THE COLLEGE OF MEDICINE CATALOG

1985-1986

THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA

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MEDICAL SCHOOL ACADEMIC CALENDAR 1985-1986
(TENTATIVE)

Year I

Orientation ........................................... Thursday and Friday, July 25-26, 1985
Classes Begin ......................................... Monday, July 29, 1985
Labor Day (holiday) ................................. Monday, September 2, 1985
Last Day of Registration ......................... Wednesday, September 4, 1985
Fall Recess .......................................... Thursday, September 26-Sunday, September 29, 1985
Veterans' Day (holiday) ......................... Monday, November 11, 1985
Thanksgiving (holiday) ......................... Thursday, November 28-Sunday, December 1, 1985
Winter Break ........................................... Wednesday, December 18, 1985-Sunday, January 5, 1986
Classes Resume ........................................ Monday, January 6, 1986
Last Day of Registration ......................... Wednesday, January 8, 1986
Rodeo Day (holiday) .................................. Thursday, February 27, 1986
Spring Recess ......................................... Saturday, March 15-Sunday, March 23, 1986
Memorial Day (holiday) ......................... Monday, May 26, 1986
End of Year I ......................................... Wednesday, June 4, 1986
Summer Vacation ..................................... Thursday, June 5-Sunday, August 3, 1986

Year II

Classes Begin ......................................... Monday, July 29, 1985
Labor Day (holiday) ................................. Monday, September 2, 1985
Last Day of Registration ......................... Wednesday, September 4, 1985
Fall Recess .......................................... Saturday, September 21-Sunday, September 29, 1985
Veterans' Day (holiday) ......................... Monday, November 11, 1985
Thanksgiving (holiday) ......................... Thursday, November 28-Sunday, December 1, 1985
Winter Break ......................................... Saturday, December 14, 1985-Sunday, January 5, 1986
Classes Resume ........................................ Monday, January 6, 1986
Last Day of Registration ......................... Wednesday, January 8, 1986
Rodeo Day (holiday) .................................. Thursday, February 27, 1986
Spring Recess ......................................... Saturday, March 15-Sunday, March 23, 1986
End of Basic Science Classes ...................... Friday, May 9, 1986
NBME Board Study ................................. Saturday, May 10-Monday, June 9, 1986
NBME Part I ............................................. Tuesday, June 10-Wednesday, June 11, 1986
Summer Vacation ..................................... Thursday, June 12-Sunday, June 15, 1986
### MEDICAL SCHOOL ACADEMIC CALENDAR 1985-1986

(TENTATIVE)

**Year III**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tr>
<td>Classes Begin</td>
<td>Monday, June 17, 1985</td>
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<tr>
<td>Period 1</td>
<td>Monday, June 17-Saturday, July 27, 1985</td>
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<tr>
<td>Independence Day (holiday)</td>
<td>Thursday, July 4, 1985</td>
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<tr>
<td>Period 2</td>
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</tr>
<tr>
<td>Labor Day (holiday)</td>
<td>Monday, September 2, 1985</td>
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<tr>
<td>Last Day of Registration</td>
<td>Wednesday, September 4, 1985</td>
</tr>
<tr>
<td>NBME, Part I (repeat)</td>
<td>Wednesday, September 4-Thursday, September 5, 1985</td>
</tr>
<tr>
<td>Period 3</td>
<td>Monday, September 9-Saturday, October 19, 1985</td>
</tr>
<tr>
<td>Period 4</td>
<td>Monday, October 21-Saturday, November 30, 1985</td>
</tr>
<tr>
<td>Veterans' Day (holiday)</td>
<td>Monday, November 11, 1985</td>
</tr>
<tr>
<td>Thanksgiving Day (holiday)</td>
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<td>Period 5</td>
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<td>Period 7</td>
<td>Monday, March 24-Saturday, May 3, 1986</td>
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<td>Period 8</td>
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**Year IV***

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Classes Begin</td>
<td>Monday, June 17, 1985</td>
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<tr>
<td>Independence Day (holiday)</td>
<td>Thursday, July 4, 1985</td>
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<tr>
<td>Labor Day (holiday)</td>
<td>Monday, September 2, 1985</td>
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<tr>
<td>Last Day of Registration</td>
<td>Wednesday, September 4, 1985</td>
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<tr>
<td>NBME, Part II</td>
<td>Tuesday, September 17-Wednesday, September 19, 1985</td>
</tr>
<tr>
<td>Veterans' Day (holiday)</td>
<td>Monday, November 11, 1985</td>
</tr>
<tr>
<td>Thanksgiving (holiday)</td>
<td>Thursday, November 28, 1985</td>
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<tr>
<td>Winter Break</td>
<td>Saturday, December 21, 1985-Sunday, January 5, 1986</td>
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<tr>
<td>Last Day of Registration</td>
<td>Wednesday, January 8, 1986</td>
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<tr>
<td>Rodeo Day (holiday)</td>
<td>Thursday, February 27, 1986</td>
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<tr>
<td>NBME, Part II (repeat)</td>
<td>Tuesday, April 1-Wednesday, April 2, 1986</td>
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<td>Convocation</td>
<td>Friday, May 16, 1986</td>
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Elective Periods .................................................. See Electives Manual

*Year IV Students do not have Spring Break. They may, however, schedule vacations as explained in the text of the Electives Manual, available in Office of Student Records.*
MEDICAL SCHOOL ACADEMIC CALENDAR 1986-1987
(TENTATIVE)

Year I

Orientation ........................................... Thursday, July 31 and Friday, August 1, 1986
Classes Begin ............................................. Monday, August 4, 1986
Labor Day (holiday) ....................................... Monday, September 1, 1986
Last Day of Registration .............................. Wednesday, September 3, 1986
Fall Recess ........................................... Thursday, September 25-Sunday, September 28, 1986
Veterans' Day (holiday) ............................. Tuesday, November 11, 1986
Thanksgiving (holiday) ............................... Thursday, November 27-Sunday, November 30, 1986
Winter Break ........................................ Wednesday, December 17, 1986-Sunday, January 4, 1987
Classes Resume ......................................... Monday, January 5, 1987
Last Day of Registration .............................. Wednesday, January 7, 1987
Rodeo Day (holiday) ................................... Thursday, February 26, 1987
Spring Recess ......................................... Saturday, March 14-Sunday, March 22, 1987
Memorial Day (holiday) ............................... Monday, May 25, 1987
End of Year I .......................................... Wednesday, June 3, 1987
Summer Vacation ....................................... Thursday, June 4-Sunday, August 2, 1987

Year II

Classes Begin ............................................. Monday, August 4, 1986
Labor Day (holiday) ....................................... Monday, September 1, 1986
Last Day of Registration .............................. Wednesday, September 3, 1986
Fall Recess ........................................... Saturday, September 20-Sunday, September 28, 1986
Veterans' Day (holiday) ............................. Tuesday, November 11, 1986
Thanksgiving (holiday) ............................... Thursday, November 27-Sunday, November 30, 1986
Winter Break ........................................ Saturday, December 20, 1986-Sunday, January 4, 1987
Classes Resume ......................................... Monday, January 5, 1987
Last Day of Registration .............................. Wednesday, January 7, 1987
Rodeo Day (holiday) ................................... Thursday, February 26, 1987
Spring Recess ......................................... Saturday, March 14-Sunday, March 22, 1987
End of Basic Science Classes ....................... Friday, May 8, 1987
NBME Board Study ....................................... Saturday, May 9-Monday, June 8, 1987
NBME Part I ........................................... Tuesday, June 9-Wednesday, June 10, 1987
Summer Vacation ....................................... Thursday, June 11-Sunday, June 14, 1987
MEDICAL SCHOOL ACADEMIC CALENDAR 1986-1987
(TENTATIVE)

Year III

Classes Begin .......................................................... Monday, June 16, 1986
Period 1 ................................................................. Monday, June 16-Saturday, July 26, 1986
Independence Day (holiday) ........................................... Friday, July 4, 1986
Period 2 ................................................................. Monday, July 28-Saturday, September 6, 1986
Labor Day (holiday) .................................................. Monday, September 1, 1986
Last Day of Registration ............................................... Wednesday, September 3, 1986
NBME, Part I (repeat) .................................................. Wednesday, September 3-Thursday, September 4, 1986
Period 3 ................................................................. Monday, September 8-Saturday, October 18, 1986
Period 4 ................................................................. Monday, October 20-Saturday, November 29, 1986
Veterans' Day (holiday) ................................................. Tuesday, November 11, 1986
Thanksgiving Day (holiday) ......................................... Thursday, November 27, 1986
Period 5 ................................................................. Monday, December 1, 1986-Saturday, January 24, 1987
Winter Break .......................................................... Saturday, December 20, 1986-Sunday, January 4, 1987
Last Day of Registration ............................................. Wednesday, January 7, 1987
Period 6 ................................................................. Monday, January 26-Saturday, March 7, 1987
Rodeo Day (holiday) ..................................................... Thursday, February 26, 1987
Spring Recess ........................................................... Saturday, March 7-Sunday, March 22, 1987
Period 7 ................................................................. Monday, March 23-Saturday, May 2, 1987
Period 8 ................................................................. Monday, May 4-Saturday, June 13, 1987
Memorial Day (holiday) ............................................... Monday, May 25, 1987

Year IV*

Classes Begin .......................................................... Monday, June 16, 1986
Independence Day (holiday) ........................................... Friday, July 4, 1986
Labor Day (holiday) .................................................. Monday, September 1, 1986
Last Day of Registration ............................................. Wednesday, September 3, 1986
NBME, Part II .......................................................... Tuesday, September 23-Wednesday, September 24, 1986
Veterans' Day (holiday) ................................................. Tuesday, November 11, 1986
Thanksgiving (holiday) ................................................. Thursday, November 27, 1986
Winter Break .......................................................... Saturday, December 20, 1986-Sunday, January 4, 1987
Last Day of Registration ............................................. Wednesday, January 7, 1987
Rodeo Day (holiday) ..................................................... Thursday, February 26, 1987
NBME, Part II (repeat) ................................................ Tuesday, April 7-Wednesday, April 8, 1987
Convocation ............................................................. Friday, May 15, 1987
Graduation .............................................................. Saturday, May 16, 1987

Elective Periods .......................................................... See Electives Manual

*Year IV Students do not have Spring Break. They may, however, schedule vacations as explained in the text of the Electives Manual, available in Office of Student Records.
The University of Arizona is one of three publicly-supported institutions of higher learning in Arizona under the jurisdiction of the Arizona Board of Regents. It was established in 1885 as a land grant institution 27 years before Arizona was admitted to the Union as the 48th state. During its colorful history it has developed into one of the great universities of the southwestern United States with 11 colleges, four faculties, six schools, 119 academic subdivisions and departments, and 39 divisions of research and special service.

Commensurate with the rapid growth of the state during the past two decades, the University has grown to its present enrollment of over 34,900 students, 7,141 of whom are enrolled in graduate studies. The bachelor's degree is offered in 135 programs, the master's degree in 123, and the doctorate in 84, plus other degrees available in nine fields. The University offers nearly 200 fields of study. Its more than 200,000 active alumni are represented in every community in Arizona, all of the United States, and in many foreign countries.

The University is located about one mile from the downtown area in Tucson — the center of a rapidly growing metropolitan area with a population of more than 624,000.
In 1962, the Arizona Board of Regents granted authorization to the University of Arizona to develop a College of Medicine. Ground was broken in May 1966 for the Basic Sciences Building which was completed in September 1967 and occupied that same month by the 32 students of the first class.

A second class of 32 students entered the College in the fall of 1968, and the first full class of 64 students was enrolled in September 1969. In May 1971, the M.D. degree was granted to the members of the first graduating class and to date more than 1,000 students have been graduated. Since 1976 the size of the entering class has been 88 students. The College of Medicine presently has an enrollment of more than 350 full-time medical students.

Through the sale of self-liquidating bonds and additional matching funds from the United States Public Health Services, planning was completed for the Clinical Sciences Building and 300-bed University Hospital (now called University Medical Center). Construction was begun in the summer of 1968 and completed in July 1971.

**Physical Facilities**

The University of Arizona Health Sciences Center complex consists of four interconnected buildings, situated on a 30-acre site just north of the main campus of the University. These include the Basic Sciences Building, Clinical Sciences Building, Outpatient Clinic, and University Medical Center. In close proximity are the College of Nursing and the College of Pharmacy, located just south of the Basic Sciences Building.
A student wing of the Basic Sciences Building houses the multidisciplinary laboratories, lecture rooms, student lounge, and support facilities. Centralized animal quarters, administrative services, and part or all of the seven basic science departments (Anatomy, Biochemistry, Microbiology and Immunology, Molecular and Cellular Biology, Pathology, Pharmacology, and Physiology) are also housed in this building.

**Library**

The Health Sciences Center Library was one of the earliest units planned for the Center, and opened its doors in September 1967, when the first College of Medicine class began studies. Occupying 32,000 square feet of space, the library currently houses approximately 142,000 bound volumes, 3,400 media titles, and subscribes to 3,400 journals.

As part of the nationwide medical library network sponsored by the National Library of Medicine, the Health Sciences Center Library is the subregional library serving Arizona for the Pacific Southwest Regional Medical Library Service. Its resources are available not only to students and faculty of the University, but also to all health care providers throughout Arizona. Experienced reference librarians are on duty weekdays and Saturdays to assist patrons in the use of the collection and to explain all of the services offered by the library.

Special services and features of the library include: (1) Computer-based on-line information retrieval services in medicine and the health-related sciences. (2) A computer-based on-line cataloging system accessing catalog records from a central data base. (3) A computer-based on-line circulation system. (4) A media department including over 3,000 titles (audiotapes, videotapes, slide/sound programs, and models), one large viewing room, models room, and eight study carrels especially equipped to accommodate all media formats. (5) A Field Librarian providing reference services and consultation services to health workers and health sciences libraries throughout Arizona. (6) A Microcomputer Learning Center housing seven microcomputers for the support of student instruction in the College of Medicine. All training programs are coordinated by the Office of Medical Education. (7) Twenty-four hour access, except for two holidays each year, Christmas Day and New Year's Day.

The Health Sciences Center Library offers special orientation classes in medical bibliography and information retrieval. These are included in the College of Medicine curriculum as part of introductory course work. Individual assistance and group instruction are also offered.
Clinical Facilities

The 300-bed University Medical Center, with supporting clinical research facilities, provides a comprehensive resource for education and research in clinical medicine and for programs designed to investigate, demonstrate, and promote means for achieving health care of the highest possible quality.

Additional facilities currently in use by the College of Medicine include the Tucson Veterans Administration Medical Center, Tucson Medical Center, Kino Community Hospital, and Palo Verde Hospital, all in Tucson; Maricopa Medical Center, Good Samaritan Hospital, and St. Joseph's Hospital, all in Phoenix. The faculty of the College supervise the undergraduate medical education programs at these institutions.

Educational Program

Educational Philosophy

The faculty and staff of the Health Sciences Center are dedicated to implementing a broadly-based program of education, research, and service in the health fields. Although identifying most directly with the aspirations of the people of Arizona, the College of Medicine is committed to excellence without geographical confines. At a time when the University community is increasingly called upon to respond to the needs of society, it is the objective of the College of Medicine to address itself to the biological, cultural, sociological, and economic factors which affect health and the delivery of medical care throughout the state, nation, and world.

The curriculum of the College is under continual review to ensure that it reflects these objectives. Moving from a traditional lock-step curriculum in the late 1960s, the faculty responded to educational needs by establishing a basic three-year curriculum in 1972. Based on changing national needs for manpower and recognizing the pressures of a rapidly paced curriculum, a lengthened basic curriculum was adopted in January 1977. This curriculum is divided into approximately equal portions of basic and clinical sciences spanning a period of approximately four calendar years.

Although a large number of medical school graduates will undoubtedly continue their studies in the specialties of medicine, the College recognizes the importance of primary medical care. Through the Department of Family and Community Medicine and various outreach facilities, students and faculty work together in continuing and comprehensive care of patients. The concept of the physician as a member of the total health team is stressed in these ambulatory clinical experiences where the student has the opportunity to learn the social, psychological, and economic effects of disease.

The curriculum is predicated upon the belief that education for a lifetime of continued professional learning should be based upon a problem-solving framework. Emphasis is placed on key concepts, principles and factual knowledge to be used as the reservoir for the problem-solving process. Flexibility is designed with adequate free time to develop a program of scheduled and elective offerings to maximize preparation for any of several career options from primary care medical practice to academic scientist.

At graduation students will be broadly educated in the science and humanism of medicine and ready for the final training period which, in turn, will prepare them for careers in primary care medical practice or in medical specialties. Such training is available at the Arizona Health Sciences Center through its residency programs. In addition, the needs of the practicing physician for a lifelong learning in order to keep abreast of the rapid advances in medicine are met through programs for continuing medical education.
The Curriculum

ORIENTATION
The administration and selected faculty and students spend two days orienting new students to the College of Medicine. Topics discussed include the educational goals of the curriculum, counseling and advising, financial aid, study skills, and student government.

BASIC SCIENCES
During the first year, anatomy, physiology, biochemistry and neurosciences (a multidisciplinary course taught in an integrated format with both anatomical and physiological concepts) occupy the major portion of curricular time. In the second basic sciences year, pathology, microbiology, and pharmacology are taught. Preparation for Clinical Medicine begins in the first weeks of the first-year curriculum, providing the students with information about selected topics in medicine and early clinical exposure with practicing community physicians. Clinical experiences increase as the curriculum progresses. During the second year, physical examination and interviewing skills are taught.

So that students may become more aware of the humanism of medicine and the behavioral sciences as they relate to biological and clinical disciplines, a course in Human Behavior and Development starts during the second semester of the first year of the basic sciences and continues in the second year.

CLINICAL SCIENCES
During the last two years of medical school, students are enrolled in clerkships in Year III and electives during Year IV.

Hospital inpatient wards and outpatient clinics are the classrooms during these years. In the third year the student takes 48 weeks of required clerkships as follows: pediatrics (six weeks); obstetrics/gynecology (six weeks); psychiatry (six weeks); neurology (three weeks); family medicine (six weeks); internal medicine (twelve weeks); general surgery (six weeks); and selectives (three weeks). Students are also required to take a three-week surgery specialty
clerkship. This may be done as the student's third-year selective or in the fourth year.

For students taking the surgery specialty clerkship in the third year, at least thirty-three weeks of electives are required in the fourth year. For students not taking the surgery specialty clerkship in the third year, 30 weeks of electives and three weeks of the surgery specialty clerkship are required in the fourth year. If approved by the student's academic advisor and the corresponding department in this institution, fifteen weeks may be taken outside of the College of Medicine. Working with a career advisor from the faculty, the student plans an elective year to best prepare for a particular career goal. Elective experiences in both clinical and non-clinical areas are designed to add both breadth and depth to the professional education of the student.

See pages 14-15 for outline of the curriculum.

In addition to University Medical Center and other hospitals in Tucson, clinical facilities throughout the state, especially in the major teaching hospitals of Phoenix, are employed in the educational experience. A student matriculating at the College of Medicine can assume that at least a portion of required curriculum time in the clinical years may occur outside of Tucson.

CURRICULUM POLICIES

University policy expects students to be regular and punctual in class attendance and affirms that students themselves are primarily responsible for attendance. Each instructor will provide students with a written statement of his or her policy in respect to absences.

Students wishing to petition for exemption from basic science courses may do so by directing requests to the departments. Such requests will be considered on an individual basis according to departmental policies and will be granted only in exceptional cases. Students in the basic science portion of the curriculum may enroll in various elective courses for which they meet the prerequisites and as they have available time. These electives may be used to fulfill clinical science or elective year requirements with prior permission of the Curriculum Committee.

As part of their education, all students will be required to participate in laboratory experiments in which experimental animals will be used.
OFFICE OF MEDICAL EDUCATION

The Office of Medical Education assists the faculty in all aspects of the medical education process. The range of educational assistance includes: course development; teaching effectiveness documentation; faculty teaching improvement; test development and scoring; medical education research; ongoing assessment of the college curriculum and its impact on students. The members of the Office contribute to the Curriculum Committee, curriculum subcommittees, and some departmental educational committees.

Student Research Opportunities

Students are encouraged to participate in research activities. Under a five-year grant from the National Institutes of Health, research experiences with stipends will be offered to qualified medical students. In addition, extracurricular experiences (i.e., course in research methodology, clinical research correlation seminars, a student research club and a research mentor-career advisor system) will be offered to such students. Student research is also funded through the Dean's Office in the form of summer stipends, supply monies and travel support to encourage students to present their results at scientific meetings.

Graduate Education

Basic Sciences

A formal M.D./Ph.D. program is available. Students wishing to pursue the combined degree must first be admitted to the College of Medicine and then apply for acceptance into the combined degree program. The Ph.D. may be obtained from the Departments of Anatomy, Biochemistry, Microbiology and Immunology, Pharmacology and Physiology. The two degrees will be awarded concurrently and certain courses taken in the medical curriculum may be applied to the Ph.D. requirements. The combined degree program has a duration of six to seven years.

Residency Training

Specialty training in the clinical disciplines is provided by Anesthesiology, Dermatology, Emergency Medicine, Family Practice, General Surgery, Internal Medicine, Neurology, Nuclear Medicine, Obstetrics and Gynecology, Occupational Medicine, Ophthalmology, Orthopedics, Otolaryngology, Pathology, Pediatrics, Preventive Medicine, Psychiatry, Radiology Diagnostic, Radiology Therapeutic, Thoracic Surgery, Urology, and Vascular Surgery. Further information concerning these programs may be obtained by contacting the program director in each instance.

Postgraduate Education

The Office of Continuing Medical Education and Outreach serves as a central resource for the coordination, integration and facilitation of continuing medical education and outreach for the faculty and the physicians of Arizona. The goals and objectives of the office include the initiation of effective continuing medical education programs appropriate to the needs of Arizona physicians. Furthermore, the office strives to make these programs available to physicians regardless of the location of their practice. The office is responsible for the development and coordination of programs for practicing physicians and, in so doing, reinforces the concept of medical education as being one of lifelong learning. The office provides programs in continuing medical education that identify and utilize areas of excellence within the University of Arizona College of Medicine, thereby benefiting not only physicians within the state of Arizona, but also physicians, teachers, and researchers at a national and international level.
One such program is the Mini-Residency. In this program the physician leaves his practice and returns to the academic environment for an individually tailored schedule which utilizes ongoing conferences, rounds, undergraduate and graduate teaching programs, audiovisual and self-instruction programs and a full spectrum of ongoing education programs at the College of Medicine.

For information on specific programs, please contact the Office of Continuing Medical Education and Outreach, University of Arizona College of Medicine, Tucson, Arizona, 85724, Telephone: (602) 626-6173.
CURRICULUM OUTLINE
Basic Sciences

YEAR I

Fall Semester
- Gross Anatomy
  180 hours

Spring Semester
- Neurosciences
  102 hours

YEAR II

Fall Semester
- Pathology
  152 hours

Spring Semester
- Pathology
  157 hours

Fall Semester
- Microbiology
  124 hours

Spring Semester
- Pharmacology
  100 hours

Fall Semester
- Preparation for Clinical Medicine
  54 hours

Spring Semester
- PCM
  102 hours plus three field trips

Fall Semester
- Physiology
  227 hours

Spring Semester
- Physiology
  115 hours

Fall Semester
- Microanatomy
  83 hours

Spring Semester
- Human Behavior and Development
  80 hours

Fall Semester
- PCM
  100 hours (course)

Spring Semester
- PCM
  60 hours (Preceptorship)

Important events:
- Orientation
- Christmas/New Year's Recess
- Spring Recess
- Two-Monti Vacation
- Fall Recess
- Spring Recess
- Board Study
- Christmas/New Year's Recess
- Practice NBME Part 1

All hours are estimates. Compiled by the Office of Academic Affairs and updated March 1985.
# CURRICULUM OUTLINE
## Clinical Sciences

### YEAR III

<table>
<thead>
<tr>
<th>Summer</th>
<th>48 weeks required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLERKSHIPS</strong></td>
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</tr>
<tr>
<td><strong>INTERNAL MEDICINE</strong></td>
<td>12 weeks required</td>
</tr>
<tr>
<td><strong>GENERAL SURGERY</strong></td>
<td>6 weeks required</td>
</tr>
<tr>
<td><strong>SPECIALTY SURGERY</strong></td>
<td>3 weeks required</td>
</tr>
<tr>
<td><strong>PEDIATRICS</strong></td>
<td>6 weeks required</td>
</tr>
<tr>
<td><strong>OBSTETRICS/GYNECOLOGY</strong></td>
<td>6 weeks required</td>
</tr>
<tr>
<td><strong>FAMILY MEDICINE</strong></td>
<td>6 weeks required</td>
</tr>
<tr>
<td><strong>PSYCHIATRY</strong></td>
<td>6 weeks required</td>
</tr>
<tr>
<td><strong>NEUROLOGY</strong></td>
<td>3 weeks required</td>
</tr>
</tbody>
</table>

### YEAR IV

<table>
<thead>
<tr>
<th>Summer</th>
<th>Late Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELECTIVES</strong></td>
<td>33 weeks required</td>
</tr>
<tr>
<td><strong>DEPARTMENT OFFERINGS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ANATOMY</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>ANESTHESIOLOGY</strong></td>
<td>6</td>
</tr>
<tr>
<td><strong>BIOCHEMISTRY</strong></td>
<td>1</td>
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<tr>
<td><strong>FAMILY &amp; COMMUNITY MEDICINE</strong></td>
<td>23</td>
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<tr>
<td><strong>INTERNAL MEDICINE</strong></td>
<td>32</td>
</tr>
<tr>
<td><strong>MICROBIOLOGY</strong></td>
<td>1</td>
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<tr>
<td><strong>NEUROLOGY</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>OBSTETRICS/GYNECOLOGY</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>OPHTHALMOLOGY</strong></td>
<td>1</td>
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<tr>
<td><strong>PATHOLOGY</strong></td>
<td>4</td>
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<tr>
<td><strong>PEDIATRICS</strong></td>
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<tr>
<td><strong>PHARMACOLOGY</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>PHYSIOLOGY</strong></td>
<td>1</td>
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<tr>
<td><strong>PSYCHIATRY</strong></td>
<td>6</td>
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<tr>
<td><strong>RADIOLOGY</strong></td>
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<tr>
<td><strong>SURGERY</strong></td>
<td>21</td>
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<tr>
<td><strong>SEMINARS</strong></td>
<td>14</td>
</tr>
<tr>
<td>Interdepartmental &amp; Departmental</td>
<td></td>
</tr>
</tbody>
</table>

(See Electives Manual for course details)

- Twelve weeks of unscheduled time during the two Clinical Sciences years are available for vacations and interviews.
ADMISSIONS

Admission to the First-Year Class

GENERAL: The University of Arizona College of Medicine follows the recommended application and acceptance procedures of the Association of American Medical Colleges (AAMC). These may be found in the most recent copy of the Medical School Admissions Requirements book, published annually by the AAMC. Everyone interested in attending medical school should consult this book, as it contains a great deal of useful information. The most recent copy may be obtained for $7.50 by writing to the AAMC (address on page 22).

