation Biology, 2 hrs

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 (BCNP).

### **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 Academic Affairs 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:

ECON 7320 Quantitative Analysis (3 hrs)  
ECON 7300 Economic Principles (3 hrs)  
MKTG 7301 Marketing Analysis, Planning & Control (3 hrs)  
FINC 7301 Financial Management (3 hrs)  
MGMT 7302 Management & Organizational Behavior (3 hrs)

MGMT 7310 Organizational Behavior (3 hrs)  
ECON 7313 Managerial Economics (3 hrs)  
FINC 7311 Corporate Financial Planning (3 hrs)  
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:

PhPr 5723 Pharmacy Administration (3 hr)  
PhPr 5743 Pharmacy Administration Selective (3 hr)

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.

## **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 Academic Affairs or Dean's designee. Admission to the combined PharmD/MPH degree requires a separate application to the CPH.

COP 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 UAMS College

of Pharmacy faculty as electives within the PharmD program:

PBHL 5003 Intro to Public Health (3 hr)  
PBHL 5013 Biostatistics I (3 hr)  
PHBL 5113 Environmental and Occupational Health (3 hr)  
PBHL 5123 Health Care System (3 hr)  
PBHL 5133 Health Behavior Research (3 hr)  
PBHL 5173 Epidemiology I (3 hr)  
PBHL 5323 Pharmaceutical Policy in the Healthcare System\*

\*Take as College of Public Health student; same class as PhPr 5263

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 hours):  
PhSc 5142 Chemical Addiction (2 hr)  
PhPr 5723 Pharmacy Administration I (3 hr)  
PhPr 5242 Women's Health (2 hr)  
PhPr 5712 Alternative Medicine (2 hr)  
PhPr 5722 Pharmacoeconomics & Outcomes Research (2 hr)  
PhPr 5285 Death and Dying (2 hr)  
Experiential Course Credit (up to 3 credit hours):

PhPr 67X4 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 hours of the 4 allowed in the PharmD curriculum) if the student meets the PBHL 5993 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 CPH currently requires no additional tuition if the student is a full-time student within the COP; 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.

## 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:

UAMS Graduate School  
4301 W. Markham, Slot 601  
Little Rock AR 72205

## Graduate School Student Catalog and 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).

## 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 Student Affairs. No withdrawals from individual courses are allowed. Return to the College of Pharmacy following withdrawal will be considered by the Scholastic Standing Committee, and readmission is not guaranteed.

“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 Student Affairs. No withdrawals from individual courses are allowed. Return to the College of Pharmacy following withdrawal will be considered by the Scholastic Standing Committee, 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 Scholastic Standing Committee for judgment.

The Scholastic Standing Committee of the College shall review misconduct on the part of a student and 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 Dean's office or the Student Handbook.

## **General Requirements for Graduation**

The Doctor of Pharmacy degree 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 143 approved semester hours (for Spring 2008 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 "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.

## **Graduation with Honors in Research**

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 and 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 and General Fees – 2007-2008

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 and Registration Fee per semester..... \$4540.00

Out-of-State Tuition/Registration Fee per semester ..... \$9080.00

For all resident students carrying nine (9) hours or less, the fee per semester hour .....\$454.00

Non-resident students carrying nine (9) hours or less, the fee per semester hour .....\$908.00

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 . . . . .	\$ 100.00
Student Activity Fee (per semester) . . . . .	\$ 27.00
Student Health Fee (per semester). . . . .	\$ 69.00
Technology Fee (per semester) . . . . .	\$40.00
Professional Liability Insurance Fee (first semester) . . . . .	\$16.00
Microscope fee (P1 second semester only) .	\$ 58.00
Standardized Patient Fee (P3 both semesters) . . . . .	\$52.50
Pre-NAPLEX Fee (P4 first semester) . . . . .	\$50.00
Graduation Fee (P4 second semester) . . . . .	\$ 52.50
Diploma Replacement Fee. . . . .	\$25.00

