

The University of Missouri-Columbia

BULLETIN

School of Medicine



May 10, 1977

UNIVERSITY OF MISSOURI-COLUMBIA
Calendars for 1976-77 and 1977-78

First Semester

New Student Orientation and Registration
 Registration
 Classwork begins, 7:40 a.m.
 Labor Day Recess
 Thanksgiving Recess begins, 12:30 p.m.
 Classwork resumes, 7:40 a.m.
 Classwork First Semester ends, 5:30 p.m.
 Stop Day
 Final Examinations begin
 First Semester closes, 5:00 p.m.

1976

Mon., Aug. 23
 Tues., Aug. 24
 Wed., Aug. 25
 Mon., Sept. 6
 Wed., Nov. 24
 Mon., Nov. 29
 Thurs., Dec. 9
 Fri., Dec. 10
 Sat., Dec. 11
 Sat., Dec. 18

1977

Mon., Aug. 22
 Tues., Aug. 23
 Wed., Aug. 24
 Mon., Sept. 5
 Wed., Nov. 23
 Mon., Nov. 28
 Thurs., Dec. 8
 Fri., Dec. 9
 Sat., Dec. 10
 Sat., Dec. 17

Second Semester

New Student Orientation
 Registration
 Classwork begins, 7:40 a.m.
 Washington's Birthday Holiday
 Spring Recess begins, 12:30 p.m.
 Classwork resumes, 7:40 a.m.
 Classwork Second Semester ends, 5:30 p.m.
 Stop Day
 Final Examinations begin
 Second Semester closes, 5:30 p.m.
 Annual Commencement

1977

Thurs., Jan. 13
 Fri., Jan. 14
 Mon., Jan. 17
 Mon., Feb. 21
 Sat., March 12
 Mon., March 21
 Wed., May 4
 Thurs., May 5
 Fri., May 6
 Fri., May 13
 Sat., May 14

1978

Thurs., Jan. 12
 Fri., Jan. 13
 Mon., Jan. 16
 Mon., Feb. 20
 Sat., March 25
 Mon., April 3
 Wed., May 3
 Thurs., May 4
 Fri., May 5
 Fri., May 12
 Sat., May 13

Summer Session

Eight-Week Session

Registration and Orientation
 Classwork begins, 7:30 a.m.
 Independence Day Recess
 Summer Session closes, 5:00 p.m.
 Summer Commencement

Mon., June 13
 Tues., June 14
 Mon., July 4
 Fri., Aug. 5
 Fri., Aug. 5

Mon., June 12
 Tues., June 13
 Tues., July 4
 Fri., Aug. 4
 Fri., Aug. 4

Four-Week Session I

Registration and Orientation
 Classwork begins, 7:30 a.m.
 Independence Day Recess
 Session I closes, 5:00 p.m.

Mon., June 13
 Tues., June 14
 Mon., July 4
 Fri., July 8

Mon., June 12
 Tues., June 13
 Tues., July 4
 Fri., July 7

Four-Week Session II

Registration
 Classwork begins, 7:30 a.m.
 Session II closes, 5:00 p.m.
 Summer Commencement

Mon., July 11
 Tues., July 12
 Fri., Aug. 5
 Fri., Aug. 5

Mon., July 10
 Tues., July 11
 Fri., Aug. 4
 Fri., Aug. 4

BULLETIN

UNIVERSITY OF MISSOURI-COLUMBIA

Volume 78

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May 10, 1977

General 1977 Series

Number 13

Robert E. Kren, *Director*, Office of Public Information
 Louise H. Stephens, *Editor*

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ANNOUNCEMENT OF THE SCHOOL OF MEDICINE

1977-78

University of Missouri-Columbia



UMC ADMINISTRATION

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Compiled in the Office of the Dean of the School of Medicine

INTRODUCTION

To Present and Future Physicians

Health is the most prized of all human possessions. Without it the ability to enjoy other aspects of life is dimmed or destroyed. Those who enter the health professions have a sacred trust to do all within their power to restore their fellow man to good health and a useful role in society. This must often be accomplished at great cost to the professional person in terms of time and energy, and is rendered without regard to his personal likes or dislikes.