Acceptance to the University of Arizona College of Medicine is based upon an assessment of the applicant's intellectual and personal traits, fulfillment of certain prerequisites outlined below, and consideration of the applicant's state of residence. All applicants who wish to be considered must be U.S. citizens or have permanent resident visas. Preference is given first to residents of Arizona and next to a few highly qualified applicants who are residents of Alaska, Montana and Wyoming, and are certified and will receive full and uninterrupted funding by the Western Interstate Commission for Higher Education (WICHE). Applicants from states other than these cannot be considered. In evaluating applicants, the Admissions Committee considers ability and scholarship as indicated by the entire academic record, the results of the Medical College Admission Test (MCAT), personal statement, letters of recommendation, and personal interviews. (See below under Admission Process.)

PREREQUISITES: The College of Medicine encourages applications from all interested students irrespective of their college major. However, each applicant must meet the following minimum requirements prior to matriculation:

1. Successful completion of three full years of study at an accredited college or university, including 30 semester hours (45 quarter hours) which must be upper division. This is considered equivalent to 90 semester hours or 135 quarter hours.
2. Successful completion of two full semesters (or three quarters) in each of the following areas: general chemistry, organic chemistry, physics, general biology or zoology, and English.
3. Provide MCAT scores from Series 13, given in April 1983, or completion of the MCAT within two years of application.

APPLICATION PROCEDURE: The University of Arizona College of Medicine participates in the American Medical College Application Service (AMCAS). Persons seeking admission to the entering class must process their applications through AMCAS, even if this is the only school to which they apply. Those wishing to make application for the class entering in 1986 should follow the steps outlined below:

1. Arrange to take the Medical College Admission Test (MCAT), preferably in the Spring prior to application, by writing to the American College Testing Program (address on page 22).
BETWEEN JUNE 1 AND NOVEMBER 1, 1985

2. Obtain an AMCAS application packet. An application may be obtained only by using an AMCAS Application Request Card, available from any participating medical school or from most premedical advisors. Upon receipt of this card, AMCAS will send the necessary material to the applicant immediately.

3. Complete and return the AMCAS application. Follow instructions in the application packet and return the completed application to the AMCAS office. (Please do not send this material to the medical school.) You must request that the registrar of every junior college, college and university you have attended forward official transcripts directly to the AMCAS office by November 1st. All transcripts should arrive before your application reaches the AMCAS office to eliminate any delay in processing your materials. In your instructions to AMCAS, you designate the medical schools to which you wish to apply and pay a fee based on the number of those schools. Even if you have previously applied to this school, or any other school under AMCAS, you must submit an entirely new application and transcripts each year.

4. Return AMCAS application by November 1, 1985. The deadline for your application to the University of Arizona College of Medicine is November 1, 1985. Your AMCAS application and all transcripts must be received in Washington by this date. Please allow sufficient time for mail delivery since applications received in Washington after this date cannot be considered by this college.

5. Await notification of receipt of application. You will receive notice first from AMCAS and later from this college that your application has been received. The AMCAS application constitutes the preliminary application to this College of Medicine.

6. Initial screening of applications. After an initial screening to determine your state residency, you will be notified as to the disposition of your preliminary application. Those who will not be considered further are notified as soon as possible so they may concentrate their efforts on schools where their opportunities may be greater.

7. Receipt of supplementary materials. Those who pass the initial screening process will receive a packet of supplementary materials that are specific to this College of Medicine. Instructions are provided with this packet, and all materials should be returned directly to the Admissions Office, College of Medicine, University of Arizona, Tucson, Arizona, 85724. (Please do not send any of this material to AMCAS.)

8. Invitation to appear for personal interview. All applicants receiving supplementary materials will be invited to appear for a personal interview at the College of Medicine. All appointments are made by the Admissions Office. Since the personal interview is an integral part of the admissions process, no applicant can be considered without it. At the time of the interview, you will have an opportunity to meet with medical students and tour the Health Sciences Center. Interviews take place between October and January. Interviews are conducted over the Christmas holiday period, primarily for those applicants attending schools outside Arizona. However, where travel to Tucson would result in an undue financial burden, it may be possible to arrange for interview summaries to be sent from other schools where the applicant has been interviewed. Such requests may be made at the time you are invited for your interview.

9. Notification that file is complete. After all your materials have been received and you have had your interview, you will be notified that your application is complete. The Admissions Office will periodically review all files and notify you if any materials are still missing. However, we recommend that you complete your file prior to December 31, 1985, since notification of Admissions Committee actions take place between January and March of 1986.

JANUARY 15 TO MARCH 15, 1986

10. Notification of action by the Admissions Committee. In early December 1985, the Admissions Committee will begin to take action on all applicants whose files are complete.
Letters of acceptance will be sent on January 15, February 15 and March 15, 1986 (or the first working day thereafter). Notification of rejection or alternate status will be sent out on March 15, 1986.

11. Accepted applicants must submit a letter of intent within two weeks, to retain their place in the class. No deposit is required. Accepted students are encouraged to withdraw their application from medical schools of lower preference. Many well-qualified students are Alternates each year. It is the obligation of each accepted applicant to withdraw upon making a decision to go elsewhere, in order to give those not yet selected the opportunity to compete for a vacancy in the class.

AFTER MARCH 15, 1986

12. At any time, an applicant holding a position on the Alternate List may receive an acceptance if a place becomes available.

13. Final acceptance for enrollment for all accepted applicants is contingent upon a continued satisfactory level of academic and personal performance, completion of required course work prior to July 15, 1986, and all other requirements. Certified WICHE acceptees (Alaska, Montana, and Wyoming) must provide evidence of full and uninterrupted funding from their state of origin. Failure to meet these conditions will be cause for withdrawal of the acceptance.

14. Any student accepted for enrollment who wishes to be exempted from any medical school course may petition the appropriate department to be relieved of the necessity of taking the department's formal course. The decision rests with the individual department and is based on the merits of each request.

Admission Process

Applicants apply directly to the American Medical College Application Service (AMCAS). The application will be reproduced and sent to all the schools to which the applicant wishes to apply. When AMCAS applications are received at the College of Medicine, they undergo an initial screening. All Arizona residents are sent additional materials and invited for personal interviews. A few highly qualified WICHE certified and funded applicants from Alaska, Montana and Wyoming, who have passed the initial screening, are sent additional materials and invited for a personal interview. All applicants who are residents of any other state are automatically sent a letter informing them they are not eligible. The deadline for applications is November 1, 1985.

The Admissions Committee uses five major criteria in the selection of students: academic record, Medical College Admission Test (MCAT) scores, personal statement, letters of recommendation, and results of personal interviews. Consideration of the academic record includes not only grades, but trends in the grade point average; course loads; work experience while going to school; extent of extracurricular interests and pursuits; and other factors which might directly or indirectly influence the individual's total academic performance. The MCAT scores provide a national comparison of each student with all those seeking admission to medical school. Applicants are asked to have letters of recommendation submitted from either a Premedical Committee at their university or from three individual faculty members. Use of the Committee at your school is strongly recommended. If individual letters are submitted, they should be from two science faculty members and one nonscience faculty member. All must be from professors under whom you have taken courses. Each applicant will be interviewed by three College of Medicine faculty members and one practicing physician. The four interviews are on a one-to-one basis. The interviewers are asked to evaluate the applicant's ability to relate to another individual in the interview situation and to ascertain, from the interview, their impression of the applicant's overall desirability as a future physician. The interviewers also attempt to gain some insight into the applicant's family background, outside interests, and the duration and depth of interest in medicine. The interviewers have no prior information about the applicant. They forward their impressions to the Admissions Committee, which has access to all other data.
The Admissions Committee then reviews all completed applications. All facets of the record are considered. The amount of consideration given to the academic record, MCAT scores, personal statement, letters of recommendation, and results of the personal interviews, depends on each individual on the Committee. Each member of the Admissions Committee votes after a review of each person's complete file, and the combined vote of the Committee determines who is accepted. Acceptances are based on the impression of all members of the Admissions Committee regarding each applicant and the relationship of each applicant to every other. In this way, an attempt is made to be as fair as possible to all persons applying to medical school by utilizing all the information available to the Committee.

The Committee selects sufficient applicants for acceptance to fill the class and a reasonable number to be placed on the Alternate List. All other applicants are notified that their applications are not competitive and, therefore, they are no longer under consideration.

Rural Arizonans

Special consideration will be given to individuals who have lived half their lives in rural Arizona communities outside the state's major metropolitan areas and who desire to return to such an area to practice medicine. A form requesting this special consideration will be included with the supplementary materials.

Admission by Transfer

Applications for transfer to the College of Medicine are welcomed from students who satisfy the conditions outlined below. Applicants are treated as competitors for any available places. Positions become available only through attrition.

1. Applications will be considered from residents of the several states in the following order of preference:
   a) Arizona residents matriculated in foreign medical schools (WHO-listed) or two-year U.S. medical schools.
b) Residents of Alaska, Montana and Wyoming (who are WICHE certified and will receive full and uninterrupted funding) matriculated in foreign medical schools (WHO-listed) or two-year U.S. medical schools.

c) Arizona residents matriculated in four-year U.S. medical schools or U.S. schools of osteopathy.

2. Applicants must meet the following academic criteria:
   a) Successful completion of a minimum of three full years of premedical study (90 semester units or 135 quarter units) at an accredited college or university, with 30 units at the upper division level.
   b) Successful completion of two full semesters (or three quarters) in each of the following areas: general chemistry, organic chemistry, physics, general biology or zoology, and English.
   c) Must have taken the MCAT.
   d) Must have completed all of the basic sciences as a matriculant in a LCME accredited U.S. or WHO-listed medical school and provide evidence (an official transcript is required) of having successfully completed a course of study which includes the content of the following courses: anatomy, biochemistry, microbiology, pathology, pharmacology, physiology, and behavioral sciences.

3. Where adequate training in history-taking and physical examination is not apparent from the applicant's record, at the discretion of the Admissions Committee, the applicant will be required to participate in an especially prepared course of study in these areas.

4. Applicants whose credentials indicate deficiencies in other areas of study covered during the basic science curriculum will be held responsible for this material through self-study and will be expected to perform at the same level as the students who have completed the first two years here at the University of Arizona College of Medicine.

5. All applicants matriculated in foreign medical schools must take the Medical Sciences Knowledge Profile (MSKP) examination prior to being considered by the Admissions Committee. Please contact the AAMC for registration materials and deadlines (see page 22 for address). Applicants who are enrolled in LCME accredited medical schools must take Part I of the National Board Examination.

6. Applicants who are on an official leave of absence of not more than one year will be considered. A letter substantiating this leave must be submitted from the applicant's school of medicine.

7. All accepted transfers will be required to take Parts I and II of National Boards in order to graduate.

8. All applicants who meet the listed criteria and are under consideration will be interviewed at the College of Medicine.

9. All applicants must have official transcripts submitted from all undergraduate and graduate schools.

10. Applicants must have letters of recommendation sent directly to the Admissions Office from professors under whom they have taken courses, or from physicians under whom they have done clerkships or externships. A minimum of three letters is required. If you are attending a U.S. medical school, a letter from the Dean of the school is also required, stating that you are currently enrolled and a student in good standing.

11. Applicants are advised that, if accepted, they will enter into the third year of our program and will be required to complete all of the last two years of our curriculum.

12. Applicants must apply directly to this College of Medicine. Applications will be available after November 1st - deadline for receipt of application and domicile affidavit is March 31st.
Participation in Supervised Clinical Experience (Fifth Pathway)

Individuals who are presently and were Arizona residents at the time of their initial application to medical school and are currently attending a medical school located outside of the U.S., Puerto Rico and Canada are invited to apply for admission as participants in the Fifth Pathway Program at the College of Medicine. This program consists of 48 weeks of required clerkships which will include twelve weeks of internal medicine, nine weeks of surgery and six weeks of each of the following: pediatrics, obstetrics-gynecology, psychiatry, family medicine; and three weeks of neurology.

Successful completion of the program will be measured by the guidelines and evaluation procedures used for our students (see section on Student Progress). Participants successfully completing the program will receive a letter from the Dean of the College of Medicine recognizing this achievement.

Applicants for admission to this program must meet the following criteria:

1. Are currently, and were at the time of entrance into the foreign medical school, a resident of Arizona.
2. Have studied medicine at a medical school located outside the United States, Puerto Rico and Canada, which is listed by the World Health Organization. The medical school must require the student to complete an internship and/or social service before awarding the M.D. degree. If your school does not have this requirement, you are not eligible for the Fifth Pathway Program.
3. Have successfully completed all the formal requirements of the foreign medical school except the above mentioned internship and/or social service. An official transcript must be provided to indicate successful completion of those requirements.
4. Have successfully completed, in an accredited American college or university, the minimum undergraduate premedical work of the quality required of all students entering the University of Arizona College of Medicine. These are:
   a) Successful completion of three full years of study at an accredited college or universi-
ty, including 30 semester hours (45 quarter hours) which must be upper division. This is considered equivalent to 90 semester hours or 135 quarter hours.

b) Successful completion of two full semesters (or three quarters) in each of the following areas: general chemistry, organic chemistry, physics, general biology or zoology, and English.

c) Provide MCAT scores.

5. Have taken the Basic Medical Science and Clinical Science components of the examination given by the Educational Commission for Foreign Medical Graduates (ECFMG) prior to admission (address listed below). Preference will be given to those who have achieved a passing score (75).

6. Be interviewed at the College of Medicine.

7. Although the MSKP examination is not required, the results may be taken into consideration by the Admissions Committee.

8. Provide letters of evaluation from all clinical experience during the last two years of medical school.

9. The application deadline for January participation is September 1st. The application deadline for June participation is February 1st.

Selected participants will begin the program as close to July 1, 1985 and January 1, 1986 as possible, but may start at other times under special arrangement.

List of Important Addresses

University of Arizona College of Medicine
Tucson, Arizona 85724
   Admissions Office  626-6214 or 6215
   Student Affairs    626-6216

Association of American Medical Colleges (AAMC)
One Dupont Circle, N.W.
Suite 200
Washington, D.C. 20036

American Medical College Application Service (AMCAS)
Association of American Medical Colleges
Division of Student Services
1776 Massachusetts Avenue, N.W.
Washington, D.C. 20036-1989

National Board of Medical Examiners (NBME)
3930 Chestnut Street
Philadelphia, Pennsylvania 19104

New Medical College Admission Test (MCAT)
c/o American College Testing Program
Box 414
Iowa City, Iowa 52243

Educational Commission for Foreign Medical Graduates (ECFMG)
3624 Market Street
Philadelphia, Pennsylvania 19104

Medical Sciences Knowledge Profile (MSKP)
Association of American Medical Colleges
1776 Massachusetts Avenue N.W. - Suite 301
Washington, D.C. 20036-1989
Orientation

Orientation occurs on the two days prior to the start of classes. Its purpose is to acquaint the student with classmates, upperclassmen, members of the administration, faculty and staff. Activities will include registration and the procedural matters related to enrollment. Information and schedules of activities are sent to entering students during the preceding spring and summer.

Housing

Medical students must assume the responsibility for making their own living arrangements. However, assistance in finding accommodations in University housing is available from the Director of Residence Life. Rooms in the University residence halls are available through the Department of Residence Life for unmarried students on a space available basis, according to date of application.

Married students may apply for a unit at the University of Arizona’s Family Housing Project. The project consists of 420 one-story apartments, either furnished or unfurnished, located in northeast Tucson about fifteen minutes’ drive from the Health Sciences Center. Students may have their names placed on the waiting list immediately after being accepted by the College of Medicine. Further information concerning married student rental units may be obtained by contacting the Family Housing Office, University of Arizona, 3401 North Columbus Boulevard, Tucson, Arizona, 85712.

For additional information relevant to housing, consult the two daily Tucson newspapers and the daily student newspaper. The Associated Students’ Office in the Student Union Memorial also maintains a list of available housing.
Student Health Service

All students matriculated in the College of Medicine are eligible for care at the University of Arizona Student Health Service. If an illness requires other than routine care, or the services of an outside physician or consultant (major injury, complicated medical illness, major fractures or extraordinary services), the cost of such services must be borne by the student. For this reason, some form of health insurance is strongly advised. Such supplemental insurance may be purchased at the time of registration. For a more complete description of the services available at the Student Health Center, the student is advised to consult the General Catalog of the University.

Students enrolled in the College of Medicine are required to submit proof of a tuberculosis skin test within six months of admission. Thereafter, repeat chest x-rays and skin tests will be done when deemed appropriate. Hospital policy mandates immunity to rubella and students will be screened for serologically documented antibody titers. Those with no titer will receive live rubella virus vaccine irrespective of age. Certain types of vaccinations also will be available to students. In all instances, these tests and vaccinations will be provided by the Student Health Service and their cost will be borne by each student involved.

The Code of Scholastic Conduct

Students who enter the College of Medicine find themselves in the company of scholars, each of whom is working to expand his or her own knowledge, to extend the boundaries of human knowledge, and to apply knowledge in service to fellowman. The faculty and students of the College of Medicine require that a man or woman shall act honorably in all the relations and phases of student life and, therefore, all work is conducted under an honor system. The essence of the system is that a student's word can be accepted without question as to truth and any violation of a student's word is an offense against the entire student body. The fundamental demand that the honor system makes on the individual is that each one resist less than honorable means to attain a desired end. The honor system is not an end in itself but is a framework for behavior and a means of inculcating a spirit of integrity which should sustain the student throughout his or her lifetime.

All scholastic behavior in the College of Medicine is regulated by a Code of Scholastic Conduct. Each accepted student, before matriculating, is required to read and sign a statement that he/she will abide by the Code. The Code of Scholastic Conduct shall be read to all entering students at Orientation.

Counseling and Advising

The Office of Student Affairs coordinates the advising and counseling functions for medical students. Students may request faculty advisors when they enter medical school and will have clinical advisors available to work with them throughout their medical school training. These advisors help students with academic decisions, provide guidance about professional behavior and career choices and, in general, help the student in the process of becoming a physician. In addition to advisors, counseling about academic, personal and career problems is available to students through the Office of Student Affairs.

Student Representatives

Students may actively participate in the College of Medicine affairs in a number of important and constructive ways. On a formal level, each class elects two representatives who are members of the College of Medicine Student Council. All other elected student representatives to other committees are also members of this body. This group meets
regularly with the Dean's staff to discuss issues of mutual concern. In addition, the Medical Student Council supervises the selection of student representatives to various faculty-student committees. Examples of these are the Curriculum Committee, Student Progress Committee, Committee of Nine, Honors and Awards Committee, and various subcommittees of these. A number of departments actively seek student representation for various departmental decision-making and advisory groups.

The formal election of representatives in no way prevents a student from discussing with any member of the faculty or administration issues of concern to that student. All students are encouraged to participate in college affairs to the extent of their time, interest and inclination.
FINANCIAL INFORMATION

Expenses

In considering the cost of attending medical school, the student must take into account not only educational expenditures but also subsistence and personal obligations such as dependents. The basic yearly budget for a single student is approximately:

<table>
<thead>
<tr>
<th>Description</th>
<th>Resident (Approx.)</th>
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</thead>
<tbody>
<tr>
<td>Tuition and fees*</td>
<td>$3,800</td>
</tr>
<tr>
<td>Books and Supplies</td>
<td>1,000</td>
</tr>
<tr>
<td>Room and Board (estimated)</td>
<td>3,714</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2,933</td>
</tr>
<tr>
<td><strong>Total Approximate</strong></td>
<td><strong>11,447</strong></td>
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*Tuition and fees are subject to change.

Clearance of Accounts - All candidates for the M.D., or M.D./Ph.D. degree are required to clear any indebtedness to the University before a certificate of completion of degree requirements or diploma will be released.

Financial Assistance

The College of Medicine is fortunate in that many individuals and organizations have contributed scholarship and loan funds specifically designated for medical students. Among the many persons and organizations to whom we owe our sincere thanks are:

SCHOLARSHIPS

Robert F. Allen Memorial Award in Cancer
John A. Noon and Helen Noon Anderson Memorial Scholarship
Arizona Medical Association Scholarship Program
Associates in Laboratory Medicine, P.C. Scholarship
Dr. Henry G. Atha and Grace L. M. Atha Memorial Scholarship
Nelson C. Bledsoe Scholarship
Earl Bluestein Scholarship Fund
Louis Cobb Memorial Scholarship
Coconino County Medical Society Scholarship
Joseph Collins Memorial Scholarship
Anne Babbitt Cordasco, M.D., Memorial Scholarship
Herman E. Demund Memorial Scholarship
Duncan Dietrich Medical Scholarship
Eddie and Madelyn Earl Memorial Scholarship
Leon and Helen Feinberg Scholarship
Nicholas W. Genematas Foundation Scholarship
Greater Tucson Area Foundation Scholarship
Howard Melville Hanna Memorial Scholarship
The Haskell Book Scholarship
Dr. Cruz M. Hernandez Scholarship Fund
Benjamin S. and Estella C. Hill Foundation
Josephine Madara Memorial Scholarship
Dr. Ruth Mahnken Memorial Fund
Marshall Foundation for Arizona Women
George Martin Memorial Scholarship
Salvador Mazza Scholarship
Fred C. McCormick Scholarship
Medical Alumni Fund Medical Student Relief Fund
Metzger Scholarship Fund National Hispanic Scholarship Fund
National Medical Fellowships, Inc.
John A. Mulcahy Scholarship
Otis Media Scholarship
Dr. George D. Reay Memorial Scholarship
Duncan Reid Memorial Scholarship
Francis A. Roy and Dorothy Roy Memorial Scholarship in Medicine
M.A. and Greta Schuele Scholarship
Delbert L. Secrist, Sr., Memorial Scholarship
Milton L. Shifman Scholarship
Bernice P. Simon Memorial Scholarship
Mary Woodman Smith Memorial Scholarship in Medicine
George F. Spaulding Scholarship
Special Assistance Fund-College of Medicine
Special Medical Student Scholarship for Minorities
Carla and Oliver Springer Scholarship Fund
William B. "Bill" and Dr. H. H. Varner Scholarship
Hans and Julia Voight Memorial Scholarship
Dr. Samuel Humes Watson Medical Scholarship
Clara Seippel Webster Memorial Scholarship
Alma L. Wilson Memorial Scholarship
Dr. Boris Zemsky Memorial Fund-Psychiatry
A number of other scholarships have been donated anonymously.

LOANS

State of Arizona Medical Student Loans
Arizona Medical Association Auxiliary Loan Fund
Josephine F. Bennett Foundation Loan Fund
College of Medicine Emergency Loan Fund
Dr. Paul S. Gaddis Memorial Loan Fund
Health Professions Student Loan Fund
Elizabeth Banes Mann Loan Fund
Marshall Revolving Loan Fund
Charles W. Sechrist Emergency Loan Fund
University Medical Center Auxiliary Emergency Loan Fund
Roy Whitehead Memorial Fund

AWARDS

American Medical Women's Association Awards
Arizona Foundation Award
The Arizona Medical Association Prize
The Arizona Medical Association Travel Awards
Brayton Memorial Family Practice Award
Marshall Brucer Award in Radiation Medicine
Ciba Award for Community Service
Grobe Award in Family Practice
Robert Wood Johnson Health Policy Fellowships
The Roy Killingsworth Award for Psychiatry
The Alvin T. Kirmse Memorial Prize in Obstetrics
Mosby-Lange Book Awards
Bernard Revsin Memorial Scholarship Award
Upjohn Award

Allocations of financial assistance are made solely on the basis of need and according to
the availability of funds with the exception of several awards which are given for academic
achievement. Only those students whose personal savings, earnings, and aid from family
sources are inadequate to meet their needs can be considered for financial assistance. Such
determinations are made only after an applicant has been accepted to the College of
Medicine.