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 one or more courses and continues to be enrolled in the University during a Fall or Spring semester shall be entitled to individual course refunds of registration, tuition and fees as follows:

- Up to and including five class days . . . . . 100%
- Sixth 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%
  - No adjustment after classes begin

- FIVE OR SIX WEEK COURSES**
- Prior to start of class/up to second class day. . . . . 100%
  - Third through fifth class days . . . . . 50%
  - No adjustment after fifth class day

- SEVEN TO NINE WEEK COURSES**
- Prior to start of classes/up to third class day. . . . . 100%
  - Fourth through seventh class day. . . . . 50%
  - No adjustment after seventh class day

- TEN OR TWELVE WEEK COURSE**
- Prior to start of classes/up to fifth class day . . . . . 100%
  - Sixth through tenth class day . . . . . 50%
  - No adjustment after tenth class day

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 2007-2008**

Estimated expenses for the 2007-2008 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 \$9080 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 \$1620, 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 at \$800 per year. In addition, the estimated cost of a computer for P1 students is \$1500 and a personal digital assistant is \$355 for a P3 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.

# Nontraditional Post Baccalaureate Doctor of Pharmacy Degree Program

The nontraditional Doctor of Pharmacy pathway is a professional educational offering for licensed pharmacists with a baccalaureate degree in pharmacy who wish to earn the PharmD degree. This academic program is administered through UAMS College of Pharmacy and was designed and developed to satisfy the accessibility needs of practicing pharmacists. The last class of students was admitted June 30, 2004. These students have until July 1, 2008 to complete the program.

Didactic course work is available on a self-instructional basis with strong faculty support. Experiential portion of the curriculum utilizes the practice sites of faculty in central Arkansas, the AHEC and other sites, as well as the practice sites of pharmacists in the program. This program is designed not only to extend professional knowledge, but also to serve as a vehicle to deliver a desired core of unique expertise and experience in contemporary, clinically oriented pharmacy practice.

## Course work Required for the Nontraditional PharmD

As required by the ACPE, the core curriculum for this program was constructed to insure that students will have been exposed to a series of educational experiences designed to achieve competencies comparable to those students completing the traditional, entry-level Doctor of Pharmacy degree program on the UAMS campus. Didactic course work requirements are to be completed prior to experiential course work and are expected to be completed in the sequence indicated below.

Didactic course work (21 credit hours)

PhPr 4613-NT Drug Literature/Biostatistics, 3 hours, Internet Course - CLOSED

PhP4 4464-NT Pharmacokinetics/  
Biopharmaceutics, 4 hours, Internet Course -  
CLOSED

PhPr 5625-NT Therapeutics I, 5 hours, Internet  
Course - CLOSED

PhPr 5645-NT Therapeutics II, 5 hours, Internet

Course - CLOSED

PhPr 5654-NT Pharmacy Practice II, 4 hours,  
Internet Course

Experiential course work (12 credit hours-4  
courses, 3 credit hours each)

The required and selective experiences require access to patients and patient records in an ambulatory care, or adult medicine clinical setting. To complete the experiential assignments, the pharmacist must be able to follow patients. Students who do not practice in a clinical setting, and applicants who cannot gain access to local patients and related records, will be required to complete at least two traditional, month long experiences on the UAMS campus.

Experiential Course Work:

PhPr 6603-NT Experience-Clinical Nuclear

PhPr 6613-NT Experience -Adult Medicine

PhPr 6623-NT Experience -Ambulatory

Medicine

PhPr 6633-NT Experience -Geriatrics

PhPr 6643-NT Experience -Pediatrics

PhPr 6653-NT Experience -Drug Information

PhPr 6663-NT Experience -Clinical Community

PhPr 6673-NT Experience -Hospital

PhPr 6683-NT Experience -Community

Pharmacy

PhPr 6693-NT Experience -Elective

Experiential course work requirements are composed of four experiences and allow for maximum flexibility. Required experiences: one is required - either Adult Medicine or Ambulatory Care/Family Practice is required of all students. Selective experiences: one is required Community Clinical, Adult Medicine, Ambulatory Medicine, Pediatrics, Geriatrics or Nuclear Pharmacy. Elective experiences (two from the following): Ambulatory Care/Family Practice, Hospital Practice, Community Clinical Practice, Informatics, Drug Information, Intravenous (IV) Home Therapy, DUE/MUI, Managed Pharmacy Care (PBM), Geriatrics, Nursing Home Consultant, Pharmacy Association Administration, Public Health, plus others as developed and offered by the College. (To the extent possible, an effort will be made to accommodate the professional needs and interests of those pharmacists in the program. Also, since demand for experiences at any specific time may exceed the resources available, and since traditional

student needs take precedence over nontraditional student needs, experiences are made available on a “first ready” basis.

## **Tuition**

Tuition for the Non-Traditional Doctor of Pharmacy program is set by the University of Arkansas Board of Trustees at \$454.00 (2007-2008) per credit hour (\$908.00 for out-of-state students). The student also will be responsible for books and related materials required by the respective courses.

## **Special Notes about the Program**

1. Pharmacists will have a maximum of four (4) years to complete the program after their respective starting dates.
2. All didactic course work will be available on an independent study basis. An effort is made to enable enrollment and completion of a course as rapidly as possible. The amount of time and effort a didactic course will require of pharmacists will depend upon the pharmacist’s professional background, familiarity with the subject matter, dedication and time management skills.
3. Didactic examinations are available via full-time faculty at an accredited college or university in the pharmacist’s community.

NOTE: The policies and procedures for this program will be revised as needed and the College reserves the right to make such revisions without notice.

For additional information, call or write:

Director: Jonathan J. Wolfe, Ph.D.

Clinical Coordinator: Ross Vanderbush, PharmD

Didactic Coordinator: Martha Carle, BSE, MSE, MPH

Phone: (501) 686-7124

Toll Free Line: (800) 245-3256

Fax: (501) 686-8315

## **Department of Pharmaceutical Sciences**

### **Associate 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  
E. Kim Fifer, BS (Pharmacy), PhD  
Bill Gurley, BS (Pharmacy), PhD  
Cherng-ju Kim, BEng, MEng, PhD  
Kim E. Light, BS, PhD  
S. Jesse Liu, BS, PhD  
Tom Lynch, BS, MS, PhD  
Larry D. Milne, BS (Pharmacy), PhD  
John R.J. Sorenson, BS (Pharmacy), PhD

### **Associate Professor**

Philip Breen, BS (Pharmacy), PhD  
Cesar M. Compadre, BS (Pharmacy), PhD  
Eddie Dunn, BS (Pharmacy), PharmD  
R. Lilia Lopez-Becerra, BS (Pharmacy), PhD  
Russell B. Melchert, BS (Pharmacy), PhD  
Grazyna Nowak, MS, PhD  
Dwight Pierce, BS, PhD  
Henry Simmons, MD, PhD

### **Assistant Professor**

Marjan Boerma, BS, MS, PhD  
Howard Hendrickson, BS, MS, PhD

### **Instructor**

Melanie Reinhardt, BS (Pharmacy)

The Department of Pharmaceutical Sciences (PhSci) is composed of faculty with teaching and research expertise in the basic pharmaceutical science disciplines of Medicinal Chemistry, Pharmacology and Pharmaceutics. 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**

### **PhSci 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.

### **PhSci 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.

### **PhSci 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. Sub-

sequently, the focus shifts to specific agents including local anesthetics, neuromuscular blockers and drugs acting on the autonomic nervous system. Lecture five hours per week.

### **PhSci 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.

### **PhSci 4134 Pharmacology II**

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

### **PhSci 3215 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 five hours per week.

### **PhSci 3234 Pharmaceutical Microbiology**

A study in general microbiology including: bacterial morphology and physiology; pathogenic bacteria, fungi, protozoa and viruses; and antigens, antibodies, vaccines, serums and allergies. Methods of culture, use of sterilization and etiological factors of disease are considered. Lecture three hours and laboratory three hours per week.