The responsibility of the University of Missouri-Columbia School of Medicine is to assist in the provision of health care for Missouri through the education of candidates for the health profession. The entire organization of the hospital and ancillary programs has as its focus care for Missourians and the educational process.

There is a growing national concern about the need for well prepared men and women in the health professions and the University of Missouri-Columbia is dedicated to the resolution of its share of this problem. Candidates of moral integrity and willingness to work, who are well suited for any post-collegiate academic work, need not hesitate to apply for admission to medical school. While academic competence is necessary, high motivation is also of great importance.

Lack of funds should not be a deterrent. Loan funds and scholarships are available for students with significant needs. No student, in recent years, has been unable to stay in medical school for financial reasons. No qualified candidate should fail to apply for lack of money.

We hope you find the bulletin of interest and will feel free to call or write our office for the additional information we have been unable to include.

Charles C. Lobeck, M.D.
Dean, School of Medicine

GENERAL INFORMATION

More than one hundred years ago—in 1872—the Board of Curators of the University of Missouri established a School of Medicine on the Columbia campus.

Medical education offered by the University actually began in 1841 with the establishment of a medical school affiliated with Kemper College in St. Louis, thus it became the first state medical school west of the Mississippi River. This affiliation continued until 1855.

In December 1872 the Board of Curators approved the founding of a School of Medicine in Columbia and classes here began in February 1873. But for most of its first century, a basic science program only was offered and students transferred to other schools for their clinical years.

The present program dates from 1956. That year marked the opening of the University Medical Center which houses under one roof a 480-bed teaching hospital, outpatient clinics, facilities of the School of Medicine, School of Nursing and allied health professions, and research laboratories where faculty and students work together on projects of interest to both. At that time the curriculum of the School of Medicine was expanded to the full four-year program, and medical education at the University of Missouri-Columbia moved into a new phase.

Looking ahead to the second century of the school, the Medical Center has been characterized by consistent growth, not only in expanded facilities and increased faculty but also in *depth*. The best teachers, the best qualified students, the most skillful and enthusiastic hospital personnel have been sought. Patient care and teaching programs have been continually expanded and enhanced.

Several additions to the original building have been completed, including one of five stories with new classrooms and multidisciplinary laboratories first utilized during the 1969-70 school year.



Providing additional educational experience for students in medicine are the 120-bed Mid-Missouri Mental Health Center for intensive treatment of mental diseases, which opened in 1967, and a 480-bed Veterans Administration Hospital which opened in April 1972. Thus, there are more than 1,000 hospital beds in

the Medical Center complex. Teaching programs in both the new VA Hospital and the Mental Health Center are directed by the faculty of the School of Medicine.

CURRENT PROGRAMS

Location of the School of Medicine on the Columbia campus of the University makes numerous cooperative programs possible. Fifteen divisions of the University—including Engineering, Veterinary Medicine, and Agriculture—are on this campus and offer unusual opportunities in bioengineering, comparative medicine, and environmental studies. A number of faculty members hold joint appointments in the School of Medicine and other departments, including those in Business and Public Administration, Education, Engineering, Home Economics, Law, Psychology, Social Work, Sociology, and Veterinary Medicine. Members of the faculty often join others on campus in research projects of mutual interest.

Many medical faculty members also are actively engaged in projects of the Dalton Research Center, and members of that staff participate in teaching programs at the Medical Center. Another related activity is research at the University of Missouri's nuclear reactor center where there are laboratories for health-related studies.