Generally, the resources of the College of Medicine are insufficient to meet the total
needs of the students. Outside sources must then be employed. Additional loans are
available to Arizona medical students through Guaranteed Student Loans, Health Educa-
tion Assistance Loans, and Auxiliary Guaranteed Loans. The American Medical Student
Association and the National Association of Residents and Interns offers loans to senior
medical students. The Army, Navy and Air Force, as well as the Arizona Student Loan Pro-
gram, offer financial assistance in return for service commitments. Applications may be ob-
tained from the Student Financial Aid Office of the College of Medicine.

For emergency situations, special short-term loans can be obtained from the Student
Financial Aid Office.
STUDENT PROGRESS

General

Student progress, in its broadest sense, includes not only the system used to evaluate academic performance, but also the guidelines for academic and nonacademic performance, the procedures used to monitor student progress, as well as the structure of the student counseling and advising systems. The faculty and administration of the College of Medicine continually review all aspects of student progress. From these reviews over the years, several basic features have become apparent. First, the grading and evaluation system must be fair and informative to both faculty and students and should minimize competition between students while encouraging the acquisition of skills and knowledge. Second, it is essential to identify, as early as possible, those students with potential academic or nonacademic problems and to provide appropriate constructive remedies. Third, mechanisms must be available to insure that only qualified candidates receive the M.D. degree. Finally, it is necessary to provide a fair and impartial method of appeal for those students against whom there is adverse action for academic or nonacademic reasons. Within this broad framework, information pertaining to each area is set forth below. This information represents a compilation from several source documents, which are on file and may be reviewed in the Dean's Office.

Evaluation System

The College of Medicine utilizes an Honors-Pass-Fail grading system augmented by narrative evaluations of student performance in each medical school course or clerkship. Specific grades that may be awarded include:

- **S** = Honors; High performance based on individual course standards
- **P** = Pass; Satisfactory completion of course
- **F** = Fail; Unsatisfactory completion of course
- **I** = Incomplete; Awarded at the end of a course when a small portion of a student's work is incomplete and when the student would be required to complete only that portion to earn a passing grade. This grade reverts to a Fail if not completed within one year.
- **W** = Approved withdrawal
- **K** = Course in progress

Prior to a specified time, which is approximately one-third of the way through each course, or ten days after the mid-term examination, a student will receive the grade of W, upon withdrawing from a course. After this time, however, the grade of W may be awarded only if the work is at a passing level; otherwise, the grade of F is recorded.

Any student whose performance is marginal or failing at any point during a course will be so notified in writing. The notification is intended to alert the student of potential problems and to encourage the use of tutorial or other appropriate assistance.

Written, narrative evaluations for each student are submitted to the Student Records Office at the conclusion of each course, along with the specific grade. These narrative evaluations detail individual strengths and weaknesses of performance and are intended to provide feedback to the student, data for the Student Progress Committee and information for the Dean's letters of recommendation. All students may request to see their own evaluations by contacting the personnel in the Student Records Office. Any student with ques-
tions about an evaluation may contact the course coordinator directly or consult with the Associate Dean for Student Affairs.

Under this system, no attempt is made to determine specific class standing. However, the College of Medicine Honors and Awards Committee reviews all written evaluations in order to identify outstanding student performance. Students so selected may receive an award at graduation and/or may be elected to Alpha Omega Alpha, the medical honor society.

**Student Progress Guidelines**

The Student Progress Committee is given the responsibility to monitor and evaluate student performance and to make decisions appropriate to each individual case. This committee consists of eight elected faculty members and one student from each class. The Committee is charged with reviewing the record of each student at least once each year. The purpose of such a review is: first, to identify performance problems sufficiently early to recommend appropriate action for the prevention of future problems and, second, to recommend actions for those who fail a course (or courses).

The academic guidelines utilized by the Student Progress Committee include the following:

1. To be academically qualified for graduation, a student must pass all required courses and the requisite number of elective courses, as well as take Part I and Part II of the National Board of Medical Examiners examination.
2. Continued enrollment in the College shall be contingent on satisfactory academic performance as defined below.
3. The Student Progress Committee shall order dismissal in any case where a student fails one course for a second time or where a student fails three (or more) courses in medical school. A failure will be counted as such even if the student has subsequently passed the course.
4. In cases where a student fails a course not requiring an order of dismissal, the Student Progress Committee may recommend whatever action is deemed appropriate to the particular situation, including dismissal, although the latter would occur only under exceptional circumstances.
5. Transfer students. In the case of students who transfer to the College of Medicine for the clinical sciences portion of the curriculum, the Student Progress Committee shall order dismissal in any case when a student fails one course for the second time or when a student fails two (or more) courses in medical school. (For purposes of this paragraph, a failure will be counted as such even if the student has subsequently passed the course.) Failures incurred prior to transfer will not be considered. Other academic guidelines apply, unaltered, to transfer students.
6. Fifth Pathway participants. The Student Progress Committee shall order dismissal in any case when a participant fails one course for a second time or when a participant fails two (or more) courses in the curriculum. (For purposes of this paragraph, a failure will be counted as such even if the participant has subsequently passed the course.) Failures incurred prior to participation in the Fifth Pathway Program will not be considered. Other Student Progress Committee guidelines apply, unaltered, to Fifth Pathway participants.

There are certain time constraints on student progress, although these are intended to be sufficiently flexible to accommodate those students who choose to take advantage of educational experiences beyond the confines of the curriculum. These time constraints are as follows:

1. An entering student will normally take two years to complete the work in the basic sciences. Extended course of study will be reviewed by the Student Progress Committee.
2. Students will normally be expected to register for a full course load. A student may schedule up to 12 weeks of free time during the clinical sciences.
3. Students desiring more or longer periods away from school may petition the Student Progress Committee for a formal leave of absence. Such leaves shall normally not exceed one year.

4. Students may take electives, for which they meet the prerequisites, prior to completion of the basic science years. However, these electives may be used to fulfill clinical science or elective requirements for graduation only with prior permission of the Curriculum Committee.

In addition to academic factors, satisfactory student progress also includes other factors. Those which may be considered as disqualifying for the M.D. degree include:

1. Chronic, disabling physical or emotional illness
2. Unethical conduct
3. Dishonest scholastic work (see The Code of Scholastic Conduct, page 24).

Other factors may be considered if, in the opinion of the Student Progress Committee, they would make it inappropriate to award the M.D. degree.

Appeals

Any student has the right to appeal an adverse decision of the Student Progress Committee to a separate faculty body, the Student Appeals Committee. This group consists of one appointed representative from each academic department in the College. The student may present to this Committee any information deemed pertinent to the case. The Student Appeals Committee will review charges, hear evidence, and consider mitigating circumstances before rendering a decision. Such decisions may affirm, modify or reverse the original action of the Student Progress Committee, although the penalty, if any, may not be increased. Such decisions are binding within the College and may not be appealed further at that level.
KEY TO COURSE LISTINGS

Most medical students will find that registration in medical school is a relatively simple process. The basic curriculum for medical students is outlined on pages 14-15. However, for the information of the faculty and others concerned with scheduling and course numbering, this section explains the course numbering system used in the College of Medicine.

This catalog contains listings of courses offered by College of Medicine departments for advanced undergraduates and graduate students as well as courses offered for medical students. The number by which a course is designated indicates the level of the course.

Courses numbered:

400-499 inclusive: Advanced-level courses. Acceptable for graduate credit with the prior approval of the Graduate College (except 400-level individual studies courses 491, 493, 494, or 499, with or without subscripts).

500-599 inclusive: Graduate courses. Open to exceptionally well-qualified seniors with the prior written approval of the course instructor and the Graduate College.

600-699 inclusive: Graduate courses. Not open to undergraduate students.

700-799 inclusive: Graduate courses limited to doctoral students.

800-899 inclusive: Courses limited to students working toward degrees offered by the College of Medicine or the College of Pharmacy. Not available for credit toward any other degrees.


The following is a list of definitions of the University-wide “house-numbered” courses available to the College of Medicine departments as well as other departments throughout the University.

Colloquium (courses numbered 495, 595, 695, 795, 895): The exchange of scholarly information and/or secondary research, usually in a small group setting. The exchange of ideas may involve written as well as oral communication. Research projects need not be required of course registrants.

Proseminar (496) and Seminar (courses numbered 596, 696, 796, 896): The development and exchange of scholarly information, usually in a small group setting. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.

Note: The above listing does not include all “house-numbered” courses, as other “house-numbered” courses are generally not used by the College of Medicine. For further information regarding these listings, please refer to the current University of Arizona General Catalog.
The definitions listed below are general categories of courses offered within the College of Medicine.

Clinical Clerkship (803): Closely supervised clinical activities designed to teach basic clinical skills within a discipline to Year III medical students.

Specialty Clerkship (807): In addition to general surgery each student is required to have exposure to a surgery Specialty Clerkship (as assigned by the Surgery Department). (Please note: this course applies to the Department of Surgery only).

Clerkship (810): Elective courses designed to develop and refine the clinical skills of medical students. Often allow the opportunity to apply basic skills in a new location or to a special population while continuing to focus on the broad objectives of a discipline.

Subinternship (811): Elective allowing medical students to experience general subinternship roles of patient care in clinics and hospital wards under the direct supervision of a faculty member.

Subspecialty (815): Electives allowing advanced medical students the opportunity to explore subspecialty areas within a department.

Preceptorship (891): Specialized advanced work on an individual basis, consisting of instruction and practice in actual service in a department, program or discipline.

Independent Study (599, 799, 899): Qualified students work on an individual basis with professors who have agreed to supervise such work.

Research (800/900): Individual research by medical (800) or graduate (900) students, not related to a thesis or dissertation.

Thesis (910): Research for the master's thesis (whether library research, laboratory or field observation or research, artistic creation, or thesis writing).

Dissertation (920): Research for the doctoral dissertation (whether library research, laboratory or field observation or research, artistic creation, or dissertation writing).

Supplementary Registration (930): For students who have completed all course requirements for their advanced degree programs. May be used concurrently with other enrollments to bring the total number of units to the required minimum.
Key to Symbols

The standard course description includes a variety of symbols indicative of essential information. The following is a standard course description with the individual symbols explained in the order in which they appear in that description.

401. Ethics of Medicine (3) [Rpt.] GC I, II, 1983-1984, Yr. Jones
A review of current topics pertaining to the ethics of medicine. P, Medicine 400 or CR. (Identical with Family and Community Medicine 401). See Electives Manual for course description

401..........................Number of course.
Ethics of Medicine.....Title of course.
(3)............................Number of units of course.
[Rpt]..........................May be repeated for credit. A restriction regarding the number of times a course may be repeated for credit or the total number of units of credit permitted for a course may be designated. [Rpt./2] indicates that the course may be repeated for credit a maximum of two times; [Rpt./6 units] means that the course may be repeated until the student has received a total of six units of credit.
GC..........................Graduate credit available. Applies to 400 level courses only.
I, II.........................Semester offered. I indicates fall semester; II, spring semester.
1983-1984..................Year in which course is offered. If no year designation is given, the course is offered each year.
Yr..........................Course offered throughout the year for various lengths of time other than semester(s).
Jones........................Professor in charge of course. If “Staff” is listed, then the departmental staff is in charge of the course.

A review of current topics pertaining to the ethics of medicine......Description of course.
P............................Prerequisite(s).
CR...........................Concurrent Registration.
(Identical with Family and Community Medicine 401). Other departments which give credit in their department for the same course. If no course description appears, please consult the crosslisted department.

Note: Not all of the above information may be noted in any individual course.

Elective Courses at the College of Medicine are listed and described in the Electives Manual, an in-house publication of elective offerings designed primarily for Year IV medical students. The Electives Manual is available each February.
INTERDEPARTMENTAL COURSES

495. Colloquium (2-4)
   a. Introduction to the Neurosciences I (2) GC
      An introductory overview of mammalian neural structure and function. Neuroanatomical
      and neurophysiological principles are emphasized. P, permission of instructor. (Identical with
      Anat. 495a and Psio. 495a).
   b. Introduction to the Neurosciences II (2) GC
      An introductory overview of clinical conditions that affect the human nervous system. P,
      495a or permission of the instructor. (Identical with Neur. 495b, Psio. 495b and Psy. 495b).

596/896. Seminar (1-3) Yr. (See Electives Manual)
   These seminars are designed principally for medical students during the elective portion of
   their curriculum. Basic biological or behavioral science principles and their application in the
   medical setting are emphasized, with student participation in discussion and group leadership
   encouraged. Seminars may be combined with other part-time clinical or nonclinical electives
   to constitute a full-time academic load. See Electives Manual available in the Student Records
   Office, College of Medicine, for specific course titles, numbers, prerequisites, and descriptions.

801. Preparation for Clinical Medicine (PCM) (1-12) I, II
   Preparation for Clinical Medicine (PCM) is the clinical companion course to the basic
   sciences. The course begins the first week of medical school and continues until the beginning
   of the first clinical rotation. The overall objective is to provide students with skills, behavioral
   traits, attitudes and knowledge necessary to enter clinical clerkships. PCM is divided into
   three main course segments: 1. Patient evaluation, including physical examination, clinical in-
   terviewing, specialty examinations and write-ups. During this segment students interact with
   patient instructors and also spend one semester interacting with a physician preceptor; 2. 
   Clinical correlations (clinical problem solving) with basic sciences courses; and 3. Free-
   standing course segments, including introduction to psychiatry and psychopathology, clinical
   decision making (biostatistics and logic), community-oriented primary care, emergency
   medicine, introduction to nuclear medicine, patient care skills workshop and radiology prac-
   ticum. At the completion of PCM, students will have achieved a prescribed level of skill in
   data collection, definition of clinical problems and a logical approach to differential diagnosis.

802. Human Behavior and Development (HB&D) (6)
   This course provides an integrated framework through which the student may better under-
   stand the relationships between biological, environmental, social and psychological factors as
   they influence the total person in the role as a patient. Also explored is the physician-patient
   relationship, ethical and legal issues in medical practice. Panel discussions, lectures, patient
   interviews, field trips, etc., are utilized in the interdisciplinary course to achieve these objec-
   tives.
DEPARTMENTAL COURSES

ANATOMY

Professors: Douglas G. Stuart, Acting Head [Professor, Physiology, Arizona Research Laboratories], Jay B. Angevine, Jr. [Lecturer, Neurology], Joseph T. Bagnara, Bryant Benson, C. Donald Christian [Professor & Head, Obstetrics & Gynecology], Mac Eugene Hadley [Molecular & Cellular Biology], Philip H. Krutzsch, Donald P. Speer [Surgery]
Associate Professors: David E. Blask, C. Ward Kischer, Albert V. LeBouton
Assistant Professors: Mary J. C. Hendrix, Christopher A. Leadem
Lecturers: William D. Barber, Norman E. Koelling [Pharmaceutical Sciences; Education Specialist, Multidiscipline Laboratories]
Adjunct Professor: James C. Dunn
Research Professor: Robert B. Chiasson [Professor, Veterinary Sciences]
Research Associate Professor: Mary E. Morbeck [Associate Professor, Anthropology]
Research Assistant Professors: Brenda V. Dawson [Veterinary Sciences], Pushpa Deshmukh
Associate: Harry R. Claypool [Lecturer, Radiology]

Anatomy has central responsibility for the presentation and study of morphological systems. Its contributions occur at the gross, microscopic, and ultrastructural levels and have exerted strong influence on many areas of biology and medicine over the years. This discipline has established fundamental facts and methods supporting modern concepts of human biology. It is the desire and purpose of the Department of Anatomy to express a meaningful picture of the discipline and its relationship to the synthesis of chemical, physical, and biological facts in a challenging and responsible program basic for continued growth and application by the developing physician.

The Department of Anatomy offers a program of graduate study which leads primarily to the Doctor of Philosophy degree; a degree of Master of Science is awarded only in rare instances. The requirements for these degrees are those outlined by the Graduate College. Candidates for graduate work in anatomy are expected to possess a significant knowledge of mathematics, statistics, and the physical sciences, as well as of biology, in order to meet the demands of a growing discipline. Course work and research possibilities span the continuum of morphological investigation from ultrastructure (electron microscopy) to gross human structure. In conjunction, graduate study in anatomy offers the candidate an opportunity to learn such skills and techniques as cytochemistry, histochemistry, histophysiology, endocrinology, cytogenetics, embryology, radioisotope biology, comparative neuroanatomy, immunology, and so on. A large number of possibilities exist regarding the minor subject in the doctoral program. Departmental facilities include chemical and physical analytical equipment, electron and optical microscopes, and extensive tissue preparation equipment.

For detailed information concerning graduate programs in the Department of Anatomy, consult the catalog of the Graduate College.
### Course Descriptions

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>Human Gross Anatomy (3) II</td>
<td>Koelling</td>
<td>Survey of the gross structure of the human body. IR, 6L. Open to pharmacy students only (Identical with PCOL 401).</td>
</tr>
<tr>
<td>467R</td>
<td>Endocrinology (3) GCII</td>
<td>Hadley</td>
<td>Neural and endocrine integration in the regulation of mammalian physiological functions. P, Cell 103 (Identical with MCB 467R).</td>
</tr>
<tr>
<td>415</td>
<td>Vertebrate Reproductive Biology (2) I</td>
<td>Hadley</td>
<td>Vertebrate reproductive biology. Structure, function, and control of the vertebrate reproductive system.</td>
</tr>
<tr>
<td>495</td>
<td>Colloquium</td>
<td>Staff</td>
<td>An introductory overview of mammalian neural structure and function. Neuroanatomical and neurophysiological principles are emphasized. P, permission of instructor. (Identical with Interdept. 495a, which is home)</td>
</tr>
<tr>
<td>555</td>
<td>Cancer Biology (3) II, Alternate Year, 1985</td>
<td>Bowden-Gerner</td>
<td>(Identical with M. Mic. 555, which is home)</td>
</tr>
<tr>
<td>602</td>
<td>Microscopic Anatomy (5) I</td>
<td>Hendrix-Staff</td>
<td>Essentials of microscopic human anatomy. P, Chem. 103b, 104b, 243b, 245b; Phys. 102b; G. Bio. 101b, and permission of department.</td>
</tr>
<tr>
<td>605</td>
<td>Neurosciences (6) II</td>
<td>Barber-Angevine-Stuart</td>
<td>Essentials of mammalian neural development, structure and function. P, Chem. 103b, 104b, 243b, 245b; Phys. 102b; G. Bio. 101b; Cell. 410. (Identical with Psio. 605.) Consult department before enrolling.</td>
</tr>
</tbody>
</table>
801. Human Gross Anatomy (1-7*) I
Blask-Staff
See 601 description. *No grade will be given until the student has completed the full seven units of the course.

802. Microscopic Anatomy (5) I
Hendrix-Staff
See 602 description.

805. Neurosciences (6) II
Barber-Angevine-Stuart
See 605 description. (Identical with Psio. 605.)

896. Seminar, I, II
Staff

899. Independent Study (1-6) I, II
Staff
See Electives Manual for course descriptions.

Courses Primarily for Graduate Students

550. Topics in Pigment Cell Biology (2) I
Bagnara-Hadley
Selected topics on the development, function, and control of normal and abnormal pigment cells in various pigmented phenomena. (Identical with MCB 550).

558. Advanced Subjects in Endocrinology (2) [Rpt.] I
Hadley
Selected topics in vertebrate and invertebrate endocrinology. P, 467R. (Identical with MCB 558).

599. Independent Study (1-6) I, II
Staff
Individual or independent work, directed reading, or special problems under the supervision of a member of the faculty.

603. Microscopic Structure (1-3) II
Staff
Selected concepts of structural organization at light and electron microscopic levels of the anatomy and development of the cells, tissues and organs of vertebrates. P, 601, 602.

604. Gross Human Anatomy (2-6) [Rpt.] II
Krutzsch-Staff
Study in depth of the gross human anatomy of selected areas or systems. P, 601, 602.

606. Advanced Vertebrate Neuroanatomy (4) I, II
Angevine
Structure of the central nervous system in selected vertebrates. P, 605.

610a- Anatomical Techniques (1-4, 1-4) I, II
LeBouton-Staff

616. Introduction to Anatomical Literature (1) I, II
Staff
A problem-oriented, bibliographic approach to basic anatomical references. Primarily for those students planning a career in anatomy and wishing to prepare themselves for further graduate study. 3L.

696. Seminar (1) II
Staff
b. Biological, Structural and Functional Interactions. [Rpt./4]. Open to majors only. P, Chem. 103b, 104b, 243b, 245b; Phys. 102b; G. Bio. 101b.

900. Research (1-8) I, II
Staff
Individual research not related to a thesis or dissertation for an advanced degree.

910. Thesis (1-8) I, II
Staff
Research for the master's thesis.

920. Dissertation (1-9) I, II
Staff
Research for the doctoral dissertation.

930. Supplementary Registration (1-6) I, II
Staff
ANESTHESIOLOGY

Professors: Burnell R. Brown, Jr., Head [Professor, Pharmacology]; I. Glenn Sipes [Pharmacology; Professor & Head, Pharmacology & Toxicology]
Associate Professors: Stuart R. Hameroff, Charles W. Otto [Internal Medicine]
Assistant Professors: Randall C. Cork, Joseph A. Gallo, Jr., A. Jay Gandolfi [Pharmacology; Research Assistant Professor, Pharmacology & Toxicology]; Reynolds J. Saunders
Lecturer: H. Burton Walker, Jr.
Adjunct Associate Professor: Kenneth C. Mylrea [Associate Professor, Electrical Engineering]
Clinical Assistant Professors: Barre S. Bernier, William S. Gegg
Visiting Research Associates: Hisham Abdel Azid Fahmy, Hiromitsu Kobayashi

The Department of Anesthesiology provides the clinical clerks with theoretic and practical instruction in the following areas: 1) management of surgical and obstetric anesthesia; 2) acute clinical pharmacology and physiology; 3) resuscitation and management of the comatose patient; 4) treatment of intractable pain; 5) management of the patient in the intensive care unit. The concepts taught are germane to acute therapy and catastrophic illness that may be encountered by the future physician regardless of field of practice.

Course Descriptions

800. Research (1-6) [Rpt./1] Yr. Staff
See Electives Manual for course description.

810. Clerkship, Yr. Brown-Staff
a. Anesthesiology (4)
   Students participate in anesthesiology at University Hospital and Veterans Administration Medical Center.

815. Subspecialty, Yr. Otto-Staff
p. Critical Care Medicine (6) Yr.
   (Identical with I. Med. 815p.)
   See Electives Manual for course description.

891. Preceptorship, Yr. Staff
a. Anesthesiology and Subspecialties (3-18)
b. Special Clinical Subjects (6)
c. Anesthesiology Preceptorships (4-6)
   See Electives Manual for course description.
UNIVERSITY DEPARTMENT OF BIOCHEMISTRY
(COLLEGES OF AGRICULTURE AND MEDICINE
AND THE FACULTY OF SCIENCE)

Professors: John H. Law, Head [Professor, Arizona Research Laboratories], Herbert E. Carter, Michael A. Cusanovich, Leslie S. Forster [Chemistry], Darrell E. Goll [Nutrition & Food Science], Richard B. Hallick, David J. Hartshorne [Nutrition & Food Science], Mark R. Haussler, Associate Head, Victor J. Hruby [Chemistry], Richard G. Jensen [Plant Science], Henry Koffler [Microbiology & Immunology, Molecular & Cellular Biology; President, University of Arizona], David W. Mount [Microbiology & Immunology, Molecular & Cellular Biology], John A. Rupley, Gordon Tollin [Chemistry], Michael A. Wells, Henry I. Yamamura [Pharmacology, Arizona Research Laboratories; Associate Professor, Psychiatry]


Assistant Professors: Carol L. Dieckmann, Nancy W. Downer, John W. Little [Molecular & Cellular Biology], Ivan Rayment, Marc E. Tischler

Research Assistant Professors: William E. Ford, Robert Eric Johnson, John Wesley Pike, Raymond Francis Siemankowski, Susan Smith


Visiting Professor: George M. Happ

Research in biochemistry is carried out principally in Biosciences West and Arizona Health Sciences Center, while teaching is carried out at various campus locations. The above listed faculty members constitute the University Department of Biochemistry, which is responsible for instruction in biochemistry in the Colleges of Agriculture, Liberal Arts, and Medicine.

The University Department of Biochemistry offers the Bachelor of Science, Bachelor of Arts, Master of Science and Doctor of Philosophy degrees. Except in unusual circumstances, however, the Department will only admit graduate students whose stated objective is the Doctor of Philosophy degree.

Research areas in which graduate studies may be pursued include nucleic acid biochemistry, regulation of gene expression, enzymology, lipid metabolism and chemistry, membrane structure and function, amino acid metabolism, complex polysaccharides, mammalian cell culture, mechanism of hormone action, biochemistry of vitamins and coenzymes, protein structure and function, bioenergetics, muscle metabolism, biological oxidations, photosynthesis, rapid reaction kinetics, visual processes, plant biochemistry, biochemistry and genetics of cell organelles, insect biochemistry.

For detailed information, consult the catalog of the Graduate College.