### **PhSci 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.

### **PhSci 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.

### **PhSci 3414 Pharmaceutics I**

A study of the physico-chemical aspects of liquid dosage forms, both aqueous and non-aqueous, with emphasis on the technology and pharmaceutical rationale fundamental to their design and development. Experiences relating to dosage forms as well as dispensing techniques are introduced in the laboratory sequence. PhSci 3402 must be completed or taken concurrently. Lecture three hours per week, and laboratory three hours per week.

### **PhSci 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.

### **PhSci 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.

### **PhSci 4445 Pharmacokinetics I**

This is a course presenting the basic concepts and principles of pharmacokinetics. The necessary mathematical expressions needed to characterize the absorption, distribution, metabolism, and excretion of drugs are discussed with respect to routes of administration. Parameters that influence pharmacokinetic and therapeutic outcome of

the most commonly monitored drug regimens are emphasized. Additionally, the principles of therapeutic drug monitoring and dosing are explained. Lecture five hours per week.

### **PhSci 4453 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. Lecture two hours per week, and laboratory three hours per week.

### **PhSci 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.

## **Electives Offered by the Department of Pharmaceutical Sciences**

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

### **PhSci 517V Independent Study in Pharmacology**

### **PhSci 5122 Drug Interactions**

Drug interactions are a primary cause of poor therapeutic outcomes. This course is designed to familiarize the student with the major categories of drug interactions and their underlying mechanisms and to introduce the student to pharmacogenetics and its role in variable drug response.

### **PhSci 5182 Teaching in Pharmacology**

This elective provides the interested third year student an opportunity to explore the skills and activities involved in an academic career. Permission of the instructor and satisfactory prior

performance in PhSci 3122 are required.

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

### **PhSci 527V Independent Study in Medicinal Chemistry**

### **PhSci 5282 Theoretical Medicinal Chemistry**

### **PhSci 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.

### **PhSci 5132 Essential Metalloelements**

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

### **PhSci 548V Independent Study in Pharmaceutics**

### **PhSci 5402 Drug Stability**

### **PhSci 5412 Creativity in Pharmacy**

### **PhSci 5492 Application of Computers to Pharmacokinetics**

### **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

### **Associate Professor**

Dosha Cummins, BS (Pharmacy), PharmD  
John Thomas Frank, BS (Pharmacy), PharmD  
J.D. Gannaway, BS (Pharmacy), PharmD  
Jan Hastings, BS (Pharmacy), PharmD  
Lisa Hutchison, BS (Pharmacy), PharmD, MPH  
Jill T. Johnson, PharmD  
William J. McIntyre, BS (Pharmacy), PharmD  
Robert F. Richardson, BS (Pharmacy), PharmD  
Eric Schneider, BS (Pharmacy), PharmD  
Daniel C. Spadaro, BS (Pharmacy), PharmD  
Cindy D. Stowe, BS (Pharmacy), PharmD  
Ross E. Vanderbush, BS (Pharmacy), PharmD  
Donna West, BS (Pharmacy), MS, PhD  
Jonathan J. Wolfe, BS (Pharmacy), PhD

### **Assistant Professor**

Marsha Crader, PharmD  
M.E. "Trey" Crumby III, PharmD  
Jason Derden, PharmD  
Mark Estes, PharmD  
Schwanda Flowers, PharmD  
Howell Foster, BS (Pharmacy), PharmD  
Amy Franks, PharmD  
Seth Heldenbrand, PharmD  
Mark Helm, BBA, MBA, MD  
Crystal Henderson, PharmD  
Ed Hesterlee, BS (Pharmacy), PharmD  
Denise Hopkins, PharmD  
J. Brian Hughes, PharmD  
Dao Le, PharmD  
Chenghui Li, MA, PhD

Holly D. Maples, PharmD  
Keith McCain, PharmD  
Jamie Messenger, PharmD  
Kendrea Muldrew, PharmD  
Sherry A. Myatt, PharmD  
Kathryn Neill, PharmD  
Anne Pace, PharmD  
Darren O'Quinn, BS (Pharmacy), JD  
Qayyim Said, MA, PhD  
John Vinson, PharmD  
T. Scott Warmack, PharmD

### **Instructor**

Martha Carle, B.S.E, M.S.E., M.P.H.