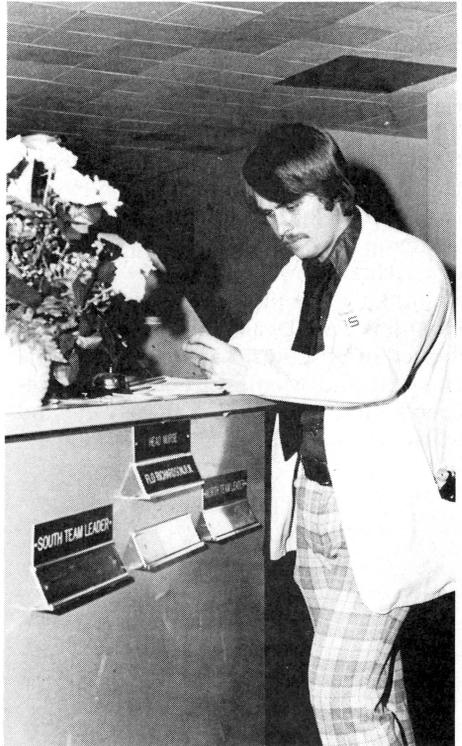
In addition to basic research, a number of other developmental programs concerning the provision of health care are in progress at the Medical Center: a Family Medical Care Center to serve family health needs of residents of the greater Columbia area; an Emergency Medical Service (ambulance) training program for the State of Missouri; a clinic for the evaluation of problems of severely handicapped children, supported by the Department of Health, Education and Welfare; a birth defects center supported by National Foundation (March of Dimes); one of the largest clinics in the nation for diabetic children; and the Mid-America Bone Diagnostic Center and Registry.

Approximately 2,000 undergraduates from departments on campus attend

health-related classes at the Medical Center. Graduate programs are offered in anatomy, biochemistry, microbiology, pathology, physiology, pharmacology, nursing, several areas of community health, and health services management; and graduate students in social work, psychology, nutrition, speech pathology, audiology, and special education take part of their clinical training at the Medical Center.

UNIVERSITY HOSPITALS AND CLINICS

The University Hospital and the Out-patient Clinics provide facilities for the major clinical experience of students in the School of Medicine and the School of Nursing, as well as for interns and residents and for approximately 600 students in the allied health professions, including physical and occupational therapy, medical and radiologic technology, and respiratory therapy.

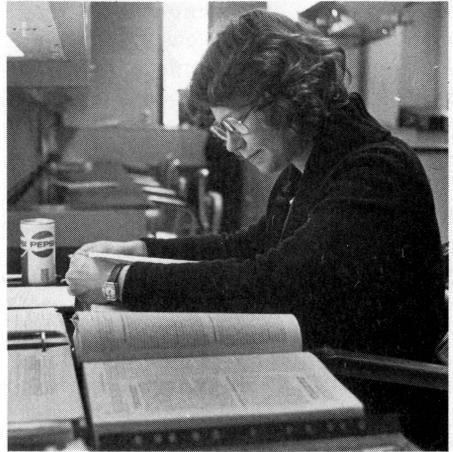


The Medical Center serves as a consulting and referral center for physicians throughout the state. Abundant referrals provide a surplus of patients to meet teaching needs of the institution and permit selectivity of teaching cases. During the past year patient discharges, including newborn, totaled approximately 13,000 and about 125,000 outpatient clinics and emergency room visits were recorded.

AFFILIATIONS

In addition to facilities in the immediate Medical Center area, the University maintains affiliations with several other health institutions in the state, which further enhance the medical teaching program. Each affiliated institution was carefully selected for its particular nature and thus each adds significantly to the opportunities available for experience in the area that is of most interest to the student, the intern or resident.

Present affiliations include the new Veterans Administration Hospital, directly across the street from the Medical Center and part of our teaching complex; Ellis Fischel State Cancer Hospital, Boone County Hospital, Mid-Missouri Mental Health Center, and Woodhaven Home, located in Columbia; Audrain Medical Center at Mexico, Mo.; Missouri Institute of Psychiatry, Missouri Baptist Hospital, St. Luke's Hospital, St. John's Mercy Hospital and Deaconess Hospital, all located in St. Louis; Kansas City General Hospital and Medical Center and Children's Mercy Hospital, Kansas City; and Missouri Chest Hospital, Mt. Vernon.