Course Descriptions

460. General Biochemistry (5) [GC I, II] Staff

462a- Biochemistry (3-3) [GC I, II] Staff
462b.
Biochemistry Laboratory (2) GC II

Introduction to experimentation with biochemical systems, processes, and compounds of biochemical importance. 1R, 5L. P, Bioc. 460 or CR 462a-462b.

Staff

Practicum (3) I, II

Senior research experience in the labs of individual faculty members. P, CR 462a-462b.

Staff

Proseminar (1) [Rpt./1] I, II

a. Biochemistry

Open to majors only. Consult department before enrolling. P, 462a or CR.

Medical Biochemistry (5) I

Comprehensive treatment of general biochemistry, oriented towards human biology, with emphasis on basic concepts. Protein and nucleic acid chemistry and metabolism, enzymology, metabolism of lipids and carbohydrates, metabolic regulation and closely related topics are covered. Open only to medical students except by permission. P, Chem. 103b, 104b, 241b, 245b; Phys. 102b.

Staff

Intermediate Medical Biochemistry (5) I

Tischler

An intermediate treatment of several areas of general biochemistry including metabolism and nutrition, genetics and membranes. Designed to build on the student's prior knowledge of biochemistry. Bioc. 084 open to medical students only; others consult department before enrolling. P, 462a-462b.

Introduction to Biochemical Literature (1-1)

A discussion of the biochemical literature aimed at helping the student evaluate and report the published literature. Primarily for first-year graduate students planning a career in biochemistry and desiring to prepare themselves for continued study. P, CR 462a-462b. 561a is not prerequisite to 561b. (Identical with Chem. 561a-561b.)

Proteins, Enzymes and Physical Biochemistry (3-3) 1984-85

Protein thermodynamics and structures, biophysical methods, enzyme kinetics and mechanisms, and related topics. P. Bioc. 462a, Chem. 480b. (Identical with Chem. 565a-565b.)

Nucleic Acids (3-3) 1983-84

Chemistry, structure, and function of nucleic acids; replication, transcription, translation, gene organization, regulation of gene expression and organelle nucleic acids. Both procaryotic and eucaryotic systems will be considered. P. 462b (Identical with Cell. 568a-568b, which is home, and N.F.S. 568a-568b.)

Structure and Function of Biological Membranes (3) II 1984-85

Physical and chemical properties of membranes and membrane components, photosynthesis, and vision. P, 462b. (Identical with Chem. 569.)

Molecular Biology of the Cell Membrane (3) I 1984-85

Cell membrane functions including biosynthesis, structures of membrane components; importance of cell communication, differentiation, adhesion, immune response, and cancer. Discussions on the use of monoclonal antibodies, recombinant DNA technology, and DNA transfections in studies on the biology of the cell membrane. (Identical with Chem. 570 and Cell. 570.)

Metabolic and Hormonal Control of Cell Function (3) I 1984-85

Advanced treatment of the biochemical aspects of metabolic regulation and hormone action. P, 462a-462b. (Identical with Chem. 572.)

Independent Study (1-5) I, II

Open to students who wish to pursue topics not covered in regularly scheduled courses. Arrangements must be made with the appropriate staff member and the biochemistry program chairman before registration.

Steroid Chemistry and Biochemistry (3) I, 1984-85

Occurrence, biosynthesis and function of steroids in animals, plants and microorganisms; chemical reactions and metabolism; chromatographic analysis. P, N.F.S. 406a-406b or Chem. 460 and 241a-241b. (Identical with N.F.S. 617, which is home.)

Chemistry of Food Proteins (3) II 1983-84

The chemical and physical properties of proteins important to their use as food; analysis and purification of proteins; biochemical properties of proteins in muscle, milk, eggs, cereals, and other foods. P, Bioc. 462a preferred, Bioc. 460 or N.F.S. 406a-406b acceptable (Identical with N.F.S. 665, which is home.)

Introduction to Biochemical Research (1-2) I, II

Supervised research experiences in the laboratories of individual faculty members. Required for all first-year graduate students in biochemistry and open only to these students. 3 or 6 L. P, CR 561a-561b.
696. **Seminar (1-3) I, II**  
Student reports on current research topics. Participation required for all graduate students in biochemistry but registration not required in all semesters.  
a. Biochemistry I (1-3) I  
b. Biochemistry II (1-3) II

799. **Independent Study (1-5) I, II**  
Open to graduate students seeking a Ph.D. in Biochemistry.

800. **Research (1-16) Yr.**

900. **Research (1-5) I, II**  
Individual research by graduate students, not related to a thesis or dissertation; the student will write for an advanced degree.

910. **Thesis (1-5, max. total 8) I, II**  
Research for the master's thesis.

920. **Dissertation (1-9) I, II**  
Research for the doctoral dissertation.

930. **Supplementary Registration (1-6) I, II**
FAMILY AND COMMUNITY MEDICINE

Professors: Anthony F. Vuturo, Head, Herbert K. Abrams, John T. Boyer [Internal Medicine; Director, Division of Restorative Medicine], George D. Comerci [Pediatrics], Eric P. Gall [Internal Medicine, Surgery], Melvin H. Goodwin, Jr., Andrew W. Nichols, James R. Shaw, William A. Stini [Anthropology], Hugh C. Thompson [Pediatrics]

Associate Professors: Peter J. Attarian, Associate Head, [Assistant Professor, Psychiatry], Gail G. Harrison [Pediatrics, Nutrition & Food Science], Daniel O. Levinson

Assistant Professors: Dorian H. Cordes [Director, Occupational & Preventive Medicine Program], Ronald S. Fischler [Pediatrics], Jonathan C. Hake, Michael K. Magill, Craig L. McClure [Director, Family Practice Residency Program; Lecturer, Internal Medicine], Ronald E. Pust [Clinical Director, St. Elizabeth of Hungary], William L. Roberts [Chief Social Worker], Arthur B. Sanders [Surgery, Internal Medicine], Barry D. Weiss [Clinical Director, Family Practice Office]

Lecturers: Esther E. Alcorn, Beverly S. Bechtel, Ruth M. Becker [Instructor, Nursing], Lianna M. Edwards, Jil K. Feldhausen, Diane Hedgecock, Diane G. Hillman [Assistant Director, Arizona Health Care Cost Project], Lois W. Kamel, Bertha M. Leis, Dalton F. McClelland, Gail Silverstein, Barbara J. Smith, Bernhardt E. Stein

Adjunct Professors: Elliott M. Heiman [Psychiatry], Wadie W. Kamel

Adjunct Associate Professors: H. Winter Griffith, Frank A. Hale, Robert G. Harmon, John H. Hughes, Steven S. Spencer, Katherine J. Young [Associate Professor & Coordinator, Community Health Nursing, College of Nursing]

Adjunct Assistant Professors: Dileep G. Bal, John T. Condon [Education Specialist, Health Education], Clifton D. Crutchfield [Business & Public Administration], Murray M. DeArmond [Psychiatry; Lecturer, Psychology; Director, Student Health Service], Henry S. Edwards [Associate, Internal Medicine], Robert W. Garrett [Psychiatry, Pharmacy Practice], Georgia G. Hall, Ann K. Henry [Assistant Professor, Pharmacy Practice], Cynthia C. Johnston, Paul R. Marques [Research Assistant Professor, Pharmacology; Assistant Professor, Addiction Studies], James E. Sarn, Dalice A. Sim [Radiology, Statistics; Biostatistician, Cancer Center Division], Mark D. Van Ert [Health Education, Civil Engineering], Barbara H. Warren

Clinical Professors: Pedro Luis Escobar [Internal Medicine; Director, Rehabilitation Services; Chief of Physical Medicine & Rehabilitation, Division of Restorative Medicine], Augusto Ortiz

Clinical Assistant Professors: Kay A. Bauman, Mark R. Dambro, Henry A. Garcia, Evan W. Kligman, Joseph L. Rea [Clinical Director, Environmental, Preventive & Occupational Health Clinic], Robert G. Rhode [Lecturer, Psychiatry], Randolph E. Soo Hoo [Clinical Director, Family Practice Clinic]

Clinical Instructors: Jane M. Gilbreth, Wayne F. Peate

Research Professors: Barton R. Burkhalter, Thomas E. Moon [Internal Medicine; Assistant Director, Cancer Center Division], Martin E. Silverstein

Research Associate Professors: Paul A. Nutting, Jr., Cheryl K. Ritenbaugh [Anthropology], Ronald R. Watson [Research Specialist, Cancer Center Division]

Research Assistant Professors: Alan Ackerman, George H. Adams, Barry R. Bainton, Jay Christensen-Szalanski, Barbara R. Hartmann [Director, Navy Alcohol Drug Safety Action Program], Lee Sennott-Miller

Research Associates: Cleamond D. Eskelson [Research Associate Professor, Surgery], E.E. Ho [Internal Medicine], Catherine A. Schaefer [Pediatrics], Janet H. Senf

Research Specialists: Randall M. Jones, Satoru Moriguchi [Cancer Center Division], Laurie A. Westlake, Carol K. Whittington

Visiting Professor: Paul B. Pearson [Nutrition & Food Science]

Visiting Associate Professor: Jeanne S. Newman
The Department emphasizes the values of family and community orientation to medical practice. By means of preceptorships, seminars, projects, lectures, community assignments and clinics, in collaboration with other departments, students learn family medical practice, clinical preventive medicine and the elements of epidemiology, public health and medical care organization.

A primary focus of activity is the development of clinical teaching service resources in the rural and urban underserved areas of the state. This is reflected in programs of preceptorships and clerkships and other educational experiences for the students and residents. Many private family physicians in the community constitute a major teaching resource and a variety of health-related institutions and programs enrich the student's experience. The Department also collaborates with the Colleges of Agriculture, Business and Public Administration, Nursing, Pharmacy, and the School of Health Related Professions in a variety of educational, research, and service efforts.

By participation in such varied programs and experiences, the medical students and residents are encouraged to enter family practice and to set up practices in areas of need. Special emphasis is given to knowledge, and achievement of comprehensive high quality medical care.

In addition to the specific courses listed below, the Department participates in the interdepartmental course, Preparation for Clinical Medicine, (which includes physical diagnosis, interviewing, primary care problems, and selected seminars) and in a number of elective interdepartmental courses, many of which are open to graduate students (see Electives Manual or members of the Department).

The Department has approved residencies in Family Practice, General Preventive Medicine/Public Health and Occupational Medicine. Combined Residency programs in Family Practice and Preventive Medicine/Occupational Medicine are available. There is also an ongoing program of continuing education for community physicians, developed in close collaboration with the Arizona Academy of Family Physicians.
Course Descriptions

487. **Poverty and Health (3) II GC**
Staff
Study of the relationship between poverty and health. Concepts and theories from anthropology, psychology and sociology will be used to analyze problems associated with poverty. P, 6 units of Social Science. (Identical with Nurs. 487, which is home.)

500/500/. **Research (2-16) [Rpt./2] Yr.**
Departmental Curriculum Coordinator
Individual research not related to a thesis for an advanced degree. P, Completion of basic science courses.

588. **Clinical Anthropology (3) II**
Staff
Application of principles from anthropological theory to the actual practice of patient care, with emphasis on culture content of groups living in the greater Southwest. P, 9 units of Behavioral Science. (Identical with Nurs. 588, which is home.)

596. **Seminar I, II**
Staff
a. International Health (3) S Open to health majors only.
b. Epidemiologic Methods (2)
c. Community and International Nutrition (2)
d. Nutrition in Disease (2) [Rpt./1] P, Bioc. 501/801, Psio. 601/801
f. Alternate Strategies for Coping With Illness (2)
g. Practice of Community Oriented Medicine (2)
h. Occupational and Environmental Health (3)
i. Tropical Disease Problems (2-3)
j. Current Issues in Health Services (2)
k. Basic Principles of Epidemiology (3)

803. **Clinical Clerkship (6-9) Yr.**
Pust-Staff
Students will develop and refine problem-solving skills in the ambulatory setting. Emphasis will be on the diagnosis and management of the illnesses presented to primary care facilities. The student will be taught to effectively use the health care team in patient assessment, and to incorporate the principles of preventive and prospective medicine into clinical practice. A life-style curriculum is integrated into the didactic presentations. This clerkship is a required course for third year medical students.

815. **Subspecialty, Yr.**
Harrison-Magill-Staff
See Electives Manual for course descriptions.
b. The Dying Patient (3-6) [Rpt./1] Yr.
c. Alcoholism: A Community Health Problem (3-12) [Rpt./1] I, II Hartmann-Vuturo
d. Community Health Problems (6-12) Nichols-Hale-Hartmann-Vuturo
f. Community Geriatrics (3-12) [Rpt./12 units] Kligman Consult department before enrolling.

891. **Preceptorship, Yr.**
A variety of Family Practice sites throughout the state and country are approved for preceptorship training. These include solo, group, community clinic and hospital-based practices in locations representative of Arizona's cultural, economic and geographic diversity. See Electives Manual for course descriptions.
a. Primary Care (4-12)
b. Family Medicine Subinternship (3-12)
f. Clinical Preceptorship in International Health (6-12) Stein-Moher-Staff Magill Nichols-Pust-Staff
Professors: Rubin Bressler, Head [Professor, Pharmacology; Chief, Clinical Pharmacology], David S. Alberts [Pharmacology], F. Paul Alepa, Robert A. Barbee, John T. Boyer [Family & Community Medicine; Director, Division of Restorative Medicine], Benjamin Burrows [Chief, Pulmonary Diseases Section; Director, Division of Respiratory Sciences], William F. Denny, Brian G. M. Durie, David L. Earnest [Chief, Gastroenterology Section], Gordon A. Ewy [Chief, Cardiology Section], Eric P. Gall [Family & Community Medicine, Surgery; Chief, Rheumatology, Allergy, & Immunology Section], David G. Johnson [Pharmacology; Chief, Endocrinology Section], Stephen E. Jones [Chief, Hematology/Oncology Section], Murray A. Katz, Louis J. Kettel [Dean, College of Medicine], Ronald J. Knudson [Associate Director, Division of Respiratory Sciences], Michael D. Lebowitz [Associate Director, Environmental Programs, Division of Respiratory Sciences], Peter J. Lynch, Associate Head [Chief, Dermatology Section], Frank I. Marcus, Eugene Morkin [Pharmacology], Charles A. Nugent, Jr., David A. Ogden [Chief, Renal Section], Sydney E. Salmon [Director, Cancer Center Division; Lecturer, Pediatrics], Jay W. Smith [Chief, General Medicine Section]


Assistant Professors: Frederick R. Ahmann, John W. Bloom [Research Associate, Division of Respiratory Sciences], Marlene Bluestein, Keith A. Comess, Timothy C. Fagan [Pharmacology], Paul E. Fenster, Michael Habib, Ronald C. Hansen [Pediatrics], Frederick J. Kogan, Murry Koc, Jon A. Kotler [Radiology], Stewart Levine, Thomas P. Miller, John D. Palmer [Associate Professor, Pharmacology; Director, Multidiscipline Laboratories], Stuart F. Quan, Paul J. Rutala [Coordinator, Preparation for Clinical Medicine], Arthur B. Sanders [Family & Community Medicine, Surgery], Gayle A. Traver [Associate Professor, College of Nursing], David B. Van Wyck [Surgery]
Instructors: Anthony E. Camilli [Research Associate, Division of Respiratory Sciences], Irene E. (Libby) Edwards, Richard G. Gay, Laryenth D. Lancaster, Joy L. Logan

Lecturers: Benjamin Burbank, Lloyd A. Coaker, John G. Corcoran, James J. Corrigan Jr. [Professor, Pediatrics], David N. Flieger, Gerald B. Goldstein, Robert S. Heusinkveld [Professor, Radiology; Director, Clinical Radiology], Craig L. McClure, [Assistant Professor, Family & Community Medicine], Arnold B. Merin, Ulrich F. Michael, Susan E. Newman, Milan V. Novak [Coordinator, Human Subjects in Research], Gail E. Riggs [Associate Director of Administration, Division of Restorative Medicine], Brian Y. Shon, Hans F. Stein

Clinical Professors: Pedro Luis Escobar [Family & Community Medicine; Director, Rehabilitation Services; Chief of Physical Medicine & Rehabilitation, Division of Restorative Medicine], John W. Heaton, Jr., William J. Howard, Brendan P. Phibbs, David Rikkind, Robert A. Sanowski


Research Professor: Thomas E. Moon [Family & Community Medicine; Assistant Director, Cancer Center Division]

Research Associate Professors: Marilyn J. Halonen [Research Associate, Division of Respiratory Sciences], Jeffrey M. Trent [Associate Professor, Radiology; Director, Basic Science Research, Cancer Center Division]

Research Assistant Professors: Joseph J. Bahl, Marvin D. Bregman [Research Associate, Cancer Center Division], Robert T. Dorr [Research Associate, Cancer Center Division], Irwin L. Flink, Bruce E. Markham [Microbiology & Immunology], Yei-Mei Peng [Research Associate, Cancer Center Division]

Research Associates: Ellen M. Chase [Cancer Center Division], Timothy Edmunds [Nutrition & Food Science], Hussain Ohorab, Christine L. Hanson, E.E. Ho [Family & Community Medicine], Mitsuo Ikebe [Nutrition & Food Science], Albert Leibovitz [Cancer Center Division], Rosa H. Liu [Cancer Center Division], Geraldine C. Meinke [Adjunct Assistant Professor, Microbiology & Immunology], Richard W. Pamerente, Aurelia B. Robertone [Cancer Center Division], Diane H. Russell [Professor, Pharmacology], Ronald C. Slatin [Division of Respiratory Sciences], Barbara J. Soehnlen [Cancer Center Division], Thomas W. Vickroy [Pharmacology], Mark Watson [Pharmacology]

Visiting Professor: Stanley Gottlieb

Visiting Research Associate: Min-Jian Xu [Cancer Center Division]

The Department of Internal Medicine has developed a program designed to introduce undergraduate medical students to the responsibility of care of the patient. Together with the staff, students will interview and examine patients, explore what is known of the pathophysiology of the various disorders, and observe the effect of appropriate therapeutic modalities.

Course Descriptions

500. Research (2-16) [Rpt./1] Yr.  
555. Cancer Biology (3) II, Alternate Year, 1985  
     (Identical with M. Mic. 555, which is home.)  
800. Research (2-16) [Rpt./1] Yr.  
     See Electives Manual for course descriptions.  
803. Clinical Clerkship (12) Yr.  
     Required of all students during their first clinical year. Assignment is made to the inpatient medical wards at AHSC, Tucson Veterans Administration Medical Center, and selected hospitals in Phoenix. Emphasis is placed upon the development of clinical skills and problem solving. Students are expected to obtain and record the complete medical histories, perform physical examinations, develop appropriate differential diagnoses, and monitor the progress of assigned patients. They will participate in diagnostic and therapeutic procedures with other members of the patient care team, and attend required departmental conferences and seminars.  
810. Clerkship, Yr.  
     a. Internal Medicine (4-12) Yr.  
     b. Ambulatory Diagnosis and Therapeutics (6) Yr.  
     c. Geriatrics and General Medicine Extended Care (6)  
     d. Ambulatory Geriatrics (3-12) Yr. P, 803  
     Students are offered three to twelve week elective clerkships in hospitals in Tucson and Phoenix. See Electives Manual for course descriptions.  
815. Subspecialty, Yr.  
     a. Clinical Cardiology (6)  
     b. Clinical Dermatology (3)  
     c. Endocrinology (4-12)  
     d. Clinical Gastroenterology (4-8)  
     e. Hematology Oncology (6)  
     f. Immunology, Arthritis and Allergy (6)  
     g. Infectious Diseases (4-12)  
     h. Pulmonary Diseases (3-12)  
     j. Pulmonary Laboratory and Consultation Service (3-6)  
     k. Nephrology, Renal Disease (3-6)  
     l. Clinical Allergy (4-6) (Identical with Ped. 815l)  
     m. Medical Subspecialties (3-6) [Rpt.] Yr.  
     p. Critical Care Medicine (6) (Identical with Anes. 815p, which is home.)  
     r. Neurological and Neuromuscular Diseases (3-6) P, 803.  
     s. Arthritis and Clinical Immunology (6) P, 803.  
     See Electives Manual for course descriptions.
891. **Preceptorship**  
   a. General Medicine and/or Subspecialties (3-12)  

899. **Independent Study** (1-16) I, II  
   ![Staff](image-url)
Graduate study in Microbiology and Immunology is concerned primarily with microbial structures and functions, as well as the nature of immune systems. Areas of current research emphasis are virology, microbial genetics, immunology, bacterial pathogenesis, and environmental microbiology. Course programs are drawn from offerings in biochemistry, biological sciences, chemistry, mathematics, microbiology, molecular biology, anatomy, pharmacology, genetics, and others.

Master of Science and Doctor of Philosophy degrees with a major in microbiology and immunology are offered by a program whose faculty includes members of the Department of Microbiology and Immunology and other departments in the University.

Some limitations of enrollments may be necessary. Medical students will be given preference in those courses that are required for the M.D. degree. All other students must obtain the permission of the instructor before enrolling.

Course Descriptions

501/ 501. Medical Microbiology (6) I Staff
801. The biological characteristics of microorganisms of importance in human health and disease; the reaction of the host to infectious agents and the mechanisms of host defense; diagnosis and management of infectious disease. Lectures, discussions, demonstrations, and laboratory experiments. P, G. Bio. 101b; Chem. 241b, 243b; Bioc. 501.

503. Quantitative Microbiology (2) I Staff
Theory, design, and application of the instruments employed in microbiological research. P, twelve units of micro.

521. Tissue Culture (3) II 1984-85 I Staff
Techniques for the in vitro study of cells and tissues; research application. 1R, 6L. P, four units of micr.

527. General Virology (4) I I Staff
Chemical and physical properties of viruses; the viral replication cycle; cellular response to infection. 3R, 4L. P, 328, 419, Chem. 460.
530. Biophysical Theory (2) II  Staff
Physical concepts and theories describing biomolecular structure and function, molecular evolution, limits to structure, symmetry, oligomer and virus structure, organelle structure and function. (Identical with Phys. 530)

540. Topics in Microbiology (1) [Rpt.] I, II  Staff
Variable content. Open to majors only.

550. Molecular Mechanisms of Microbial Pathogenesis (3) II 1984-85  Staff
Review of current concepts in specific areas of microbial pathogenesis, including actions of exo- and endotoxins, cell surface interactions, phagocytosis and host microbicidal functions. P, Bioc. 460 (Identical with Micr. 550.).

551. Environmental Carcinogenesis (3) II  Gerner
Physical and chemical carcinogenesis. Special emphasis will be upon molecular aspects of the interaction of the carcinogenic agents with mammalian cells and the subsequent mutagenic and metabolic consequences of such interactions. Topics of metabolic activation of chemical carcinogens will be emphasized as well as biological and biochemical aspects of tumor initiation and promotion. Carcinogen testing and risk-benefit analysis in relationship to the human environment.

555. Cancer Biology (3) II  Gerner
Fundamental biological aspects of neoplastic growth at the organ, cellular and molecular levels. Emphasis on the etiology, behavior and therapy of neoplasms. (Identical with Radiology 555)

560. Structure and Function of the Immunoglobulins (3) II  Kibler-G. Meinke
Immunoochemical characterization of the isotypic, allotypic and idiotypic specificities of the immunoglobulins and their relationships to biological function. P, Bioc. 462a-462b.

630. Immunology (4) II 1984-85  Staff
Immunological and immunochemical concepts and techniques. 2R, 6L. P, twelve units of micr., Chem. 460 or N.F.S. 406a.

899. Independent Study (1-6) I, II  Staff
900. Research (1-8) I, II  Staff
910. Thesis (1-8, max. total 8) I, II  Staff
920. Dissertation (1-9) I, II  Staff
930. Supplementary Registration (1-6) I, II  Staff
The Department of Molecular and Cellular Biology is a research-oriented department in which students may receive advanced training in all aspects of research which employ cellular, molecular, biochemical, and genetic approaches. The department offers programs leading to the Master of Science and the Doctor of Philosophy degrees with majors in molecular and cellular biology and in cellular and developmental biology.

Applicants for admission should be prepared in chemistry, physics, and mathematics and must submit scores on the aptitude test of the Graduate Record Examination. Applicants should communicate directly with the department regarding other admission requirements. The deadline for completion of all application files for admission to the programs beginning with the fall semester is April 1 (March 15 for applicants desiring financial assistance).

Students are expected to specialize in areas of interest to the faculty. These include viral oncology, regulation of gene expression, neurobiology of simple systems, cellular ultrastructure and function, structure and function of nucleic acids, developmental biology of higher plants, plant molecular biology, molecular genetics, invertebrate developmental biology, environmental plant physiology, and gene transfer systems for mammalian cells. A listing of the faculty of the department and their research interests can be obtained from the department on request. A thesis is required for the Master's degree.

Course Descriptions

404. Contemporary Biology and Human Affairs (3) GC II

Contemporary and Human Affairs (3) GC II

Aposhian

Advances in biomedical research will be reviewed and their ethical, social, and legal implications discussed. P, one course in bioc. or bio; botany not acceptable.

410a. Advanced Cell Biology (3-3) GC

Advanced Cell Biology (3-3) GC

Ferris-Staff

410b. Regulation of the cellular and molecular levels; gene expression; nature, function, and integration of organelles and ultrastructural components of the cell. P, 103 (for majors), Chem. 243a or 480a

412. Radioisotopes in Biology (3) GCI

Radioisotopes in Biology (3) GCI

Keck

Advanced techniques in the application of radioactive tracers to problems of molecular biology; kinetics of labeling, fractionation procedures; detection systems and processing of data. 2R, 3L. P, Chem. 103b, 104b, Phys. 102a-102b.