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. Pharmacy administration is concerned with the role of pharmacy in health care delivery systems, the management of pharmacies, and distribution of drug and health-related products.

## **Course Descriptions**

### **PhPr 3423 Pharmacy Practice I**

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. Lecture three hours per week.

### **PhPr3602 Introduction to Community Practice**

This course is 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 two credit hour, pass/fail, course.

### **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 4613 Drug Literature Evaluation and Biostatistics**

This course is designed to enable the student to locate and evaluate medical and drug information. To locate relevant information, the student will utilize various written and computerized secondary and tertiary references available in the medical library. To evaluate the information, the student will develop an understanding of basic statistical design, methodological procedures, and terminology. This is a three credit hour course.

### **PhPr 4604 Early Practice Experience**

This course will provide a structured practical professional experience in community or institutional pharmacy practice. Based upon prior work experience, P2 students will be assigned a four week practice experience in 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 5635 Therapeutics II**

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

### **PhPr 5644 Therapeutics III**

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

### **PhPr 5633 Pharmacy Practice II**

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. Lecture three hours per week.

### **PhPr 5655 Pharmacy Practice III**

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. The course will also 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 three hours per week, instructional lab two hours per week, 40 hours of experiences.

### **PhPr 5723 Pharmacy Administration I**

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 three hours per week.

### **PhPr 5733 A/B Pharmacy Administration II (SELECTIVE)**

A. Community Pharmacy Management — This course is designed to teach pharmacy students the requisite skills needed to perform the general managerial functions in a community pharmacy setting. Lecture three hours per week.

B. Institutional Pharmacy Management — Accepted practices of successfully developing and administering a pharmacy service within acute care and related facilities are discussed in this course. Broad areas of administrative and management responsibilities include planning and integrating professional services, budgeting, inventory control, cost review, cost effectiveness, audit, maintenance of records, and preparation of reports. Lecture three hours per week.

### **PhPr 66\_4 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 (Adult Medicine, Ambulatory Care, Pediatrics, Geriatrics, Clinical Nuclear, Surgery, Community Clinical, etc.). Two experiences are required in Indirect Patient Care (Drug Information, Informatics, Clinical Toxicology, Managed Care, etc.) 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

PhPr 6724 Experience --Indirect Patient Care

PhPr 6734 Experience --Elective

## **Electives Offered by the Department of Pharmacy Practice:**

### **PhPr 5212 Communicating with Older Adults**

This interdisciplinary course will give students a broad perspective on communications issues in older adults. 2 hrs.

### **PhPr 5222 Controversies in the Management of Hypertension**

This course will emphasize contemporary issues in the pathophysiology of blood pressure elevation and its complications. Focus will be on common comorbid conditions such as obesity and insulin resistance, and will emphasize the importance of analyzing new outcomes data from clinical trials to make therapeutic decisions. 2 credit hours

### **PhPr 5232 Pharmaceutical Marketing Seminar**

The ability of pharmacists to function in a changing healthcare system, where the pharmaceutical industry and managed care organizations play a significant role, is crucial to the advancement of pharmacy. This course will introduce students to marketing principles and how they are applied in healthcare. 2 credit hours

### **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 5252 Life Skills**

This course is designed to prepare third year pharmacy students to successfully meet life's challenges upon graduation. Specifically, students will gain a better understanding of their service role, how to effectively deal with managed care organizations, how to start a new pharmacy practice, how to deal with stress, life/balance skills, and family/relationship skills. 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 5272 Applied Pharmacokinetics**

This course is designed to expose the student to the pharmacokinetic aspects of individualized drug dosing. Prerequisite: PhSci 4445. 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**