MEDICAL LIBRARY

The Medical Library, located in the wing which joins the University Hospital with the Medical Sciences building, has a collection of more than 100,000 volumes and regularly receives about 1,800 journals and most of the indexes and abstracts pertaining to medicine and related fields. It provides for the library needs of the entire Medical Center including the School of Medicine, School of Nursing, and the graduate and undergraduate programs in the medical sciences. MedLine and other data-bank searching is available.

The Medical Library is an open stack library and available to the entire UMC community. It is part of the UMC Library system which consists of Ellis Library and eight subject-specialty libraries. Medical students have full access to all library facilities on campus. Material that is not available locally will be secured through inter-library loan.

SCHOOL OF MEDICINE

ADMISSION

PREPARATION FOR MEDICAL SCHOOL—RECOMMENDATIONS

High school students contemplating a medical career should obtain a sound foundation in mathematical sciences. Substantial experience in the social sciences, arts and the humanities, both in high school and college, will provide the future physician with a cultural background which is a desirable complement to his medical training.

Minimum requirements are three years' work or 90 semester hours credit (exclusive of military science) in an approved college or university. However, it is strongly recommended that a student obtain an A.B. or B.S. degree before entering medical school.

It is the usual policy of the school not to admit students who have failed or who have been dismissed by other medical schools.

Selection of medical students from the applicants is made by the Committee on Admissions, composed of faculty and medical students. Both academic and non-academic qualifications are considered. Academic achievement is measured by the applicant's performance in college. Scores on the Medical College Admission Test provide indication of the applicant's aptitude for medical studies. Demographic factors and non-academic qualifications such as personality, motivation, concern, leadership qualities, maturity, and integrity are becoming increasingly critical in the final evaluation as the academic quality of the applicant pool rises. Evidence of these qualities is sought out in personal interviews, recommendations, and the applicant's formal application.

College credits required for admission include:

General biology or zoology (with lab)1 semester
Other biology (with lab)2 semesters
May include comparative anatomy, embryology, genetics, or others.

Inorganic chemistry (with lab)2 semesters
Organic chemistry (with lab)2 semesters
General physics (with lab)2 semesters
Mathematics2 semesters
Algebra, calculus, statistics, or trigonometry.
English composition and literature2 semesters

The Admissions Committee advises students to strive for experience in social studies and humanities and have an adequate mastery of English and mathematics. Courses which are obviously previews of medical subjects should be avoided unless they are important to the student's undergraduate plans.

APPLICATION FOR ADMISSION

A class of 110 students is admitted each August. All applications must be made through the American Medical College Application Service (AMCAS), 1776 Massachusetts Avenue N.W., Washington, D.C. 20036. Interested students should request an AMCAS application request card, and a current *School of Medicine Bulletin* from the Chairman of Committee on Admissions, School of Medicine, M228 Medical Sciences Building, Columbia, Mo. 65201. Applications must be filed with the Chairman of the Committee on Admissions via AMCAS after July 1 and not later than November 15 of the school year preceding year of admission. Request for extension of the November 15 deadline date will not be granted.

The Association of American Medical Colleges has published a booklet, *Medical School Admission Requirements-U.S.A. and Canada*, which contains material helpful to medical school applicants. Information concerning this booklet is available from AAMC, 1 Dupont Circle N.W., Washington, D.C. 20036. The price is \$4.

The New MCAT is required. Each applicant must have at least 90 semester hours of acceptable credit from a recognized undergraduate training institution, exclusive of work in physical education and military science. A background of

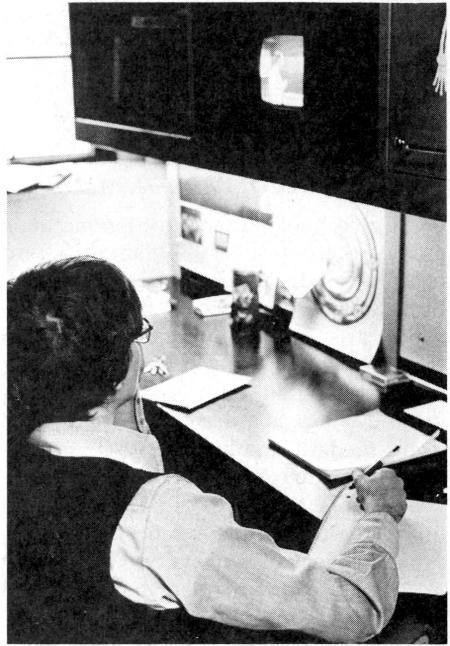
liberal arts leading to a bachelor's degree is strongly recommended.