413. Advanced Cell Biology Laboratory (2) GC I

Advanced Cell Biology Laboratory (2) GC I

Shimizu

Modern lab techniques for genetic and molecular analyses of mammalian cells in culture. 6L. P, CR 415.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>415</td>
<td>Somatic Cell Genetics (2) GC I</td>
<td>Shimizu</td>
<td>Modern concepts of eucaryotic cell genetics and molecular mechanisms of cell growth control. P, 102, 103, 104, 320, Chem. 241a-241b, 243a-243b.</td>
</tr>
<tr>
<td>428R</td>
<td>Advanced Microbial Genetics (3) GC II</td>
<td>Mendelson</td>
<td>Modern concepts of microbial genetics; basic genetic theory, the molecular architecture, biosynthesis and genetic regulation of bacterial cell structure, control of growth and cell division. P, 103, Micr. 328, G.Bio. 320 or 321. (Identical with Micr. 428R)</td>
</tr>
<tr>
<td>428L</td>
<td>Advanced Microbial Genetics Laboratory (2) GC II</td>
<td>Mendelson</td>
<td>Individual research projects within the framework of microbial genetics, with emphasis on the genetic system of Bacillus subtilis. P, CR 428R. (Identical with Micr. 428L)</td>
</tr>
<tr>
<td>456</td>
<td>Developmental Biology (4) GC I</td>
<td>Bagnara</td>
<td>Descriptive aspects of development. 3R, 3L. P, 103.</td>
</tr>
<tr>
<td>457</td>
<td>Experiments in Developmental Biology (4) GC II</td>
<td>Bagnara</td>
<td>Experimental analysis of the principles of development. 2R, 6L. P, 456, Chem. 241b.</td>
</tr>
<tr>
<td>460</td>
<td>Plant Physiology (4) GC I</td>
<td>Matsuda</td>
<td>Introduction to water relations, photosynthesis, respiration, growth and development of higher plants. 3R, 3L. P, Chem. 241a. 243a. (Identical with Ecol. 460)</td>
</tr>
<tr>
<td>462</td>
<td>Neurobiology Laboratory (1) GC I</td>
<td>Pickens</td>
<td>Techniques in neurobiology. P, CR 463.</td>
</tr>
<tr>
<td>463</td>
<td>Introduction to Neurobiology (3) GC I</td>
<td>Pickens</td>
<td>Physiology and anatomy of invertebrate and vertebrate nervous systems. P, eight units of bio.</td>
</tr>
<tr>
<td>464aR</td>
<td>Human Physiology (3-3) GC</td>
<td>Staff</td>
<td>(Identical with Ecol. 464aR-464bR)</td>
</tr>
<tr>
<td>464bR</td>
<td>Human Physiology Laboratory (1-1) GC</td>
<td>Staff</td>
<td>(Identical with Ecol. 464aL-464bL)</td>
</tr>
<tr>
<td>465</td>
<td>Advanced Neurobiology (2) GC II.</td>
<td>Pickens</td>
<td>Selected topics in current neuroethological research on vertebrate and invertebrate nervous systems. P, 463 or consult department before enrolling.</td>
</tr>
<tr>
<td>467R</td>
<td>Endocrinology (3) GC II</td>
<td>Hadley</td>
<td>(Identical with Anatomy 467R)</td>
</tr>
<tr>
<td>467L</td>
<td>Endocrinology Laboratory (1) GC II</td>
<td>Hadley</td>
<td>(Identical with Anatomy 467L)</td>
</tr>
<tr>
<td>473</td>
<td>Recombinant DNA Techniques (3) GC II</td>
<td>Lindell</td>
<td>This course teaches relevant techniques for the isolation, purification, and cloning of genes in E. Coli hosts. Cloned DNA will be characterized by restriction mapping and hybridization techniques. P, Biochem. 462a, Cell 410b.</td>
</tr>
<tr>
<td>514</td>
<td>Supramolecular Structure (2) II 1986-87</td>
<td>Chiu</td>
<td>Application of diffraction techniques in the study of structure and function of biological macromolecules.</td>
</tr>
<tr>
<td>530</td>
<td>Current Topics in Eucaryotic Gene Exression (3) II 1986-87</td>
<td>Hewlett</td>
<td>Detailed examination of current literature in selected areas of eucaryotic molecular biology. P, 568b or consult dept. before enrolling.</td>
</tr>
<tr>
<td>540</td>
<td>Advances in Mammalian Cell Biology (2) [Rpt./2] II</td>
<td>Shimizu</td>
<td>Selected topics in mammalian cell structure and functions and its genetic control. P, 415 or consult dept. before enrolling.</td>
</tr>
<tr>
<td>550</td>
<td>Topics in Pigment Cell Biology (2) I</td>
<td>Bagnara</td>
<td>(Identical with Anatomy 550)</td>
</tr>
<tr>
<td>558</td>
<td>Advanced Subjects in Endocrinology (2) [Rpt.] I</td>
<td>Hadley</td>
<td>(Identical with Anatomy 558)</td>
</tr>
<tr>
<td>562</td>
<td>Plant Intermediary Metabolism (3) II 1986-87</td>
<td>Matsuda</td>
<td>Selected topics in plant metabolism and photosynthesis. P, 460. (Identical with PIS. 562)</td>
</tr>
<tr>
<td>563</td>
<td>Plant-Water Relations (3) II</td>
<td>O'Leary</td>
<td>Analytic approach to the study of water movement into and through plants; development of internal water deficits and their significance to physiological processes. P, 460. (Identical with Ws.M. 563)</td>
</tr>
</tbody>
</table>
564. Plant Growth and Development (3) II 1985-86
Selected topics in growth and development. P, 460. (Identical with Pl.S. 564)

Matsuda

568a- Nucleic Acids (3-3) 1985-86
568b. (Identical with Bioc. 568a-568b)

Staff

595a. Colloquium (1) [Rpt.] II
Topics of interest in molecular and cellular biology

Staff

595b. Topics in Electron Microscopy (2) [Rpt.] II

Chiu

612. Principles of Electron Microscopy (4) I
Principles and practice of electron microscopy, specimen preparation, micrograph interpretation, and operation and maintenance of electron microscopes. 2R, 6L.

Ferris

696. Seminar (1) [Rpt.] I, II

Staff

761. Methods in Molecular and Cellular Biology (3) I, II
Current techniques for qualitative and quantitative studies. 9L. Open to majors only.

Staff
Neurology is that discipline of medicine responsible for the diagnosis and possible treatment of diseases of the human nervous system. Courses are offered which are designed to teach students to interpret evidence of normal or abnormal neurologic functioning. Students have a three-week required clerkship and a 6-week elective in neurology. Students receive an introduction to neurology during lectures in the neuroscience course during the basic science years.

A continuing neuroscience seminar series is presented by residents, physicians, and graduate students in the Department of Neurology throughout the year. This series is offered to medical students as well as to postgraduate trainees and students in allied areas.
Course Descriptions

495. **Colloquium**
   b. *Introduction to the Neurosciences II (2) GC*
      An introductory overview of clinical conditions that affect the human nervous system. P, 495a or permission of the instructor. (Identical with Interdept. 495b, which is home).

500. **Research (1-12) [Rpt./1] Yr.**

800. **Research (1-12) [Rpt./1] Yr.**
P, Neurology 803

803. **Clinical Clerkship (3-6) Yr.**
A three-week required course on the neurological wards at University Hospital, the Tucson Medical Center Hospital, the Tucson Veterans Administration Medical Center, Kino Community Hospital and the Barrow Neurological Institute in Phoenix. Cases are presented to members of the neurological staff and discussed in detail. Weekly teaching conferences are given by the neurology faculty.

810. **Clerkship, Yr.**
a. *Neurology (3-6) Yr.*
   This three or six-week clerkship is offered on the neurology wards at University Hospital, the Tucson Medical Center Hospital, the Tucson Veterans Administration Medical Center, Kino Community Hospital and the Barrow Neurological Institute in Phoenix. Students work closely with the attending and resident staff in an effort to become proficient in the techniques of the neurological examination and management of neurological disorders.

815. **Subspeciality, Yr.**
r. *Neurological and Neuromuscular Disorders (3-6) P, IMED 803. (Identical with Internal Medicine 815r, which is home.)*

891. **Preceptorship, [Rpt./2] Yr.**
a. *Neurology (4-6) [Rpt./2] Yr.*
   See Electives Manual for course description.
OBSTETRICS AND GYNECOLOGY

Professors: C. Donald Christian, Head [Professor, Anatomy]; Jack W. Pearson, Lewis S. Shenker

Associate Professors: Diane S. Fordney [Psychiatry], William C. Scott, Louis Weinstein [Director, Perinatology Section]

Assistant Professors: Silvio A. Aristizabal [Associate Professor, Radiology], Herbert E. Pollock [Co-Coordinator, Human Behavior & Development, Medical Administration], Kathryn L. Reed, Sheldon A. Weiner

Instructors: Steven E. Calvin, Allan R. Hartsough

Lecturer: Caroline F. Anderson

Adjunct Professors: Walter B. Cherny, John V. Kelly, Tawfik H. Rizkallah

Adjunct Associate Professor: Gregory J. Maciulla

Adjunct Assistant Professor: David S. Grosso

Clinical Associate Professors: Gerriet A. Janssen [Adjunct Instructor, Radiology; Physician, Student Health Service], B. Douglas Lecher, Earl A. Surwit

Clinical Assistant Professors: H. Alan Collier, Vinson Cleo Thompson


Genetic Counselor and Coordinator: Lynn Hauck

Obstetrics and Gynecology is that discipline of medicine which encompasses reproductive biology and the ultimate application thereof to human reproduction. In the natural evolution of medical care in the United States the obstetrician-gynecologist has come to be the primary physician for women. The courses of study available in Obstetrics and Gynecology are designed to provide a clinical substrate for the medical student in this branch of medicine. The means to this end are by precept and example of patient diagnosis, care and therapeutis as well as didactic and tutorial sessions.

**Course Descriptions**

**800. Research (1-18) [Rpt./1] Yr.**

Experience in each of the research areas listed below is available with programs up to six weeks in length individually designed. P, Ob.G. 803.

1. Reproductive Pharmacology
2. Diagnostic Ultrasound
3. Endocrine Laboratory
4. Perinatal Medicine
5. Gynecologic Oncology
6. Infertility/Fertility Control
7. Gynecology/Obstetrics

**803. Clinical Clerkship (6-9) Yr.**

Medical students will be assigned to outpatient clinics and hospital wards to become members, along with the attending physician, of the team responsible for the patient's care.

**810. Clerkship, Yr.**

a. Preparation for Practice (3-6)

This elective course for Year IV students will essentially be an externship in a Phoenix or Tucson hospital to include exposure to the full gamut of obstetrical and gynecological care, conducted under direct supervision of a faculty member. The elective period may be for three or six weeks. P, 803.

**891. Preceptorship (1-18) Yr.**

a. Obstetrics and Gynecology (3-6)
b. Gynecology-Endocrinology (3-6)

See Electives Manual for course descriptions.
OPHTHALMOLOGY

Assistant Professors: William Durant, Sam E. Sato [Pediatrics]
Adjunct Associate Professor: Robert M. Dryden
Clinical Professor: Albert M. Potts, Acting Head
Clinical Associate Professor: John Edward Harris
Research Professor: Jonathan Herschler
Research Associate Professor: Andrzej W. Fryczkowski
Associates: J. Sidney Cotner, III, Harold E. Cross, Jorge A. Godinez-Cejudo, Barry Kusman, George S. Novalis, Harry D. Schlosser

Ophthalmology, the College of Medicine's newest department, offers two electives for medical students. One is a research elective in which experience in laboratory research in ophthalmology will be obtained with programs of a minimum of six weeks in duration. The other is a clinical elective in which medical students will be assigned to outpatient clinics and inpatient wards and surgery which will give them an overview as to how the ophthalmologist relates to his patient population.

The graduate program in Ophthalmology offers residents extensive inpatient and outpatient experiences at the University Medical Center, the Tucson Veterans Administration Medical Center, and Kino Community Hospital.

Course Descriptions

800. Research (6-18) I, II  

815. Subspeciality, Yr. [Rpt./3]  
     a. Ophthalmology (3-6) Yr.  
     See Electives Manual for course descriptions.

891. Preceptorship I, II  
     a. Ophthalmology (4-12) Staff
PATHOLOGY


Associate Professors: James M. Byers, III, Anna R. Graham, Thomas M. Grogan, Mary Jane Hicks, Douglas H. McKelvie [Lecturer, Radiology; Adjunct Associate Professor, Veterinary Science; Veterinarian, Animal Resources], Richard E. Sobonya

Assistant Professors: Ronald B. Schifman, Catherine M. Spier, Karen K. Steinbronn

Lecturers: Louis Hirsch, Paula F. Lowe, Claire M. Payne

Clinical Professors: Peter C. Johnson, David C. White

Clinical Assistant Professors: Jerry L. Bangert, Thomas E. Henry, Allen M. Jones, Maria L. Paquin

Research Associate: A. Duane Anderson [Medical Administration]

Associates: Richard S. Armstrong, Paul D. Bozzo, Edward A. Brucker, Jr., Peter F. Salomon, Ronald P. Spark

The Department of Pathology has responsibility for both anatomical and clinical pathology. The objective of the study of pathology is to gain increased understanding of disease — the causes, mechanisms, and secondary alterations which occur in body structure and function — exploiting whatever methods will provide the physician with a solid body of facts from which to reason, deduce, and prognosticate.

Course Descriptions

489. Introduction to Forensic Science:
   Pathology, Anthropology, Toxicology and Law (2) GC I, II
   Froede-Birkby-Jones-Henry
   The course provides opportunity for the criminal investigator and attorney with a background in forensic pathology to better understand the end results of trauma, toxic substances and environmental catastrophes.

801. General and Systemic Pathology (10) I, II
   Layton-Staff
   Lectures, conferences, demonstrations, and laboratory investigations relating to disease. Use of current autopsy, biopsy, and clinical pathology material. P, Anat. 801, 802, 805; Biochem. 501/801; Physiol. 601/801; M. Mic. 801 (medical) or CR; Phcl. 501/801 or CR; Med. 801 or CR.

810. Clerkship, Yr.
   a. Anatomic Pathology (4-6) Yr.
      An intern type program with students participating in surgical pathology, autopsies, and cytopathology. Instruction is strongly clinically oriented. P, Path. 801 and twelve weeks of clinical clerkships.
   b. Clinical Pathology (4) Yr.
      An interpretive approach to the evaluation of laboratory data in the diagnosis and management of clinical disorders. Topics include bacteriology, blood component therapy, body fluid analysis, clinical chemistry, coagulation, hematology, immunohematology, mycology, toxicology, urinalysis and virology. P, Path. 801 and twelve weeks of clinical clerkships.
   c. Special Topics (3-18) [Rpt.] Yr.
      Opportunities for intensive studies during a six-week period in one of the following fields: computer use, cytopathology, cytogenetics, immunohematology, immunopathology, microbiology-virology, neuropathology, pulmonary pathology, hematopathology, clinical chemistry, and oncology. May be taken more than once for credit. P, Path. 801, and prior arrangement and approval by the department.

891. Preceptorship, Yr.
   a. Pathology (3-18) [Rpt./2]
Professors: Lynn M. Taussig, Head; [Assistant Director, Respiratory Sciences], Hugh D. Allen, George D. Comerci [Family & Community Medicine; Chief, Adolescent Medicine Section], James J. Corrigan, Jr. [Lecturer, Internal Medicine; Chief, Hematology/Oncology Section], Burris R. Duncan [Chief, General Pediatrics Section], Peggy C. Ferry [Neurology; Chief, Neurology Section], Vincent A. Fulginiti, Stanley J. Goldberg [Chief, Cardiology Section], Otakar Koldovsky [Physiology; Chief, Perinatal & Nutritional Sciences Section], Richard J. Lemen [Chief, Pulmonary Chest Diseases Section; Assistant Professor, Physiology; Research Associate, Respiratory Sciences], Elmer S. Lightner [Chief, Endocrinology Section], C. George Ray [Pathology; Chief, Infectious Diseases Section], Hugh C. Thompson [Family & Community Medicine]

Associate Professors: Sergio A. Bustamante [Nursing], Gail G. Harrison [Family & Community Medicine, Nutrition & Food Science], Marilyn J. Heins [Vice Dean, College of Medicine], John J. Hutter, Jr., Stanley M. Lee [Internal Medicine], Michael J. Schumaker [Chief, Allergy Section], Elsa J. Sell, Alayne Yates [Professor, Psychiatry]

Assistant Professors: William Banner, Jr. [Pharmacology; Chief, Pharmacology Section; Adjunct Assistant Professor, Pharmacy Practice], Alan D. Bedrick, William T. Boyce, John R. Britton, Helen L. Britton, Ronald S. Fischler [Family & Community Medicine], Carlos A. Flores, Ronald C. Hansen [Internal Medicine], Gerald R. Marx, Wayne J. Morgan, Paul F. Pollack, Sam E. Sato [Ophthalmology], Ziad M. Shehab, Rickey L. Williams

Instructor: Alice E. Carroll

Lecturers: Nancy N. Dambro, Victor A. Elsberry [Instructor, Pharmacy Practice], Maureen J. Hutter [Psychiatry, Psychology], Sydney E. Salmon [Director, Cancer Center Division; Professor, Internal Medicine], Mary Ann Schaber

Clinical Professors: Melvin L. Cohen, Daniel F. Reardon

Clinical Associate Professors: Paul S. Bergeson, John K. Charlton, William J. R. Daily, JoAnn B. Fineman [Psychiatry], M. Eleanor Grimm, Montgomery C. Hart, H. Belton Meyer, Marian E. Molthan, Mary E. Rimsza


Research Associate Professor: James F. Jones

Research Assistant Professor: Anne L. Wright [Research Associate, Division of Respiratory Sciences]

Research Associates: Toshinao Goda, Jane S. Ruggill, Catherine A. Schaefer [Family & Community Medicine], William H. Thornburg

Visiting Assistant Professor: Neil Wilson

The unique concerns of pediatrics as a medical discipline are 1) the period of life between conception and the first month of life, loosely termed perinatology; 2) the fact that children are growing and developing constantly, which results in unique physiological, biochemical, pathological, and psychosocial considerations; and 3) the period of life known as adolescence, with its characteristic physiologic and psychologic changes. The objectives of the department are to provide all students of medicine, from freshmen in medical school to the accomplished physician, an opportunity to learn of our best understanding of health and disorders in relation to the above concerns. We also have as a goal the contribution of new knowledge by appropriate research activities and the application of all available knowledge by models of health care. These objectives are achieved by the courses listed below, by active participation in regular postgraduate programs, and by the research and clinical activities in the department.
### Course Descriptions

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Year</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>800.</td>
<td><strong>Research (1-18) Yr.</strong></td>
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<td>P, Pediatrics 803</td>
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<tr>
<td>803.</td>
<td><strong>Clinical Clerkship (6-9) Yr.</strong></td>
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<td>Banner-Ruggill-Fulginiti</td>
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<td>This six week clerkship is required of all students in their initial clinical year; an additional three weeks may be selected. Stress is placed upon acquisition and refinement of basic data collection, upon problem solving and accumulation of factual knowledge, and achieving those attitudes associated with being a physician.</td>
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<tr>
<td>810.</td>
<td><strong>Clerkship, Yr.</strong></td>
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<td>Staff</td>
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<tr>
<td></td>
<td>a. Externship in Inpatient Pediatrics (4-6), P, 803.</td>
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<td></td>
<td>c. Pediatric Care in a Cross-Cultural Setting (4-6) Yr.</td>
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<td></td>
<td>d. Inpatient Pediatrics (4) Yr.</td>
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<tr>
<td>811.</td>
<td><strong>Subinternship, Yr.</strong></td>
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<td>Staff</td>
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<tr>
<td></td>
<td>a. Ambulatory Pediatrics (4-6) Yr.</td>
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<td></td>
<td>b. Behavioral and Developmental Pediatrics (4) Yr.</td>
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<td></td>
<td>d. Adolescent Medicine (4-6)</td>
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<tr>
<td>815.</td>
<td><strong>Subspecialty, Yr.</strong></td>
<td></td>
<td>Staff</td>
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<tr>
<td></td>
<td>a. Advanced Neonatology (4-6) Yr.</td>
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<td></td>
<td>b. Pediatric Infectious Diseases (4-6) Yr.</td>
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<td></td>
<td>e. Pediatric Cardiology (4-6) Yr.</td>
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<td>f. Pediatric Neurology (4-6) Yr.</td>
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<td></td>
<td>g. Pediatric Hematology/Oncology (4-6) Yr.</td>
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<td>h. Poison Center (4-12) P, 803.</td>
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<td></td>
<td>k. Pediatric Clinical Pharmacology (4-6) [Rpt./1] Yr.</td>
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<td></td>
<td>l. Clinical Allergy (4-6) Yr. (Ident. with I. Med. 8151, which is home.)</td>
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<td></td>
<td>p. Pediatric Endocrinology (4-6) P, 803, Yr.</td>
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<td></td>
<td>These four to twelve-week elective courses are organized by various staff and sections of the Department of Pediatrics. See Electives Manual for course descriptions.</td>
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<tr>
<td>891.</td>
<td><strong>Preceptorships, Yr.</strong></td>
<td></td>
<td>Hutter-Staff</td>
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<tr>
<td></td>
<td>a. Pediatrics (4-6) Yr.</td>
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<td></td>
<td>b. Preparation for Practice (4) Yr.</td>
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<tr>
<td>899.</td>
<td><strong>Independent Study (3-18) Yr.</strong></td>
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<td>Staff</td>
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</table>
Pharmacology is a broad discipline involving the investigation of the actions of chemicals upon living material at all levels of organization. The discipline occupies an important interface between the basic medical sciences and the clinical sciences, drawing strongly upon the former for its contribution to the latter. In the health professions pharmacologic knowledge is applied to the diagnosis, prevention, cure or relief of symptoms of disease, and in the promotion of optimal health. The basic pharmacologic principles are emphasized in both the medical and graduate student teaching. This will permit the student to develop techniques of problem solving to keep abreast of advances in pharmacology through his/her professional career.

Course Descriptions

501/ 801. The Pharmacological Basis of Therapeutics (6)II Palmer
Action of chemical agents upon living material at all levels of organization, with emphasis on mechanisms of action of prototype drugs. Foundation for a rational approach to human therapeutics and toxicology. P, Pso. 601; Bioc. 501/801. (Identical with Tox. 501.)

520. Clinical Pharmacology (2) I Johnson-Palmer
550. **Drug Disposition and Metabolism (3) I**  
Brendel-Sipes  

551. **Molecular Biology of Pharmacological Agents (3) I 1985-86, Alternate Year**  
Lindell-Russell  
The molecular mechanism of drugs and toxins at the cellular and subcellular levels, including effects on control mechanisms, cell-cell interactions, organelles, and nucleic acid and protein synthesis. P, 501, 550, 561b, Bioc. 501/801. (Identical with Tox. 551.)

554. **Cardiovascular Pharmacology (3) I**  
Huxtable  

561a. **Introduction to Pharmacological and Toxicological Literature (1-1)**  
Yamamura  
Designed to broaden the background of students in pharmacology and toxicology, and to improve scientific communication skills. P, 501 (Identical with Pcol. 561a-561b.)

576. **Environmental Toxicology (3) I**  
Staff  
Toxicity of natural toxins and of agricultural and industrial chemicals with emphasis on air and water pollutants; decision-making in environmental issues. P, 6 units of bio. and organic chem.; Chem. 325, 326. (Identical with Tox. 576, which is home.)

586a. **Introduction to Pharmacology and Toxicology Research (1-1)**  
Staff  
Introduction to basic research techniques in pharmacology and toxicology through supervised laboratory rotations; student-initiated and faculty-structured laboratory exercises in modern pharmacological and toxicological techniques. P, CR 501, Bioc. 565, Psio. 601.

596. **Seminar (1-3) [Rpt./3] I, II**  
Staff  
Student reports on current research topics by local and visiting scholars. Required of all predoctoral graduate students in Pharmacology and Toxicology.

- Advanced Graduate Research (1-3) [Rpt./3] I, II  
Required of all graduate students once per year after the first year. P, 561b. (Identical with Pcol. 596a.)

599. **Independent Study (1-5) I, II**  
Staff  
Individual or independent work, directed reading, or special problems under the supervision of a member of the faculty with whom specific arrangements have been made. Must be taken for graduate credit by Pharmacology and Toxicology graduate students.

601. **Analytical Toxicology (2-3) I**  
Carter-Davis  
Lecture and lab in the qualitative and quantitative determination of toxic substances in body fluids. Modern instrumental techniques will be employed whenever appropriate. Lecture may be taken separately by non-majors.2R, 4L. P, Chem. 400a. (Ident. with Tox. 601, which is home.)

602. **Biotoxicoiogy (2-3) II**  
Sipes-Staff  
Lecture and lab emphasizes the mechanisms of organ directed toxicities in animals. Included are chemical carcinogenosis, teratogenesis and mutagenesis. Lecture may be taken separately by non-majors.2R, 4L. P, two semesters of gen. bio. (Ident. with Tox. 602, which is home.)