An elective course designed to expose the P3 student to a variety of issues related to diabetes mellitus -- pathophysiology, treatment and monitoring as well as current practice guidelines for management of the disease. 2 credit hours

### **PhPr 5301 All Hazards Preparedness**

Basic understanding of planning and responding to terroristic acts (chemical, radiological and biological attacks) and other public health emergencies. Pass/Fail, 1 credit hour

### **PhPr 5322 Emergency Health Care, 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 5352 Advanced Infectious Disease Therapeutics**

The course will expand on the basic principles of infectious disease therapeutics. The student will learn about how host defenses interact with infectious agents, how bacteria, fungi and viruses become resistant to antimicrobials. 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 5402 Adolescent Pharmacotherapy**

This course is designed to provide a review of the pharmacotherapy of select adolescent disease states to enable the student to increase interaction with adolescents and assist in the development of rational drug therapy plans for adolescents. 2 credit hours

**PhPr 5412 Public Health: Overview**

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

**PhPr 5432 History of Pharmacy**

This course presents the history of pharmacy throughout its historic development. 2 credit hours

**PhPr 5422 Personal Digital Assistants in Pharmacy Practice**

The use of handheld computers/digital assistants effectively as a resource tool in practicing pharmacy. 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 5453 Social Behavioral Pharmacy**

Overview of theoretical perspectives in understanding behavior in the medication use process at the individual, interpersonal and community level. The course will focus on increasing skills in describing, applying and integrating behavioral theories in the design and evaluation of interventions to improve medication use in society. 3 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 5602 Interpretation of Clinical Lab Values, 2 credit hours**

**PhPr 5622 Advanced Non-Prescription Medications, 2 credit hours**

**PhPr 5632 Advanced Cardiovascular Pharmacotherapy**

This case based elective is intended to provide students with practical skill and knowledge to contribute to the cardiologist's evaluation and the assessment and treatment of patients with a variety of cardiovascular diseases. 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 5712 Alternative Medicine**

This elective will equip students to convey reliable and objective information about natural products, diets or other alternative medicine issues to patients and other health care providers. 2 credit hours

**PhPr 5722 Introduction to Pharmacoeconomics and Outcomes Research**

Introduction to contemporary methods of medical decision making and evaluation using pharmacoeconomics and outcomes research as basic frameworks. 2 credit hours

**PhPr 5742 Special Problems in Pharmacy Administration**

**PhPr 5752 Entrepreneurship, 2 credit hours**

**PhPr 5822 Pharmacy Practice Informatics**

This elective introduces hand held PDA's in Pharmacy Practice, develops advanced PowerPoint presentation skills, demonstrates pharmacy decision support software, develops pharmacy related homepage skills, develops basic computer understanding and improves internet search skills.

Intermediate word processing and spreadsheet skills useful in everyday practice are also learned. 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 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 5852 Pharmacy Practice Clinical Seminar**

Focuses on improving communication skills, both oral and written, but primarily will focus on communicating with a low literacy population. 2 credit hours

**PhPr 5882 Advanced Cardiac Life Support, 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

**Courses that are part of the combined MBA/ PharmD and MPH/PharmD options meeting elective requirements are listed on page 18 and 19, 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 Pharmaceutical Association Academy of Students of Pharmacy Mortar and Pestle Professionalism Award**  
This award is given to a senior student who exemplifies the ideals of professionalism and excellence in patient care in all aspects of his/her academic pharmacy career.
- **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.
- **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.
- **Arkansas Association of Health-Systems Pharmacists Award**  
An award presented to a third year student with an interest in health-systems pharmacy and outstanding academic performance in Therapeutics class and recitation.
- **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.
- **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.
- **J. C. 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.
- **Buice Drug Store/George Wimberly 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.
- **Class of 1952 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.
- **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.
- **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.
- **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.

- 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 Award  
A scholarship award presented to a student exhibiting traits of character and leadership and a desire to enter community pharmacy practice.
- Aventis Pharmaceuticals Award for Excellence in Medicinal Chemistry  
A cash award and a plaque are presented to a student for excellence in Medicinal Chemistry.
- 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.
- 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.
- 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.