653. **Neuropharmacology (2) II 1984-85, Alternate Year**  
Laird-Yamamura  
Role of various neurochemicals in the autonomic and central nervous systems and the effect of drugs on the nervous system, including their influence on synthesis, storage, and release of neurochemicals. P, 501/801, or Pcol. 471b, 561a, 596. (Identical with Pcol. 653, which is home.)

695. **Seminar (1-3) I, II**  
Lindell  
An in-depth examination of cell biology as it relates to molecular pharmacology based on current literature. P, Bioc. 462a-462b; Cell. 568a-568b and/or Phcl. 551.

800. **Research (1-6) Yr.**  
Staff

815. **Subspeciality, Yr.**  
Staff

- Clinical Pharmacology (3) P, Phcl. 801

900. **Research (1-5) I, II**  
Staff  
Individual or independent work, directed reading, or special problems under the supervision of a member of the faculty with whom specific arrangements have been made. Must be taken for graduate credit by Pharmacology and Toxicology graduate students.

910. **Thesis (1-8) I, II**  
Staff

920. **Dissertation (1-9) I, II**  
Staff

930. **Supplementary Registration (1-6) I, II**  
Staff
PHYSIOLOGY


Associate Professors: Eldon J. Braun, Andrew M. Goldner [Associate Dean, Student Affairs; Director, Alumni Affairs], Richard L. Stouffer

Assistant Professors: Ziaul Hasan, Patricia B. Hoyer, Richard J. Lemen [Professor, Pediatrics; Research Associate, Respiratory Sciences], Stephen H. Wright

Research Assistant Professors: Janis M. Burt [Surgery], Thomas M. Hamm, Timothy W. Secomb [Arizona Research Laboratories]


Research Engineers: Marshall D. Elmore, Robert M. Reinking

Research Specialists: Olga H. Brokl, Martin S. Grodin

Laboratory Teaching Coordinator: E. Patricia Goggans

Visiting Professors: Thomas R. Blake [Adjunct Professor, Chemical Engineering], Eric P. Salathe, Curt A. Wiederhielm

Visiting Associate Professor: Aleksander S. Popel

The Department of Physiology teaches and does scholarly work on physiological mechanisms of significance to medicine. In both teaching and research, the orientation of the Department is broad, encompassing single cell, organ, and total body function.

The Department of Physiology offers graduate instruction leading to the Doctor of Philosophy degree. The requirements for this degree are those outlined in the catalog of the Graduate College. An M.S. degree is offered only in rare instances when individuals qualified to study for the Doctor of Philosophy are forced to terminate their graduate education.

Applicants for the Ph.D. program must hold a bachelor's degree in the physical or life sciences, engineering or mathematics and must have completed one year of physics (including laboratory), mathematics through calculus (two semesters) plus courses in statistics and chemistry through organic chemistry and familiarity with microcomputers and BASIC language. Physical chemistry and differential equations are not required but are highly desirable and strongly recommended. An introductory course or readings in biology or zoology is deemed advisable for physical science majors. The Graduate Record Examination and three letters of recommendation are required to assist in evaluation of applicants.

Research training is an integral part of the Ph.D. program. There are laboratories for research on dynamics and control of the microcirculation, contraction of muscle and its membrane phenomena, reflex regulation of muscle activity, comparative renal tubule transport and water balance, cellular aspects of transport, reproductive endocrinology and hormone action, development of gastrointestinal functions, cellular and membrane aspects of cardiac function, and the dynamics of respiratory function. In special circumstances, the dissertation research may be done outside the department.

The specialized nature of the material and equipment required for courses given in the College of Medicine may necessitate some limitation of enrollment. Medical students will receive preference in courses required for the M.D. degree. All other students must obtain permission of the instructor before enrolling. Graduate students already enrolled in the College of Medicine departments will be given preference.

For further information, consult the catalog of the Graduate College.
### Course Descriptions

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>499</td>
<td>Independent Study (1-5) I, II</td>
<td>Staff</td>
</tr>
<tr>
<td>601/</td>
<td>Human Physiology (8) II</td>
<td>Staff</td>
</tr>
<tr>
<td>801</td>
<td>Principles of physiology with emphasis on that of the human. P, Chem. 103b, 104b, 241b, 243b; Phys. 102b. Consult department before enrolling.</td>
<td>Staff</td>
</tr>
<tr>
<td>605/</td>
<td>Neurosciences (6) II</td>
<td>Angevine-Barber-Stuart</td>
</tr>
<tr>
<td>805</td>
<td>(Identical with Anatomy 605/805, which is home.)</td>
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</tbody>
</table>

#### Courses Primarily for Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>418</td>
<td>Physiology for Engineers (4) GC I</td>
<td>Braun</td>
</tr>
<tr>
<td></td>
<td>Designed to bring to engineering students awareness of the structure and function of whole organisms, their component organs and organ systems. Open to nonmajors only. (Identical with A.M.E. 418, Ch.E. 418 and E.C.E. 418.)</td>
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<tr>
<td>419</td>
<td>Physiology Laboratory (2) GC I</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Lab experiments in physiology intended to provide experience with organ systems and measurement techniques. Designed for engineering students enrolled in the clinical engineering and biomedical engineering options. 6L. Open to nonmajors only. P, 418 or CR. (Identical with A.M.E. 419, Ch.E. 419 and E.C.E. 419.)</td>
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<tr>
<td>480</td>
<td>Human Physiology (4) GC II</td>
<td>Wright</td>
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<tr>
<td></td>
<td>Principles of physiology, with emphasis on the human; designed primarily for students in pharmacy and health related sciences. Open to pharmacy majors; others consult department before enrolling. P, Chem. 243b, Math. 123, Phys. 102b, CR 481. (Identical with Tox. 480.)</td>
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<tr>
<td>481</td>
<td>Physiology Laboratory (1) GC II</td>
<td>Wright</td>
</tr>
<tr>
<td></td>
<td>Experiments intended to reinforce principles of physiological phenomena; designed primarily for students in pharmacy and health related sciences. Open to pharmacy majors; others consult department before enrolling. P, Chem. 243b, Math. 123, Phys. 102b, CR 480 (Identical with Tox. 481.)</td>
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<tr>
<td>495</td>
<td>Colloquium</td>
<td>Staff</td>
</tr>
<tr>
<td>a.</td>
<td>Introduction to the Neurosciences I (2) GC</td>
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<tr>
<td></td>
<td>An introductory overview of mammalian neural structure and function. Neuroanatomical and neurophysiological principles are emphasized. P, permission of instructor. (Ident. with Interdept. 495a, which is home).</td>
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</tr>
<tr>
<td>b.</td>
<td>Introduction to the Neurosciences II (2) GC</td>
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<tr>
<td></td>
<td>An introductory overview of clinical conditions that affect the human nervous system. P, 495a or consent of department. (Ident. with Interdept. 495b, which is home).</td>
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<tr>
<td>600</td>
<td>Mathematical Techniques in Physiology (3) I</td>
<td>Staff</td>
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<tr>
<td></td>
<td>The application of quantitative and analytical mathematical techniques to selected areas of physiology; introduction to mathematical approaches commonly used in physiology. Open to majors and minors only. P, Math. 125a-125b, 160.</td>
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<tr>
<td>602</td>
<td>Readings in Physiology (2) II</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Designed to provide students with more detailed consideration of various organ systems than can be provided in 601. Open to majors and minors only. P, Chem. 103b, 104b, 241b, 243b, Phys. 102b, CR 601.</td>
<td></td>
</tr>
<tr>
<td>606</td>
<td>Readings in Neuroscience (2) II</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Essentials of mammalian neural structure and function. Open to majors and minors only.</td>
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<tr>
<td>610</td>
<td>Research Methods in Physiology (1-3) [Rpt.] I, II</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>A lab course stressing the principles of physiological research.</td>
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</tr>
<tr>
<td>696</td>
<td>Seminar (1-4) I, II</td>
<td>Staff</td>
</tr>
<tr>
<td>a.</td>
<td>Advanced Mammalian Physiology (1-4) [Rpt./1] I, II</td>
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<tr>
<td></td>
<td>Open to majors and minors only. P, 600, 601, 602; 606 or Anat. 605.</td>
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<tr>
<td>b.</td>
<td>Literature (1) [Rpt./5] I, II</td>
<td></td>
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<td></td>
<td>Open to majors only. P, 600, 601, 602, 606 or Anat. 605.</td>
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</tbody>
</table>

#### Individual Studies

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>699</td>
<td>Independent Study (1-5) I, II</td>
<td>Staff</td>
</tr>
<tr>
<td>899</td>
<td>Independent Study (1-6) I, II</td>
<td>Staff</td>
</tr>
<tr>
<td>900</td>
<td>Research (1-6) I, II</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Individual research not related to a thesis or dissertation for advanced degree.</td>
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</tr>
<tr>
<td>920</td>
<td>Dissertation (1-9) I, II</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Research for the doctoral dissertation.</td>
<td></td>
</tr>
<tr>
<td>930</td>
<td>Supplementary Registration (1-6)</td>
<td>Staff</td>
</tr>
</tbody>
</table>

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PSYCHIATRY

Professors: Alan I. Levenson, Head, Allan Beigel [on leave of absence; Vice President, University Relations & Development], Larry E. Beutler [Psychology; Chief, Clinical Psychology Section], Henry W. Brosin, John C. Racy, Stephen C. Scheiber, Alayne Yates [Associate Professor, Pediatrics; Chief, Child Psychiatry Section]

Associate Professors: Diane S. Fordney [Obstetrics & Gynecology], Alfred W. Kasznik [Psychology], Henry I. Yamamura [Professor, Pharmacology, Biochemistry, Arizona Research Laboratories]

Assistant Professors: Peter J. Attarian [Associate Professor, Family & Community Medicine], Shirley Nichols Fahey [Director, Division of Social Perspectives in Medicine; Co-Coordinator, Human Behavior & Development], Milton Frank [Chief Social Worker, Psychiatry], Russell D. Martin [Associate Chief for Education, Veterans Administration Medical Center], John J. Misiaszek, Rebecca L. Potter, Catherine M. Shisslak [Psychology]


Adjunct Professor: Elliott M. Heiman [Family & Community Medicine]

Adjunct Associate Professors: Herman P. Gladstone, Gabriel O. Manasse, Ronald G. Nathan

Adjunct Assistant Professors: Michael R. Berren, Murray M. DeArmond [Family & Community Medicine; Lecturer, Psychology; Director, Student Health Service], Hayward M. Fox [Associate, Psychology]; Robert W. Garrett [Family & Community Medicine; Pharmacy Practice], Kenneth F. Marsh [Head, Medical Health, Student Health Service; Associate, Psychology], Bernard M. Morenz, III, Joan B. Rosenblatt, Herschel D. Rosenzweig

Clinical Associate Professor: JoAnn B. Fineman [Pediatrics]

Clinical Assistant Professors: Martha P. Fankhauser [Assistant Professor, Pharmacy Practice], Janet Kinney [Assistant Professor, Pharmacy Practice], David L. Stoker, Betty Jo Tricou

Research Associates: G. Maureen Chaisson, Yolanda C. Edler, Elizabeth B. Yost [Associate Professor, Counseling & Guidance]

Education Specialist: Elizabeth M. Segerstrom

The program of the Department of Psychiatry is designed to help students develop an understanding of the variety, range, and determinants of both normal and abnormal forms of human behavior. In addition, the student is helped to develop those skills that are needed in helping those whose primary illness is a mental disorder and those whose emotional disorder arises in conjunction with a somatic illness.

To meet these goals, both didactic courses and clinical instruction are offered in the College of Medicine curriculum. After students have been introduced to the normal personality functions and to abnormal processes which form the basis of psychopathology, they are given an opportunity to work directly with patients in treatment-oriented clinical settings.

Since psychiatric services are now provided in a variety of settings in each community, and, moreover, since emotional distress constitutes an important component of most somatic illness, the student's clinical training is provided in a variety of psychiatric and other medical settings. In addition to clinical training, the students are helped to develop an understanding of the current social, economic, and legal issues relevant to the organization and delivery of mental health services.

Course Descriptions

495. Colloquium
   b. Introduction to the Neurosciences II (2) GC
      An introductory overview of clinical conditions that affect the human nervous system. P, 495a or permission of the instructor. (Identical with Interdept. 495b, which is home)

599. Independent Study (1-6) I, II

800. Research (1-12) I, II

803. Clinical Clerkship (6-9) Yr.
      Students are assigned patients in inpatient and outpatient clinical settings. They obtain and record a complete history, mental status, and physical examination. They obtain and record a developmental survey. The students are expected to study longitudinally the course of their patients and record their observations in daily progress notes. They work closely with clinical staff in the planning of diagnostic treatment, ward management, and discharge issues involving their patients. Those students wishing to take an additional three- or six-week clerkship in psychiatry may elect to do so. (See 810 description.)

810. Clerkship, Yr.
   a. Clinical and Community Psychiatry (6) Yr.
   b. Child Psychiatry (6) Yr.
      See Electives Manual for course descriptions.

815. Subspecialty, Yr.
      See Electives Manual for course description.

891. Preceptorship I, II
      See Electives Manual for course description.

899. Independent Study (1-18) I, II
Professors: M. Paul Capp, Head, John Amberg, Harrison H. Barrett [Optical Sciences], Theodore Bowen [Physics], James R. Cassady [Chief, Radiation/Oncology Section], Eugene W. Gerner, Robert S. Heusinkveld [Director, Clinical Radiology; Lecturer, Internal Medicine], Theron W. Ovitt, Dennis D. Patton [Chief, Nuclear Medicine Section; Assistant Director, Clinical Radiology], Michael J. Pitt [Surgery; Chief, Diagnostic Radiology Section], Arthur J. Present, Joachim F. Seeger, William L. Wolfe, Jr. [Optical Sciences], James M. Woolfenden

Associate Professors: Silvio A. Aristizabal [Assistant Professor, Obstetrics & Gynecology], John C. Bjelland, George T. Bowden [Pharmacology & Toxicology], Thomas C. Cetas [Adjunct Associate Professor, Electrical & Computer Engineering], William G. Connor [Electrical & Computer Engineering], Kai Haber [Assistant Director, Clinical Radiology], Robert E. Henry, Bruce J. Hillman, Tim B. Hunter, Gerald D. Pond, Robert B. Roemer [Aerospace & Mechanical Engineering], Jeffrey M. Trent [Director, Basic Science Research, Cancer Center Division; Research Associate Professor, Internal Medicine], Bryan R. Westerman [Director, Radiation Safety]

Assistant Professors: Raymond F. Carmody, Mark M. Chernin, Anne E. Cress, Jon A. Kotler [Internal Medicine], John D. Newell, Del V. Steinbronn [Surgery], Jeffrey F. Williamson, Peter J. Yang

Lecturers: Harry R. Claypool [Associate, Anatomy], Jack N. Hall, Douglas H. McKelvie [Associate Professor, Pathology; Adjunct Associate Professor, Veterinary Science; Veterinarian, Animal Resources]

Adjunct Professor: Roger C. Jones [Professor, Electrical & Computer Engineering]

Adjunct Associate Professors: Theodore Ditchek, Walter T. Hileman, Norman N. Komar, Michael R. Manning
Adjunct Assistant Professors: John K. Crowe, Brian E. Gersten, Samuel J. Hessel, William W. Horsley, Jonathan M. Levy, Reuben E. Merideth, James A. Schnur, Robert D. Schweizer, Dalice A. Sim [Statistics, Family & Community Medicine; Biostatistician, Cancer Center Division], Steven J. Strober
Adjunct Instructor: Gerriet A. Janssen [Clinical Associate Professor, Obstetrics & Gynecology; Physician, Student Health Service]
Clinical Assistant Professors: Avi Ben-Ora, Harris J. Finberg, Bertram Sosnow, Cary J. Stegman, Richard D. Wachter
Research Associate Professor: Hans Roehrig
Research Assistant Professors: H. Bradford Barber, Helen L. Gensler, Kullervo H. Hynynen
Research Associates: Kerry S. Forsyth, Tao-Yi Fu, David J.M. Fuller, Robert E. Hastings, Jr. [Clinical Assistant Professor, Surgery], George W. Seeley [Optical Sciences]
Research Specialists: Jong-Sheng Chen, Henry D. Fisher, III
Visiting Professor: Andrzej Kapuscinski
Visiting Research Scholar: Rong-Li Liu

The Department of Radiology includes the University Medical Center Divisions of Diagnostic Radiology, Nuclear Medicine, and Radiation Oncology.

Course Descriptions

501. Radiation Biology (3) II
Basic principles of radiation effects in mammalian cell and tissue systems with emphasis on biochemical aspects, such as DNA damage and DNA repair, and cellular responses, such as cell kinetics defects and radiation repair and recovery; radiation and chemical (especially radiomimetic drugs) carcinogenesis. P, intro. bio. and chem. 

555. Cancer Biology (3) II
Fundamental biological aspects of neoplastic growth at the organ, cellular and molecular levels. Emphasis on the etiology, behavior, and therapy of neoplasms. (Ident. with M. Mic. 555, which is home.)

596. Seminar (See 896)

599. Independent Study (1-12) I, II

800. Research (1-6) [Rpt./1] Yr.
See Electives Manual for course description.

815. Subspecialty, Yr.
a. Diagnostic Radiology (6) Yr., P. Path 801
b. Nuclear Medicine (6) Yr.
c. Radiation Oncology (6) Yr.
See Electives Manual for course descriptions.

891. Preceptorship, Yr.
See Electives Manual for course description

896. Seminar
h. Control of Proliferation in Animal Cells (1-2) II
Seminar literature course reviewing current literature concerning regulation of eukaryotic cell proliferation. Graduate student participation in form of literature review and discussion. Innovative experiments to answer developed questions will be proposed and discussed in context of this course. P., Consent of department. (Ident. with M. Mic. 596h/896h)

899. Independent Study (1-12) I, II
SURGERY

Professors: Stephen L. Wangensteen, Head [Chief, General Surgery Section]; Victor M. Bernhard [Chief, Vascular Surgery Section]; Milos Chvapil [Chief, Surgical Biology Section]; Jack G. Copeland [Chief, Cardiovascular & Thoracic Surgery Section]; Stanley W. Coulthard [Chief, Otorhinolaryngology Section]; George W. Drach, Associate Head [Chief, Urology Section]; Alan S. Fleischer [Chief, Neurosurgery Section]; Eric P. Gall [Internal Medicine, Family & Community Medicine]; Theodore J. Glattke [Speech & Hearing Sciences]; William R. Hodgson [Speech & Hearing Sciences]; Douglas Lindsey, Noel D. Matkin [Speech & Hearing Sciences]; Leonard F. Peltier [Chief, Orthopedic Surgery Section]; Michael J. Pitt [Radiology]; Donald P. Speer [Anatomy]; Hugo V. Villar, Robert G. Volz, Jack H. Wilmore [Physical Education]; Charles L. Witte, Marlys H. Witte, Charles F. Zukoski, III

Associate Professors: Robert M. Anderson [Associate Dean, Continuing Medical Education & Outreach]; Charles F. Koopmann, Jr., James M. Malone, Harvey W. Meislin [Chief, Emergency Medicine Section]; Edward C. Percy [Physical Education]; Charles W. Putnam, Thomas H. Stanisic

Assistant Professors: Robert B. Dzioba, Robert W. Emery, Jr., J. David Gibeault, Robert P. Iacono, Kenneth V. Iserson, Steven M. Joyce, Keith R. Kaback [Associate Director, Emergency Medicine Residency Program]; Kenneth E. McIntyre, Arthur B. Sanders [Family & Community Medicine, Internal Medicine]; Del V. Steinbronn [Radiology]; John B. Sullivan, Jr. [Adjunct Assistant Professor, Pharmacology & Toxicology]; David B. Van Wyck [Internal Medicine]

Instructor: William J. Quinlan

Lecturers: Michael A. Buldra, Janice A. Copeland, Bob T. Foster, Anthony C. Guzauskas, Ann Kerwin, Kathleen V. Kintner, Joseph M. Leal, Donald B. Lewis, John D. Lewis, Mary Ann McAfee, Mary Jean McAleer, David G. Poedel, Thomas C. Rotkis, Ruth L. Smothers [Associate, Internal Medicine], Holly J. Tyson, Walter P. Work

Adjunct Professors: Floyd E. Anderson, Henry A. Perlmutter

Adjunct Associate Professors: Donald W. DeYoung [Veterinary Sciences; Surgical Veterinarian, Animal Resources Division]; Jacob B. Redekop

Adjunct Assistant Professor: Vincent P. Russo

Clinical Professors: Merril W. Brown, Robert B. Gilford, Donald M. Gleason, Stanley I. Glickman, John R. Green, Harry W. Hale, Jr., Alfred Heilbrunn [Associate Dean, Veteran Affairs]; George H. Mertz, Eric G. Ramsay, Richard A. Walsh, Peter J. Whitney

Clinical Associate Professors: David P. Campbell [Associate, Pediatrics]; C. Peter Crowe, Jr. [Associate, Pediatrics]; C. Herbert Fredell, Lawrence J. Koep, John W. Magee, Jr., John M. Stein, Richard M. Thompson, Frank L. Zwemer


Research Professor: A. Norman Guthkelch

Research Associate Professors: Cleamond D. Eskelson [Research Associate, Family & Community Medicine]; Ronald L. Misiorowski [Director, Surgical Biology Laboratories]

Research Assistant Professors: Janis M. Burt [Physiology]; Stephen Harkins, Brian Hunter

Research Associates: Subramanian Gunasekaran, Waltraud W. Nichols, Raymond L. Ramirez
The Department of Surgery provides a broad general exposure to surgery during a 6 week basic clinical clerkship and a 3 week specialty clerkship. The specialty clerkship requirement can also be met by registering for Surgery 807 in Year IV. The basic clerkship stresses preoperative evaluation, proper operating room conduct, and postoperative management. Basic operative skills are practiced in the animal laboratory. An awareness of the nature and management of surgical disease is developed by daily lectures and rounds and weekly conferences. The surgery Specialty Clerkship reinforces these basic skills by application to specialty areas such as urology, orthopedics, neurosurgery, cardiothoracic surgery and otorhinolaryngology.

Elective courses in general and specialty surgery and various aspects of surgical biology are offered. Increased clinical responsibility is assured on hospital services by assigning the elective student to the patient care team. Special courses designed around specific clinical activities and research programs in the Department of Surgery and other departments are available on an individual basis.

The graduate program in surgical sciences includes hospital training in general and specialty surgery with a strong emphasis upon the five-year graduate program. It emphasizes training of the clinical surgeon but encourages elective surgical study for future community, academic or research surgery.

Course Descriptions

800. Research (1-12) Yr.

803. Clinical Clerkship (6-9) Yr.

Introduction to clinical surgery through hospital clerkship on surgical wards.
807. Specialty Clerkship (3) Yr.  
Introduction to clinical surgery through exposure to a surgery Specialty Clerkship (as assigned by the Surgery Department).

810. Clerkship, Yr.  
a. General Surgery (4-8) Yr.  
See Electives Manual for course descriptions.

815. Subspecialty, Yr. [Rpt./3]  
a. Urinary Stone Disease (6) Yr.  
b. Cardiothoracic Surgery (4-12) Yr.  
c. Neurosurgery (3-6) Yr.  
d. Surgical and Medical Problems in Fluid and Electrolyte Balance (3) [Rpt./1] Yr.  
e. Urology (4-6) Yr.  
f. Orthopedics (3) Yr.  
g. Cardiovascular Physiology and Research (6-12) Yr.  
h. Lymphvascular System in Health and Disease (6-12) Yr.  
j. Otorhinolaryngology (3) Yr.  
k. Sports Medicine (Section of Orthopedic Surgery) (3-8) [Rpt./1] Yr.  
l. Orthopedic Bioengineering (3-6)  
m. Trauma (3-6)  
r. Clinical Experiences in Rehabilitation Medicine (4)  
t. Emergency Medicine (4-12) Yr.  
v. Clinics in Medical Ignorance (3-4) [Rpt./2] Yr.  
See Electives Manual for course descriptions.

891. Preceptorships, [Rpt./3] Yr.  
a. Surgery and Subspecialties (4-12) [Rpt./3] Yr.  

896. Seminar (1-18) [Rpt./1] Yr.  
a. Medical ignorance (experimental offering)  
See Electives Manual for course descriptions. P, Completion of Sophomore Year.
The Division of Animal Resources was established, within the College of Medicine, to provide a centralized facility for the maintenance of animals for use in research and teaching. Inherent with this function is the responsibility to maintain standards, exceeding those required by law, in considering welfare of the animals.

The Division not only provides space for the holding of animals, but also the feeding, cleaning and handling of those animals. In addition, three veterinarians and trained laboratory animal technologists and technicians observe and provide teaching and practical assistance in the proper methods of restraint and animal use. All research projects using animals, must be approved as to adequacy of anesthetics and analgesia, as well as disease control prior to their use. Expertise in the use of specific animal models is provided to investigators, thus eliminating unnecessary use of animals.

Concern for the welfare of the animals, plus recognition of the need for quality biomedical research are the primary objectives of the staff of the Division of Animal Resources.
DIVISION OF BIOMEDICAL COMMUNICATIONS

William T. Harrison, Ph.D., Director

The Division of Biomedical Communications is an academic support unit providing comprehensive communications media planning and production services for the Arizona Health Sciences Center. A professional staff provides medical photography, illustration, television, instructional materials design and development, and media utilization services in support of the teaching, in-service training, research, and public service programs of the College of Medicine.

A primary goal of the Division is to provide timely, creative, innovative and cost-effective resources for the instructional communication needs of the faculty, staff and students.

CANCER CENTER DIVISION

Sydney E. Salmon, M.D., Director

The Arizona Cancer Center was established in 1976 with an overall goal to significantly contribute to research related to the understanding and treatment of cancer. To attain its goal, the Cancer Center pursues the following objectives:

1) serve as a major geographic resource identified as a Cancer Research Center,
2) promote excellence in clinical and laboratory cancer research, patient care and education,
3) facilitate and coordinate cancer-related programs at the University of Arizona,
4) develop an outreach program to serve the State of Arizona.

The Cancer Center has been involved with planning educational, clinical and scientific activities. The Center's commitments have included educational programs for medical and graduate students as well as teaching of practitioners and allied health professionals at numerous local and national continuing medical education programs. Medical Student Cancer Programs have been awarded to students to work in cancer-related projects with faculty throughout the College of Medicine and other health professionals throughout the state. The monthly Tumor Board at the University Medical Center is open to all interested persons and discusses aspects of cancer patient management and prevention. As part of the required curricula of medical students, individual lectures in cancer education are presented in the Departments of Biochemistry, Molecular and Medical Microbiology and Pharmacology.

The clinical oncology and clinical research programs of the Cancer Center have continued to draw an increasing cancer patient volume to the Arizona Health Sciences Center which is now the acknowledged leading resource for provision of cancer care in the state.

Multidisciplinary cancer research expertise is continually developed and expanded in numerous clinical and laboratory programs that include basic research studies on oncogenes and on carcinogenesis, the study of heat, radiation and drugs in cancer therapy, the interaction of Vitamin A and its synthetic derivatives with pre-neoplastic and neoplastic states, the definition of the pathophysiology of clonal growth of cancer in man, the study of clinical pharmacology of anticancer drugs, and carrying out clinical trials of promising approaches to cancer prevention, diagnosis and treatment.
DIVISION OF MULTIDISCIPLINE LABORATORIES

John D. Palmer, Ph.D., M.D., Director

The University of Arizona College of Medicine utilizes multidiscipline laboratories for the teaching of the laboratory aspects of the basic science courses. In contrast to the more traditional medical schools wherein each of the six basic science departments has its own teaching facility, this institution uses a central teaching facility which serves as the home base for the students enrolled in the preclinical years of the curriculum. Thus, instead of the students coming to the faculty, the faculty comes to the students in the multidiscipline laboratories. The student laboratory wing of the Basic Sciences Building also includes the lecture halls used by the medical students. In a single wing of the building, the medical students receive the majority of their preclinical education.

The multidiscipline laboratories also provide educational support in the form of television services. The unit provides staff support for the production of educational television programs as well as utilization of television materials in the classroom. The television staff also provides support for television services required by the research endeavors of the basic sciences faculty.

DIVISION OF RESPIRATORY SCIENCES
(CHEST-ALLERGY CENTER)

Benjamin Burrows, M.D., Director
Ronald J. Knudson, M.D., Associate Director
Michael D. Lebowitz, Ph.D., Associate Director, Environmental Programs
Lynn M. Taussig, M.D., Assistant Director

The Division of Respiratory Sciences has members from many different academic departments of the University. It has responsibility for interdisciplinary pulmonary-allergy programs in research, training, and clinical services. It operates the St. Luke's Adult-Pediatric Chest-Allergy Clinic and the University Medical Center's Department of Respiratory Services, including the Respiratory Therapy Service, the Adult and Pediatric Pulmonary Function Laboratories, and the Blood Gas Laboratory. The Division is also responsible for collaborative postdoctoral training programs in Adult and Pediatric Pulmonary Medicine.

A major function of the Division is to coordinate multidisciplinary research programs in pulmonary disease. It is responsible for the Specialized Center of Research (SCOR) in Obstructive Airways Diseases established at the College of Medicine with funding from the National Institutes of Health. Many of the research programs of the Division are carried out in the Westend Laboratories, which are included in a "Chest Center" addition to the Clinical Sciences Building which opened in 1975. While the Division carries out a wide variety of research programs, its largest programs are a longitudinal study of a representative sample of the Tucson population (Tucson Epidemiological Study of Obstructive Lung Diseases) and a longitudinal study of newborns (the Tucson Children's Respiratory Study).
DIVISION OF RESTORATIVE MEDICINE  
John T. Boyer, M.D., Director

The Division of Restorative Medicine was established in January 1984 by the Faculty within the College of Medicine and the Board of Regents to bring a new emphasis to education, research, and service in the areas of geriatrics, rehabilitation and chronic illness.

The Division has taken as its first task the recruitment of a Director of Physical Medicine and Rehabilitation. Thereafter, a Director of Geriatrics will be sought.

The Division has a special role in the development of multidisciplinary programs involving College Faculty, Allied Health Professionals, University Scientists and Health Administrators in the public sector. The marked rise in the nation's care of the elderly and infirm assure a growing need for the Division's contributions.

DIVISION OF SOCIAL PERSPECTIVES IN MEDICINE  
Shirley Nickols Fahey, Ph.D., Director

The Division of Social Perspectives in Medicine was established within the College of Medicine in recognition of the increasingly complicated cultural, social, economic, legal and ethical influences affecting the institution of medicine in American society. The efforts of this Division are aimed at expanding and exciting the thinking of medical students and faculty in the area of human values and the role of medicine in contemporary society.

The activities of the Division include symposia, seminars and workshops on such topics as: cultural and economic factors in health and disease, ethical issues in medicine, medical jurisprudence, health needs of the elderly, care for the terminally ill, holistic medicine, the psychological journey of a medical student, and other current issues. Local and national authorities are invited to participate in these programs from such fields as psychology, law, politics, sociology, anthropology, theology, and philosophy in addition to medicine.

The Division also sponsors Kenneth A. Hill Visiting Scholars who spend a week or more at the College of Medicine and share their perspectives on modern medicine with both students and faculty in a variety of academic and clinical settings.
THE ARIZONA BOARD OF REGENTS

Ex-Officio

Bruce E. Babbitt, J.D..................................................Governor of Arizona
Carolyn P. Warner..................................................State Superintendent of Public Instruction

Appointed

Paul D. Julien, Ed.D., Assistant Treasurer..............................May, 1985
Donald Pitt, J.D., President...............................................January, 1986
Esther N. Capin, M.Ed..................................................January, 1986
Tio A. Tachias.............................................................January, 1988
William P. Reilly, Treasurer...............................................January, 1988
Donald G. Shropshire, B.S., Secretary.................................January, 1990
A. Jack Pfister, LL.B., President Elect................................January, 1990
Edith S. Auslander, M.A................................................January, 1992
Herman Chanen, Assistant Secretary...................................January, 1992

Assistants

Robert A. Huff, Ed.D..................................................Executive Director
Odus Elliott, Ph.D.....................................................Associate Director, Academic Programs
Robert Lawless, M.S..................................................Associate Director for Finance
Chris Barkulis, B.S..................................................Assistant Director for Audits & Medical Budgets
Glen Brockman, J.D..................................................Acting Counsel to the Board of Regents
Sheri Lewis.............................................................Assistant Director for Personnel
Virginia Benge........................................................Secretary to the Board of Regents
OFFICERS OF THE UNIVERSITY

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Ben J. Tuchi, Ph.D........................................Senior Vice President for Administration & Finance
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George R. Cunningham, M.P.A......................Vice President for Administrative Services
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Sarah A. Blake, B.S., C.P.A..................................Associate Vice President for Finance
John A. Monnier, C.P.A......................................Associate Vice President for Information Services
Charles H. Peyton, A.B.F.T..............................Associate Vice President for Research
Jane H. Underwood, Ph.D.............................Assistant Vice President for Research
James T. Wheeler, M.B.A.............................Assistant Vice President for Research
RECIPIENTS OF FACULTY TEACHING AWARDS

April 10, 1984

BASIC SCIENCES

Basic Sciences Educator of the Year: Norman E. Koelling, M.S.

Dean's List for Excellence in Teaching in the Basic Sciences:
William D. Barber, D.V.M., Ph.D.
David E. Blask, Ph.D., M.D.
Lawrence M. Moher, M.D.

Outstanding Achievement in Teaching in the Basic Sciences:
Preparation for Clinical Medicine

CLINICAL SCIENCES

Clinical Sciences Educator of the Year: Jay W. Smith, M.D.

House Officer Educator of the Year: Francisco E. Ruiz, M.D.

Dean's List for Excellence in Teaching by a House Officer:
John L. Gililland, Jr., M.D.
Laryenth D. Lancaster, M.D.
Diana B. McNeill, M.D.

Dean's List for Excellence in Teaching of the Clinical Sciences:
Douglas H. Lindsey, M.D., M.P.H., Dr. P.H.
C. George Ray, M.D.
Mary Ellen Rimsza, M.D.

Outstanding Achievement in Teaching in the Clinical Sciences:
Department of Pediatrics

FOUNDER'S DAY LECTURESHIPS

Henry I. Yamamura, Ph.D.
David J. Sahn, M.D.
Mark R. Haussler, Ph.D.
Diane H. Russell, Ph.D.
Robert G. Volz, M.D.
Benjamin Burrows, M.D.

November 16, 1979
November 17, 1980
November 17, 1981
November 17, 1982
November 17, 1983
November 16, 1984
# COLLEGE OF MEDICINE FACULTY

## ADMINISTRATION

*(Year of first appointment to faculty in parentheses after each name.)*

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Position</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>KETTEL, LOUIS J.</td>
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VOSS, WILBER C. (1973)  Associate, Family & Community Medicine, Internal Medicine  
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VUTURO, ANTHONY F. (1971)  Professor and Head, Family & Community Medicine  
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Henry I. Yamamura, Ph.D.
### HONORS AND AWARDS COMMITTEE

<table>
<thead>
<tr>
<th>Member</th>
<th>Year of Graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas P. Davis, Ph.D.</td>
<td>1985</td>
</tr>
<tr>
<td>Donald W. DeYoung, D.V.M., Ph.D.</td>
<td>1985</td>
</tr>
<tr>
<td>*Mary J. C. Hendrix, Ph.D.</td>
<td>1985</td>
</tr>
<tr>
<td>Steven D. Herzog, Class of 1985</td>
<td>1985</td>
</tr>
<tr>
<td>Douglas Lindsey, M.D., M.P.H., Dr.P.H.</td>
<td>1985</td>
</tr>
<tr>
<td>Sally R. Masters, Class of 1987</td>
<td>1987</td>
</tr>
<tr>
<td>Denise A. Mills, Class of 1988</td>
<td>1988</td>
</tr>
<tr>
<td>Del V. Steinbronn, M.D.</td>
<td>1988</td>
</tr>
<tr>
<td>Kent L. Wellish, Class of 1986</td>
<td>1986</td>
</tr>
<tr>
<td>Stephen H. Wright, Ph.D.</td>
<td>1986</td>
</tr>
</tbody>
</table>

### LONG RANGE PLANNING COMMITTEE

<table>
<thead>
<tr>
<th>Member</th>
<th>Year of Graduation</th>
</tr>
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<tbody>
<tr>
<td>David E. Blask, M.D., Ph.D.</td>
<td>1985</td>
</tr>
<tr>
<td>Thomas F. Burks, II, Ph.D.</td>
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<tr>
<td>Alethea O. Caldwell, M.S.</td>
<td>1985</td>
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<tr>
<td>Mark R. Haussler, Ph.D.</td>
<td>1985</td>
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<tr>
<td>Marilyn J. Heins, M.D.</td>
<td>1985</td>
</tr>
<tr>
<td>*Donald P. Speer, M.D.</td>
<td>1985</td>
</tr>
<tr>
<td>Stephen B. Shanfield, M.D.</td>
<td>1985</td>
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<tr>
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</tr>
</tbody>
</table>

### NOMINATING COMMITTEE

<table>
<thead>
<tr>
<th>Member</th>
<th>Year of Graduation</th>
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<tbody>
<tr>
<td>Jay B. Angevine, Jr., Ph.D.</td>
<td>1985</td>
</tr>
<tr>
<td>Mark R. Haussler, Ph.D.</td>
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<tr>
<td>*Samuel H. Paplanus, M.D.</td>
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<tr>
<td>Stephen C. Scheiber, M.D.</td>
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<tr>
<td>Hugo V. Villar, M.D.</td>
<td>1985</td>
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</tbody>
</table>

### STUDENT APPEALS COMMITTEE

<table>
<thead>
<tr>
<th>Member</th>
<th>Year of Graduation</th>
</tr>
</thead>
<tbody>
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<td>Diane S. Fordney, M.D.</td>
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<td>Kai Haber, M.D.</td>
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<td>1985</td>
</tr>
<tr>
<td>Christopher A. Leadem, Ph.D.</td>
<td>1985</td>
</tr>
<tr>
<td>William J. Meinke, Ph.D.</td>
<td>1985</td>
</tr>
<tr>
<td>Ronald E. Pust, M.D.</td>
<td>1985</td>
</tr>
<tr>
<td>*John C. Racy, M.D.</td>
<td>1985</td>
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<tr>
<td>Kenneth J. Ryan, M.D.</td>
<td>1985</td>
</tr>
<tr>
<td>Michael A. Wells, Ph.D.</td>
<td>1985</td>
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### STUDENT PROGRESS COMMITTEE

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<th>Member</th>
<th>Year of Graduation</th>
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<tr>
<td>Mark R. Anderson, Class of 1985</td>
<td>1985</td>
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<tr>
<td>Larry E. Beutler, Ph.D.</td>
<td>1985</td>
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<tr>
<td>David E. Blask, M.D., Ph.D.</td>
<td>1985</td>
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<tr>
<td>Lee D. Bulkeley, Class of 1988</td>
<td>1988</td>
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<tr>
<td>Susan R. Cord, Class of 1986</td>
<td>1986</td>
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<tr>
<td>Randall R. Cork, M.D., Ph.D.</td>
<td>1986</td>
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<tr>
<td>Thomas P. Davis, Ph.D.</td>
<td>1986</td>
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<tr>
<td>*Ronald S. Fischler, M.D.</td>
<td>1986</td>
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<tr>
<td>+ Andrew M. Goldner, Ph.D.</td>
<td>1986</td>
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<tr>
<td>Anna R. Graham, M.D.</td>
<td>1986</td>
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<tr>
<td>Ronald C. Hansen, M.D.</td>
<td>1986</td>
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<td>Charles F. Koopman, Jr., M.D.</td>
<td>1986</td>
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<tr>
<td>Elmer S. Lightner, M.D.</td>
<td>1986</td>
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<tr>
<td>Jack W. Pearson, M.D.</td>
<td>1986</td>
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<tr>
<td>Laurie C. Rogers, Class of 1987</td>
<td>1987</td>
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<tr>
<td>Stuart R. Snider, M.D.</td>
<td>1987</td>
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<tr>
<td>Marc E. Tischler, Ph.D.</td>
<td>1987</td>
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### STUDENT RESEARCH COMMITTEE

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<th>Member</th>
<th>Year of Graduation</th>
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<tr>
<td>Mary Ellen Dirlam, Class of 1987</td>
<td>1987</td>
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<tr>
<td>Adam A. Kartman, Class of 1986</td>
<td>1986</td>
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<tr>
<td>Samuel H. Keim, Class of 1985</td>
<td>1985</td>
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<td>Frank L. Meyskens, Jr., M.D.</td>
<td>1985</td>
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<tr>
<td>Mark E. Tischler, Ph.D.</td>
<td>1985</td>
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<tr>
<td>Rebecca Wood, Class of 1988</td>
<td>1988</td>
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</table>
TEMPORARY RESEARCH BUILDING
MANAGEMENT COMMITTEE

William D. Barber, D.V.M., Ph.D.
+ Andrew M. Goldner, Ph.D.
*David G. Johnson, M.D.
Douglas G. Stuart, Ph.D.

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B.J. Campbell
M. Paul Capp, M.D.
John R. Greenwood, M.D.
Alfred Heilbrunn, M.D.
Marilyn J. Heins, M.D.

*Louis J. Kettel, M.D.
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Alan I. Levenson, M.D., M.P.H.
Russell D. Martin, M.D.
Virgil McIntyre
Gaylord V. Morton
Albert M. Potts, M.D., Ph.D.
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John J. Stephens, Class of 1986
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Gregrey S. Cohen, Class of 1987
Paul C. Magarelli, Class of 1988
W. Shelby Rutledge, Class of 1988
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Kent L. Wellish, Class of 1986

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Rebecca Wood, Class of 1988

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Mark D. Wright, Class of 1986 (Alternate)

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Michael P. Dohm, Class of 1987

LIBRARY ADVISORY COMMITTEE (AHSC)

Steven M. Rayle, Class of 1987

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Bruce C. Stockhouse, Class of 1987
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Michael A. Lee, Class of 1988
Lynn M. Keating, Class of 1988

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ABRAMS, THOMAS R.
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BRILLMAN, JUDITH C.
University of Pittsburgh School of Medicine, M.D., 1981

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Family Practice
Pediatrics
Neurology
Surgery
Pediatrics
Dermatology
Obstetrics-Gynecology
Radiology-Diagnostic
Radiology-Diagnostic
Surgery
Family Practice
Family Practice
Internal Medicine
Anesthesiology
Anesthesiology
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Radiology-Diagnostic
Orthopedic Surgery
Orthopedic Surgery
Psychiatry
Radiology-Diagnostic
Orthopedic Surgery
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Pediatrics
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<td>BROWN, W. DANNY</td>
<td>Uniformed Services University of the Health Sciences</td>
<td>M.D.</td>
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<td>BRYSCZ, THOMAS L.</td>
<td>University of Arizona College of Medicine</td>
<td>M.D.</td>
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<td>University of North Carolina School of Medicine</td>
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<td>University of Arizona College of Medicine</td>
<td>M.D.</td>
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<td>CABIN, BRIAN L.</td>
<td>University of Illinois College of Medicine</td>
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<td>CALDER, WILLIAM A.</td>
<td>University of Arizona College of Medicine</td>
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<td>CALLISON, SUE A.</td>
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<td>University of Arizona College of Medicine</td>
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<td>CARROLL, CHARLENE</td>
<td>Wayne State University School of Medicine</td>
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<td>University of South Dakota School of Medicine</td>
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<td>CHRISTENSEN-SZALANSKI, CARLYN M.</td>
<td>University of Washington School of Medicine</td>
<td>M.D.</td>
<td>1983</td>
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<td>CLAMAN, DAVID M.</td>
<td>Northwestern University Medical School</td>
<td>M.D.</td>
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<td>CLAUTICE, LESLIE A.</td>
<td>Oregon Health Sciences University</td>
<td>M.D.</td>
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<td>COATES, SALLY A.</td>
<td>Boston University School of Medicine</td>
<td>M.D.</td>
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<td>Emory University School of Medicine</td>
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<td>University of Southern California School of Medicine</td>
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<td>Mayo Medical School</td>
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<td>University of Texas Medical Branch at Galveston</td>
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<td>University of Arizona College of Medicine</td>
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<td>1983</td>
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</table>

**Occupational Medicine/ Family Practice**
- Occupational Medicine
- Family Practice

**Anesthesiology**

**Obstetrics-Gynecology**

**Preventive Medicine**
- Preventive Medicine

**Family Practice**
- Family Practice

**Pediatrics**

**Internal Medicine**
- Internal Medicine

**Emergency Medicine**
- Emergency Medicine

**Psychiatry**

**Pediatrics**

**Internal Medicine**

**Emergency Medicine**

**Radiology-Diagnostic**

**Emergency Medicine**

**Psychiatry**

**Pathology**

**Surgery**
- Internal Medicine
- Surgery

**Radiology-Diagnostic**

**Emergency Medicine**

**Ophthalmology**

**Internal Medicine**

**Obstetrics-Gynecology**

**Emergency Medicine**
DENTON, SCOTT L. 
University of Nevada School of Medicine, M.D., 1982

DEUSKAR, VASANTI 
Guy's Hospital, London, United Kingdom, M.D., 1979

DEZIEL, LAWRENCE P. 
University of Michigan Medical School, M.D., 1984

DONALD, FELICIA L. 
Eastern Virginia Medical School of Eastern Virginia Medical Authority, M.D., 1982

DONOVAN, JOHN M. 
University of Arizona College of Medicine, M.D., 1981

DRAELOS, MICHAEL T. 
University of Arizona College of Medicine, M.D., 1982

DRAELOS, ZOE K. 
University of Arizona College of Medicine, M.D., 1983

DUNNINGTON, GARY L. 
Indiana University School of Medicine, M.D., 1980

DURAN, JOSE I. 
University of Arizona College of Medicine, M.D., 1981

Dwyer, Daniel C. 
Georgetown University School of Medicine, M.D., 1977

ECONOMOU, VASILIKI 
University of Thessalonki, Thessalonki, Greece, M.D., 1972

EDWARDS, DAVID B. 
Jefferson Medical College of Thomas Jefferson University, M.D., 1982

ENGELKEN, MICHAEL K. 
University of Kansas School of Medicine, M.D., 1982

ESCOBAR, CARLOS E. 
National University of San Carlos, M.D., 1976

FASSLER, ERIC N. 
University of Arizona College of Medicine, M.D., 1984

FASZHOLZ, MARK S. 
University of Missouri, Columbia School of Medicine, M.D., 1982

FAWCETT, BARBARA B. 
University of North Carolina School of Medicine, M.D., 1984

FELDMAN, STEFANIE A. 
University of Arizona College of Medicine, M.D., 1981

FERENCZ, GERALD J. 
Medical College of Pennsylvania, M.D., 1980

FLAMING, MICHAEL B. 
University of Oregon School of Medicine, M.D., 1982

FOWLER, T. JESS 
University of Utah College of Medicine, M.D., 1980

FRYE, KAREN R. 
University of Michigan Medical School, M.D., 1981

GABRIELSEN, JR., ALVIN A. 
Michigan State University College of Human Medicine, M.D., 1984

GAJARE, NILANJAN B. 
B. J. Medical College, M.D., 1978

GELMAN, LOIS M. 
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GERMAN, MICHAEL S. 
University of Texas Southwestern Medical School at Dallas, M.D., 1983

GIBBS, DWAYNE L. 
University of New Mexico School of Medicine, M.D., 1983

GIBBY, WENDELL A. 
University of Utah College of Medicine, M.D., 1983

GILLILAND, JOHN L., JR. 
University of Arizona College of Medicine, M.D., 1982

Pediatrics
Nuclear Medicine
Anesthesiology
Obstetrics-Gynecology
Urology
Internal Medicine
Dermatology
Surgery
Obstetrics-Gynecology
Dermatology
Neurology
Internal Medicine
Family Practice
Neurology
Obstetrics-Gynecology
Anesthesiology
Obstetrics-Gynecology
Surgery
Neurology
Otolaryngology
Surgery
Urology
Pediatrics
Psychiatry
Internal Medicine
Internal Medicine
Surgery
Radiology-Diagnostic
Obstetrics-Gynecology
GINI, ADRIANA  
University of Rome "La Sapienza" School of Medicine, M.D., 1984

GOFF, STEVEN G.  
Indiana University School of Medicine, M.D., 1980

GOLDBERG, RONALD K.  
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GONZALEZ, GREGORY J.  
The Oregon Health Sciences University School of Medicine, M.D., 1984

GRAFTON, SCOTT T.  
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GRANT, RONALD S.  
University of Wisconsin Medical School, M.D., 1984

GRAZER, RICHARD E.  
University of Massachusetts Medical School, M.D., 1980

GRIFFITH, ROBERT F.  
Washington University School of Medicine, M.D., 1982

GROBMAN, ALAN M.  
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HAGERTY, BRIAN P.  
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HALLIDAY, III, RONALD K.  
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HALVORSON, GARY D.  
Washington University School of Medicine, M.D., 1982

HANCOCK III, VIRGIL I.  
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HANSON, RONALD D.  
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HEATON, F. JANE  
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HELLMANN, GARY G.  
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HENDRICKSON, KARL A.  
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HERNDON, TIMOTHY E.  
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HERRERA, JOSE M.  
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HETLAND, MONTE D.  
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HIATT, KARL B.  
Duke University School of Medicine, M.D., 1983