- 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.
- 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.
- Kroger Pharmacy Scholarship  
An award presented to a deserving third year student with an interest in community pharmacy.
- 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.
- 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.
- 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.
- L.D. 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.
- 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.

- National Community Pharmacists Association Student Chapter Leadership Award

A scholarship presented in memory of Dr. Jack McCormack, who served as faculty advisor for the student chapter of NCPA for many years. This award is presented to a second or third year student who has demonstrated a desire to enter community pharmacy practice.

- 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.

- Pharmaceutical Sciences Summer Research Fellowship

A fellowship awarded to a first, second, or third year student to support his/her research in Pharmaceutical Sciences

- 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.

- Pharmacy Practice Student Research Fellowship

A fellowship awarded to a first, second or third year student to support his/her research within community, clinical or administrative areas of pharmacy practice. Selection is based on high scholastic achievement, letters of

recommendation and a personal statement of interest.

- Rho Chi Recognition Certificate

A certificate presented to students who have shown high achievement and academic promise during their first semester in the College of Pharmacy.

- Roche Pharmacy Communications Award

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

- 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.

- 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.

- 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.

- 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.

- 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.

- 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.

- 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.
- Wal-Mart Pharmacy Scholarship Award  
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.
- 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.

## Faculty

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

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## Adjunct Faculty

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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

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

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## Preceptors

The pharmacists listed below have been named as clinical preceptors for the 2007-2008 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 clerkship sites are in Little Rock or North Little Rock unless indicated otherwise.)

Sam Alexander, P.D.; Sam Alexander Pharmacy (Harrison, AR)  
Alice Arnold, P.D.; DeQueen Medical Center (DeQueen, AR)  
Bubba Arnold, Pharm.D.; St. Vincent Infirmary Medical Center  
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)  
John Barksdale, Pharm.D.; USA Drug Bryant (Bryant, AR)  
Kelly Barlow, Pharm.D.; Pharmacy Express (Van Buren, AR)  
Gary Bass, Pharm.D.; City Pharmacy  
Marion Berry, Pharm.D.; Wal-Mart Pharmacy (Conway, AR)  
James Bethea, Pharm.D.; Coker Hampton Drug Co. (Stuttgart, AR)  
David Bintliff, P.D.; Clinton HealthMart (Clinton, AR)

Andy Blansett, P.D.; Medicine Shoppe  
Bill Bloodworth, P.D.; Park West Pharmacy  
Cheryl Brantley-Finley, Pharm.D.; Kroger  
Dennis Brooks, Pharm.D.; White River Medical Center (Batesville, AR)  
Aaron Brown, Pharm.D.; Don's Pharmacy  
Debra Brown, P.D.; Summit Medical Center (Van Buren, AR)  
E.P. Buerkle, Jr. P.D.; Buerkle Drugs (Stuttgart, AR)  
Lisa Burgess, P.D.; USA Drug #1044  
Scott Butterfield, P.D.; Walgreens (El Dorado, AR)  
Kevin Caldwell, Pharm.D.; Wal-Mart (Mountain View, AR)  
Sara Caldwell, R.Ph.; IHS (Pine Ridge, SD)  
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)  
Stanley Carmack Pharm.D.; Arkansas Methodist Medical Center (Paragould, AR)  
Stan Chester, P.D.; Smith-Caldwell Drug (Benton, AR)  
Rob Christian, Pharm.D.; Baptist Health Medical Center  
Jim Cook, P.D.; United Medical (Home Care)  
Dave Cornwell, P.D.; PETNet Pharmaceuticals  
Carrie Crotts Hampton, Pharm.D.; St. Edward Mercy MC (Fort Smith, AR)  
Charles Culpepper, P.D.; Kroger (Hot Springs, AR)  
Kelly Curd, Pharm.D.; Clark Drug Store (Bald Knob, AR)  
Lucy Cyphers, P.D.; Garden Oaks Pharmacy (Camden, AR)  
Will Cyphers, P.D.; Garden Oaks Pharmacy (Camden, AR)  
Barry Dallas, P.D.; Fred's Pharmacy #1291 (Conway, AR)  
Teri Dart, Pharm.D. Harp's Pharmacy (Fort Smith, AR)  
Dwight Davis, Pharm.D.; NMHCRx  
Mary Davis, Pharm.D.; Norman and Baker Pharmacy (Newport, AR)  
Shari Dees, P.D.; Magnolia City Hospital (Magnolia, AR)  
Kelly Dies, P.D.; St. Vincent's North Rehab Hospital (Sherwood, AR)  
Alan Dodd, P.D.; American Home Patient Infusion (Fort Smith, AR)