HIGHKIN, DANIEL J.  
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Nuclear Medicine
Surgery
Internal Medicine
Pediatrics
Internal Medicine
Pediatrics
Emergency Medicine
Emergency Medicine
Internal Medicine
Pediatrics
Anesthesiology
Emergency Medicine
Psychiatry
Radiology-Diagnostic
Emergency Medicine
Surgery
Psychiatry
Internal Medicine
Pediatrics
Surgery
Pediatrics
Obstetrics-Gynecology
Pediatrics
Surgery
Internal Medicine
Orthopedic Surgery
Pediatrics
Pediatrics
Occupational Medicine
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<th>Name</th>
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<tr>
<td>HoupT, Gwen A.</td>
<td>Temple University School of Medicine</td>
<td>1981</td>
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<tr>
<td>HoyT, Robert H., Jr.</td>
<td>University of Iowa College of Medicine</td>
<td>1983</td>
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<td>Huang, Charn-Ming</td>
<td>Universidad Autonoma de Juarez School of Medicine</td>
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<td>Huber, Paula W.</td>
<td>University of California, Davis School of Medicine</td>
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<td>Hudson, Paul B.</td>
<td>University of Arizona College of Medicine</td>
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<td>Hunt, K. Rebecca</td>
<td>University of New Mexico School of Medicine</td>
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<td>Hunter, Susan K.</td>
<td>University of Wisconsin Medical School</td>
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<td>Hurst, Paul G.</td>
<td>University of Kentucky College of Medicine</td>
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<td>Hutchinson, Doris E.</td>
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<td>Dartmouth Medical School</td>
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<td>Ingram, James M.</td>
<td>Creighton University School of Medicine</td>
<td>1972</td>
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<td>Jack, Elizabeth L.</td>
<td>Loyola University Stritch School of Medicine</td>
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<td>Jacobson, Matthew W.</td>
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<td>Johnson, James E.</td>
<td>University of Washington School of Medicine</td>
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<td>University of Arizona College of Medicine</td>
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<td>Jones, Janet M.</td>
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<td>1974</td>
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<td>University of California, Los Angeles School of Medicine</td>
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<td>University of Nevada School of Medicine</td>
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<td>Kame, Rosalia F.</td>
<td>University of Arizona College of Medicine</td>
<td>1982</td>
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<td>Kaplan, Charles S.</td>
<td>Tufts University School of Medicine</td>
<td>1983</td>
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<td>Keene, Sharon A.</td>
<td>University of Minnesota Medical School</td>
<td>1984</td>
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<td>Keller, II, Dwight S.</td>
<td>University of Colorado School of Medicine</td>
<td>1981</td>
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<td>Kerrigan, Daniel P.</td>
<td>Oregon Health Sciences University</td>
<td>1983</td>
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<td>Khan, Imran Ul Haq</td>
<td>Khyber Medical College</td>
<td>1981</td>
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<td>Knoper, Steven R.</td>
<td>University of Washington School of Medicine</td>
<td>1983</td>
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Specialties:
- Psychiatry
- Internal Medicine
- Pathology
- Internal Medicine
- Radiology-Diagnostic
- Obstetrics-Gynecology
- Internal Medicine
- Obstetrics-Gynecology
- Family Practice
- Cardiothoracic Surgery
- Anesthesiology
- Anesthesiology
- Psychiatry
- Anesthesiology
- Pediatrics
- Radiology-Diagnostic
- Family Practice
- Pathology
- Obstetrics-Gynecology
- Pediatrics
- Psychiatry
- Family Practice
- Internal Medicine
- Surgery
- Orthopedic Surgery
- Pathology
- Neurology
- Internal Medicine
KORNS, NICHOLAS
The Oregon Health Sciences University School of Medicine, M.D., 1978

KOUTNIK, CARL J.
University of Arizona College of Medicine, M.D., 1983

LADIN, DANIEL A.
University of Michigan Medical School, M.D., 1984

LAKOMY, DALE G.
State University of New York Upstate Medical Center, M.D., 1981

LAM, KIT S.
Stanford University School of Medicine, M.D., 1984
University of Wisconsin Medical School, Ph.D., 1980

LAMBE, CLARK D.K.
University of Arizona College of Medicine, M.D., 1975

LA WALL, JOHN S.
University of Arizona College of Medicine, M.D., 1971

LAWLESS, REGINA
Georgetown University School of Medicine, M.D., 1980

LE, HUONG T.
University of Arizona College of Medicine, M.D., 1984

LEDERMAN, RAYMOND K.
Michigan State University College of Osteopathic Medicine, D.O., 1974

LEE, STANFORD C.
University of California College of Medicine, M.D., 1982

LETSON, GEORGE W.
University of Colorado School of Medicine, M.D., 1981

LEVIN, TEDD
Northwestern University Medical School, M.D., 1982

LEVINSON, MARK M.
Bowman Gray School of Medicine of Wake Forest University, M.D., 1978

LITTLE, CATHY L.
University of Texas Medical Branch at Galveston, M.D., 1982

LITTLE, JAMES H.
University of Texas Medical Branch at Galveston, M.D., 1982

LITTLE, TIMOTHY E.
University of Southern California School of Medicine, M.D., 1983

LOEBER, CLEO P.
University of Arizona College of Medicine, M.D., 1984

LYTLE, JOHN P., JR.
University of Michigan Medical School, M.D., 1977

MACDONALD, JAMES
Oregon Health Sciences University, M.D., 1983

MADRID, EDWARD J.
University of California, San Diego School of Medicine, M.D., 1984

MANNINO, ELIZABETH A.
Tulane University School of Medicine, M.D., 1984

MARTIN, LEO A.
University of California, San Francisco School of Medicine, M.D., 1982

MARTINEZ, MICHAEL R.
University of Arizona College of Medicine, M.D., 1983

McKELLAR, DUNCAN L., JR.
University of Texas Medical School at Houston, M.D., 1983

MCATIONS, JAMES H.
University of Pittsburgh School of Medicine, M.D., 1979

MCNEILL, DIANA B.
Duke University School of Medicine, M.D., 1982

MCRILL, CHERYL L.
University of Washington School of Medicine, M.D., 1984

MEEHAN, JULIE A.
University of Texas Medical Branch at Galveston, M.D., 1984

Preventive Medicine
Anesthesiology
Surgery
Radiation-Therapeutic
Internal Medicine
Pathology
Neurology
Psychiatry
Anesthesiology
Psychiatry
Emergency Medicine
Pediatrics
Family Practice
Thoracic Surgery
Pediatrics
Psychiatry
Internal Medicine
Pediatrics
Radiology-Therapeutic
Urology
Pediatrics
Pediatrics
Anesthesiology
Pediatrics
Surgery
Emergency Medicine
Internal Medicine
Family Practice
Internal Medicine
MERING, MARK E.
University of North Dakota School of Medicine, M.D., 1982

MINKLEY, RICHARD E.
University of Wisconsin Medical School, M.D., 1982

MOLLOY, PETER
University of Colorado College of Medicine, M.D., 1983

MOLLOY, THOMAS A.
Dartmouth Medical School, M.D., 1981

MORIARITY, SUSAN K.
University of Virginia School of Medicine, M.D., 1982

MULBRY, LEONARD W., JR.
University of Kentucky College of Medicine, M.D., 1980

MUNRO, DOUGLAS A.
Washington University School of Medicine, M.D., 1983

MURPHY, NEIL J.
University of Washington School of Medicine, M.D., 1982

NACHBAR, JAMES M.
Washington University School of Medicine, M.D., 1980

NEAL, DAVID D.
University of California, Los Angeles School of Medicine, M.D., 1982

NEWMARK, SANFORD C.
University of Arizona College of Medicine, M.D., 1984

NICHOLS, DAN A.
University of Minnesota Medical School, M.D., 1980

NISBET, JON K.
University of California, Los Angeles School of Medicine, M.D., 1983

NYE, PATRICIA S.
University of New Mexico, School of Medicine, M.D., 1981

O'CONNOR, MICHAEL P.
University of Arizona College of Medicine, M.D., 1984

OLIVER, JEFFREY D.
University of Iowa College of Medicine, M.D., 1983

OSKANDY, MAUREEN E.
Loyola University of Chicago Stritch School of Medicine, M.D., 1982

O'SULLIVAN, SISTER M. ADELE
University of Arizona College of Medicine, M.D., 1984

PALLAZIOL, EDWARD H.
Universidad Autonoma de Guadalajara School of Medicine, M.D., 1982

PARKS, BRUCE O.
University of Arizona College of Medicine, M.D., 1982

PARSEGHIAN, MICHAEL A.
Northwestern University Medical School, M.D., 1981

PATTISON, BRADLEY D.
University of Washington School of Medicine, M.D., 1982

PATTISON, MARYLIN E.
University of Washington School of Medicine, M.D., 1978

PAYNE, JAMES R.
University of California, San Francisco School of Medicine, M.D., 1980

PECK, MICHAEL D.
University of Colorado School of Medicine, M.D., 1981

PERSHALL, KIM E.
University of New Mexico School of Medicine, M.D., 1981

PETERSON, MARK S.
The Oregon Health Sciences University School of Medicine, M.D., 1984

PINTO, PAUL C.
University of Southern California School of Medicine, M.D., 1983

POZA-JUNCAL, ESTHER E.
University of Arizona College of Medicine, M.D., 1984

Family Practice
Internal Medicine
Pathology
Surgery
Pediatrics
Orthopedic Surgery
Radiology-Diagnostic
Family Practice
Surgery
Surgery
Pediatrics
Ophthalmology
Surgery
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Family Practice
Family Practice
Pathology
Orthopedic Surgery
Surgery
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Otolaryngology
Surgery
Otolaryngology
Surgery
Internal Medicine
PRICE, PATRICK  University of Arizona College of Medicine, M.D., 1983
PRUST, RANDALL S.  University of Colorado School of Medicine, M.D., 1982
PURKEY, WILLIAM W., JR.  University of Florida College of Medicine, M.D., 1983
PURTZER, DANIEL C.  University of Oregon School of Medicine, M.D., 1981
RACHBACH, STEVEN M.  Bowman Gray School of Medicine, M.D., 1983
RADDISH, MICHELE  Loyola University of Chicago Stritch School of Medicine, M.D., 1982
REDMOND, BRIAN P., JR.  University of North Carolina School of Medicine, M.D., 1983
REGER, KENNETH M.  University of Oregon School of Medicine, M.D., 1980
REINECKE, CYNTHIA A.  University of Arizona College of Medicine, M.D., 1984
REMMERS, ELAINE  University of Oklahoma College of Medicine, M.D., 1980
RENNELS, MARGARET A.  University of Arizona College of Medicine, M.D., 1983
RHENMAN, BIRGER E.  Karolinska Institute, Stockholm, Sweden, M.D., 1979
RING, MICHAEL E.  Vanderbilt University School of Medicine, M.D., 1982
ROBERTS, BRUCE A.  Michigan State University College of Human Medicine, M.D., 1982
ROEDER, U. VANESSA  University of Arizona College of Medicine, M.D., 1981
ROMANO, JOHN E.  University of Arizona College of Medicine, M.D., 1984
ROTHSCHILD, JAMES G.  Washington University School of Medicine, M.D., 1968
RUIZ, FRANCISCO E.  Universidad Autonoma de Guadalajara, M.D., 1982
RUMMEL, JOHN H.  Universidad Nacional Autonoma de Mexico, M.D., 1980
RUMMEL, ROBERT M.  University of Arizona College of Medicine, M.D., 1980
RYAN, KEVIN J.  University of California, Davis School of Medicine, M.D., 1982
ST. RAYMOND, PHILIP A.  Vanderbilt University School of Medicine, M.D., 1982
SAKSE, ANDREA L.  Pennsylvania State University College of Medicine, M.D., 1981
SAMEISHIMA, JAMES L.  University of Washington School of Medicine, M.D., 1984
SAND, PATRICIA O.  University of California, Davis School of Medicine, M.D., 1983
SAND, RONALD W.  University of California, Davis School of Medicine, M.D., 1983
SATHER, JAY E.  University of Minnesota Medical School, M.D., 1981
SCHWAGER, EDWARD J.  University of Arizona College of Medicine, M.D., 1983
SCHWARTZ, JONATHAN E.  Temple University School of Medicine, M.D., 1982

Pediatrics
Anesthesiology
Anesthesiology
Pathology
Family Practice
Pediatrics
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Radiology-Diagnostic
Surgery
Dermatology
Pathology
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Family Practice
Surgery
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Ophthalmology
Ophthalmology
Obstetrics-Gynecology
Urology
Child Psychiatry
Internal Medicine
Pediatrics
Family Practice
Orthopedic Surgery
Family Practice
Internal Medicine
SCIOLARO, CHARLES M.
University of Kansas School of Medicine, M.D., 1984

SCOTT, PETER, N.
University of Arizona College of Medicine, M.D., 1983

SEEGER, J. KING
West Virginia University School of Medicine, M.D., 1984

SHEDD, STEVE A.
University of Arizona College of Medicine, M.D., 1982

SHERMAN, DAVID E.
American University of the Caribbean, British West Indies, M.D., 1980

SIMMONS, REBECCA A.
University of Arizona College of Medicine, M.D., 1983

SMITH, III, WEBER L.
University of Arizona College of Medicine, M.D., 1982

SPRINGMANN, KURT E.
University of Arizona College of Medicine, M.D., 1984

STANDAERT, STEVEN M.
University of Washington School of Medicine, M.D., 1984

STANDER, PAUL E.
Jefferson Medical College of Thomas Jefferson University, M.D., 1980

STANTON, CHARLES J., JR.
University of California, Davis School of Medicine, M.D., 1982

STEFFE, ERIKA M.
University of California, Davis School of Medicine, M.D., 1984

STEJSKAL, THOMAS R.
University of Arizona College of Medicine, M.D., 1981

STOCKER, FREDERICK J., JR.
University of Kentucky College of Medicine, M.D., 1983

STROKER, CLAIRE
University of Kansas School of Medicine, M.D., 1980

STUART, JEFFERY D.
University of Arizona College of Medicine, M.D., 1983

SVINGEN, PEDER H.
University of Hawaii John A. Burns School of Medicine, M.D., 1984

SWINYARD, MICHAEL T.
University of Utah College of Medicine, M.D., 1984

SYKES, HELEN F.
University of Oregon School of Medicine, M.D., 1981

TANCER, MANUEL E.
University of Arizona College of Medicine, M.D., 1984

TAPPERO, JORDAN W.
University of Nebraska College of Medicine, M.D., 1982

TELEP, GERALD N.
University of Utah College of Medicine, M.D., 1976

THOMPSON, ERIC G.
University of Minnesota Medical School, M.D., 1984

TIMSON, CHARLES R.
State University of New York at Buffalo School of Medicine, M.D., 1983

TING, GEORGE T.
George Washington University School of Medicine, M.D., 1984

TIRRELL, LAURA L.
University of Arizona College of Medicine, M.D., 1984

TSUDA, ROY
University of Nevada School of Medical Sciences, M.D., 1981

TYLER, MICHAEL J.
University of Texas Medical School at San Antonio, M.D., 1984

VALENCIA, FRANCISCO G.
University of California, San Diego School of Medicine, M.D., 1984

Surgery
Anesthesiology
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<tr>
<td>VARNELL, WILLIAM D., JR.</td>
<td>University of Southern Alabama College of Medicine</td>
<td>M.D., 1981</td>
<td>Radiology-Diagnostic</td>
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<td>VETTO, THOMAS A.</td>
<td>Oregon Health Sciences University</td>
<td>M.D., 1983</td>
<td>Surgery</td>
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<td>WARNEKE, JAMES A.</td>
<td>University of California, Los Angeles School of Medicine</td>
<td>M.D., 1982</td>
<td>Internal Medicine</td>
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<td>University of Arizona College of Medicine</td>
<td>M.D., 1984</td>
<td>Obstetrics-Gynecology</td>
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<td>WARNOCK, ROBERT H., JR.</td>
<td>University of North Carolina School of Medicine</td>
<td>M.D., 1981</td>
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<td>WATERS, HARRIS J.</td>
<td>University of California, Los Angeles School of Medicine</td>
<td>M.D., 1981</td>
<td>Pathology</td>
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<td>University of Utah College of Medicine</td>
<td>M.D., 1981</td>
<td>Neurology</td>
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<td>WENDT, JEANETTE K.</td>
<td>University of Arizona College of Medicine</td>
<td>M.D., 1983</td>
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<td>WHEELER, MARK D.</td>
<td>University of California, Los Angeles School of Medicine</td>
<td>M.D., 1983</td>
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<td>WHITE, JANELLE D.</td>
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<td>Anesthesiology</td>
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<td>WHITE, NEAL W., JR.</td>
<td>University of Arizona College of Medicine</td>
<td>M.D., 1981</td>
<td>Psychiatry</td>
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<td>University of Washington School of Medicine</td>
<td>M.D., 1983</td>
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<td>WILKINS, DAVID J.</td>
<td>University of Osteopathic Medicine and Health Sciences</td>
<td>D.O., 1983</td>
<td>Pathology</td>
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<td>WILLIAMS, CAROLYN R.</td>
<td>University of Utah College of Medicine</td>
<td>M.D., 1983</td>
<td>Internal Medicine</td>
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<td>WIRT, DANIEL P.</td>
<td>Loyola University of Chicago Stritch School of Medicine</td>
<td>M.D., 1980</td>
<td>Internal Medicine</td>
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<td>WIRTH, ROBERT B.</td>
<td>University of Miami School of Medicine</td>
<td>M.D., 1980</td>
<td>Internal Medicine</td>
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<td>WOLFE, CAROL A.</td>
<td>University of Arizona College of Medicine</td>
<td>M.D., 1983</td>
<td>Internal Medicine</td>
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<td>WOOL, STEVEN A.</td>
<td>Duke University School of Medicine</td>
<td>M.D., 1980</td>
<td>Radiology-Therapeutic</td>
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<tr>
<td>WOLFFITT, SANDRA S.</td>
<td>West Virginia University School of Medicine</td>
<td>M.D., 1970</td>
<td>Anesthesiology</td>
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<tr>
<td>WORKMAN, JR., THEODORE E.</td>
<td>University of Michigan Medical School</td>
<td>M.D., 1984</td>
<td>Family Practice</td>
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<td>YANG, THERESE H.</td>
<td>University of Michigan Medical School</td>
<td>M.D., 1984</td>
<td>Pediatrics</td>
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<td>YORGIN, PETER D.</td>
<td>Emory University School of Medicine</td>
<td>M.D., 1983</td>
<td>Radiology-Diagnostic</td>
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<tr>
<td>YOSHINO, MARK T.</td>
<td>University of Southern California School of Medicine</td>
<td>M.D., 1981</td>
<td>Radiology-Diagnostic</td>
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<tr>
<td>YUHASZ, MARK S.</td>
<td>University of Pennsylvania School of Medicine</td>
<td>M.D., 1983</td>
<td>Neurology</td>
</tr>
<tr>
<td>ZAK, STEVEN M.</td>
<td>Northwestern University Medical School</td>
<td>M.D., 1981</td>
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</table>
ANDERSON, MARK ROBERT
Richland Memorial Hospital, Columbia, SC 29203
Emergency Medicine

ANDREWS, BRIAN CHILDS
Good Samaritan Hospital, Phoenix, AZ 85006
Internal Medicine

ANGELCHIK, PAUL DAVID
No residency in 1985

BANDY, GREGORY LEE
Maricopa Medical Center, Phoenix, AZ 85010
Surgery

BARATZ, DAVID MICHAEL
Veterans Administration Medical Center-UCIMC, Long Beach, CA 90822
Internal Medicine

BAYBA, JONATHAN LESLIE
Medical College of Wisconsin Affiliated Hospitals, Milwaukee, WI 53226
Surgery

BRACHT, MICHAEL WILLIAM
University of Arizona Affiliated Hospitals, Tucson, AZ 85724
Anesthesiology

BRATT, HENRY DUNHAM
University of Utah Affiliated Hospitals, Salt Lake City, UT 84132
Surgery

BRAVO, VICTOR LEON
No residency in 1985

BROPHY, WILLIAM HENRY
Scottsdale Memorial Hospital, Scottsdale, AZ 85251
Family Practice

BROWN, MARTIN LEE
Ventura County Medical Center, Ventura, CA 93003
Family Practice

BULLINGTON, ROBERT HEYBURN
Good Samaritan Medical Center, Phoenix, AZ 85006
Internal Medicine

1986 - University of Oklahoma, Oklahoma City, OK 73104
Ophthalmology

COLLIER, MICHAEL PAUL
St. Mary’s Hospital & Medical Center, Grand Junction, CO 81501
Family Practice

CUMMINGS-GRODIN, ELAINE G.
Harbor-UCLA Medical Center, Torrance, CA 90509
Internal Medicine

CUTCHER, ANN BOYD
University of Arizona Affiliated Hospitals, Tucson, AZ 85724
Internal Medicine

DICKMAN, CURTIS ALAN
Phoenix Integrated Surgery Program, Phoenix, AZ 85012
Surgery

1986 - Barrow Neurological Institute, Phoenix, AZ 85006
Neurosurgery

EARL, MICHAEL KEVIN
University of Cincinnati Hospital Group, Cincinnati, OH 45267
Emergency Medicine

FAHLBERG, JOHN W., JR.
University of Louisville School of Medicine, Louisville, KY 40292
Emergency Medicine

FELIX, HECTOR RENE
Maricopa Medical Center, Phoenix, AZ 85010
Internal Medicine

FIGUEROA, SAMUEL TERAN
St. Luke’s Hospital, Bethlehem, PA 18015
Internal Medicine

FISCHER, STEVEN HAROLD
Hospital of the University of Pennsylvania, Philadelphia, PA 19104
Pathology
<table>
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<th>Name</th>
<th>Institution and Location</th>
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<tr>
<td>GIBSON, STEVEN MITCHELL</td>
<td>University of Nevada Affiliated Hospitals, Reno, NV 89557</td>
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<tr>
<td>GIES, FLORIAN JOHN, IV</td>
<td>Travis Air Force Base, Fairfield, CA 94535</td>
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<tr>
<td>GRIESSER, CARL RUSSELL</td>
<td>University of Missouri-Columbia, Columbia, MO 65212</td>
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<td>GUTIERREZ, ERNESTO RAMON</td>
<td>Maricopa Medical Center, Phoenix, AZ 85010</td>
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<td>HARRIS, CHARLES SCOTT</td>
<td>Christ Hospital, Oak Lawn, IL 60453</td>
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<td>HARRIS, KATHLEEN RITA</td>
<td>LDS Hospital, Salt Lake City, UT 84143</td>
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<td>HEAD, DAVID M.</td>
<td>University of Utah Affiliated Hospital, Salt Lake City, UT 84132</td>
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<td>HERMAN, SUSAN BELINDA</td>
<td>Phoenix Hospitals Affiliated Pediatric Program, Phoenix, AZ 85006</td>
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<td>HERZOG, STEVEN PAUL</td>
<td>Tulane University Affiliated Hospitals, New Orleans, LA 70112</td>
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<td>HIRNING, PATRICE FERRON</td>
<td>University of Illinois Hospitals Graduate Medical Education, Chicago, IL 60612</td>
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<td>HOENIG, HELEN MARIE</td>
<td>Mary Imogene Bassett Hospital, Cooperstown, NY 13326</td>
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<td>ILIZALITURRI, LINDA JO</td>
<td>University of Arizona Affiliated Education Program, Tucson, AZ 85724</td>
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<tr>
<td>JACHNA, JOHN STANLEY</td>
<td>Yale-New Haven Hospital, New Haven, CT 06504</td>
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<tr>
<td>JOHNSON, ROBERT KELLOG, JR.</td>
<td>Chesterfield Family Practice Center, Richmond, VA 23225</td>
</tr>
<tr>
<td>JOLLY, MICHAEL JAMES</td>
<td>Valley Medical Center, Fresno, CA 93702</td>
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<td>JONES, ANNETTE</td>
<td>Wayne State Affiliated Hospitals, Detroit, MI 48201</td>
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<td>KANTOR, SCOTT GORDON</td>
<td>Huntington Memorial Hospital, Pasadena, CA 91109</td>
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<td>KEIM, SAMUEL MARK</td>
<td>Martin Luther King, Jr.-Drew Medical Center, Los Angeles, CA 90059</td>
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<tr>
<td>KNAPP, KAREN ELIZABETH</td>
<td>Medical College of Virginia, Richmond, VA 23298</td>
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<tr>
<td>KUTOB, RABI DEAN</td>
<td>MAHEC Family Practice Residency, Asheville, NC 28801</td>
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<td>LEMcke, DAWN POST</td>
<td>University of Arizona Affiliated Education Program, Tucson, AZ 85724</td>
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<td>LOVEtt, JAMES VERNON</td>
<td>Southern Memorial Hospital, Las Vegas, NV 89102</td>
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<td>MACIUllA, JAMES EDWARD</td>
<td>University of Arizona Affiliated Education Program, Tucson, AZ 85724</td>
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<td>MAtheWS, MARK ROBERT</td>
<td>Tucson Hospitals Medical Education Program, Tucson, AZ 85733</td>
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<td>MAYER, PATRICIA ANN</td>
<td>University of California San Diego Medical Center, San Diego, CA 92103</td>
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<td>University of Arizona Affiliated Education Program, Tucson, AZ 85724</td>
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<td>Tucson Hospitals Medical Education Program, Tucson, AZ 85733</td>
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<tr>
<td>MELLO, JUDITH ANN</td>
<td>St. Joseph's Hospital &amp; Medical Center, Phoenix, AZ 85001</td>
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**Residency Appointments**

- **Internal Medicine**
- **Family Practice**
- **Emergency Medicine**
- **Transitional**
- **Pediatrics**
- **Internal Medicine**
- **Orthopedic Surgery**
- **Emergency Medicine**
- **Obstetrics/Gynecology**
- **Family Practice**
- **Internal Medicine**
- **Surgery**
- **Obstetrics/Gynecology**
- **Family Practice**
- **Internal Medicine**
- **Anesthesiology**
- **Transitional**
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<td>MICHALOWSKI, ELLEN ELIZABETH</td>
<td>University of Arizona Affiliated Education Program, Tucson, AZ 85724</td>
<td></td>
<td>Obstetrics/Gynecology</td>
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<tr>
<td>MUNNS, SUZANNE</td>
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