Drew Driskell; Cardinal Health (Nuclear) (Austin, TX)

Bob Dufour, P.D.; Wal-Mart Corporate Office (Bentonville, AR)

Larry Dunn; Larry's Rexall (El Dorado, AR)

Danny Eaker, P.D.; Baker Rexall Drug

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)

Calvin Euler, P.D.; Arkansas Heart Hospital

Rob Evans, Pharm.D.; People's Pharmacy (Murfreesboro, AR)

Chad Fellers, Pharm.D.; K-Mart Pharmacy #3120

Dawn Fincher, P.D.; USA Drug

Tim Finley, Pharm.D.; West Side Pharmacy (Benton, AR)

Lyn Fruchey, Pharm.D.; Freiderica Pharmacy

Gary Garner, P.D.; Medicine Shoppe (Mena, AR)

Cynthia Garris, Pharm.D.; St. Bernard's Regional Medial Center (Jonesboro, AR)

John Garton, B.S.; Medicine Shoppe #1397 (Batesville, AR)

Fred Gattas, R.Ph.; Mallinckrodt Corporate Office (Earth City, MO)

Anthony Gentry, P.D.; Wal-Mart Pharmacy #10-1065 (Hope, 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)

Stuart Goudy, Pharm.D.; Kroger Pharmacy

Shane Greene, Pharm.D.; East End Pharmacy

Brandon Griffin, Pharm.D. Blue Cross/Blue Shield

Tim Grifford, P.D.; Wal-Mart Pharmacy #10-0085 (Benton, AR)

Richard Hanry, P.D.; Medic Pharmacy of El Dorado (El Dorado, AR)

Tony Hardage, Pharm.D.; Baptist MC (Arkadelphia, AR)

Kelly Harrell, P.D.; Cabot Medical Park (Cabot, AR)

Kenny Harrison, Pharm.D.; Cornerstone Pharmacy

Ray Harvey, P.D.; Palace Drug Store - Des Arc (Des Arc, AR)

Zeta Hayes, R.Ph.; Cardinal Health (Nuclear) (New Orleans, LA)

Danny Henderson, P.D.; Kroger Pharmacy #0617 (Russellville, AR)

Kathy Herriman, Pharm.D.; Harps Pharmacy (Fayetteville, AR)

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Robert Hodge, Pharm.D.; Prescription Shop (Paragold, AR)

Drew Holder, Pharm.D.; PharMerica North

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 Hudex, R.Ph.; Mallinckrodt (Denver, CO)

Jonelle Hudson, Pharm.D.; Washington Regional MC (Fayetteville, AR)

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James Isom, P.D.; Wal-Mart Pharmacy (Conway, AR)

Charles Jackson, P.D.; College Hill Drug (Texarkana, AR)

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Jim Johnson, P.D.; Mercy Health System of NW AR (Rogers, AR)

Steve Jones, P.D.; Crittendon Memorial Hospital (West Memphis, AR)

Phillip Judd, P.D.; The Drug Store

Kyle Kadivi, R.Ph.; Cardinal Health (Nuclear) (Dallas, TX)

Byrum Kelly, P.D.; Prescription Shop (Hazen, AR)

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John Kirtley, Pharm.D.; Arkansas State Board of Pharmacy

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