All applicants are required to submit a letter of recommendation from their pre-medical advisory committee. If no pre-medical advisory system exists at a college, letters from three or more professors who have known the student will be accepted. Non-academic and personal letters of reference are also helpful to the Admissions Committee, if they describe the candidate's personal and unique strengths and weaknesses. The applicant should have all letters mailed directly to the Chairman of Admissions by December 1.

All applicants must take the MCAT no later than May or October of the year before they expect to enter. Applications for the test should be sent to MCAT Registration, American College Testing Program, P.O. Box 414, Iowa City, Iowa 52240. Information concerning the test may be obtained from the same organization.

Only Missouri residents are given consideration. It is unlikely that any non-residents will be considered. After AMCAS materials and letters of reference are available concerning Missouri resident applicants, the files will be screened with only about 70 per cent being considered for an interview and hence, ultimately for acceptance. Missouri residents recently admitted rarely have had GPA's below 3.35. Admitted classes will have a broad range of undergraduate fields of concentration. The great majority of candidates admitted have already shown significant success, both personal and academic, and evidenced skill in dealing with, and concern for, other human beings. A personal interview is required. Each student is considered on the basis of individual qualifications without regard to race, creed, or sex. Disadvantaged students and residents of small cities and towns in Missouri are encouraged to apply.

Soon after the interview, each candidate is informed of the Committee's recommendation.



A \$100 refundable deposit must be paid before March 1 by students accepted by the University of Missouri-Columbia prior to that date. The deposit is automatically credited toward the student's fees upon matriculation in the School of Medicine.

This School of Medicine offers through AMCAS an Early Decision Plan which requires submission of an AMCAS application, MCAT scores, and appropriate letters of recommendation by August 15.

As EDP applicants are interviewed, the Admissions Committee categorizes them by (1) acceptance, (2) hold status, or (3) rejection. Such decisions are made soon after October 1. Those students who participate in the Early Decision Plan must make a binding commitment to attend this School of Medicine if they are offered admission through EDP.

SPECIAL PROGRAMS FOR NON-TRADITIONAL STUDENTS

A number of racial and socioeconomic groups are currently underrepresented in the medical profession. Applications from these non-traditional students are reviewed carefully. Such students are encouraged to review the chapter, "Informa-

tion for Minority Groups Students," in the booklet on admission requirements published by AAMC. They should also submit their names to the Association of American Medical Colleges Medical Minority Registry (MED-MAR) and review the Fee Waiver offered by AMCAS.

Special summer programs prior to the first year of medical school are available to benefit non-traditional students who have been accepted for admission. A variety of curricular alternatives are available to all students as they progress through the school.

The Health Professions Educational Assistance Act of 1976 provides financial aid for students of exceptional financial need with well-designed plans for repayment or forgiveness of loans for those practicing in an underserved area after graduation.

ADMISSION AT ADVANCED STANDING

A limited number of candidates are admitted at advanced standing into either the sophomore or junior year in the School of Medicine. In general, those admitted to sophomore standing have completed at least biochemistry, physiology, and anatomy in one of three settings: an American medical school, an American graduate school, or a foreign medical school.

Such candidates should express their interest in application as soon as possible after January 1, then they will receive specific application instructions. All such candidates, except those enrolled in American medical schools, are expected to take the National Board of Medical Examiners, Part I, examinations in June to obtain satisfactory sub-test scores in anatomy, behavioral science, physiology, and biochemistry. After personal interviews here in Columbia, the Admissions Committee makes formal decisions in early August concerning the admission of such candidates.

Students presently enrolled in American basic (or two-year) medical schools

may apply according to the special transfer procedures outlined for such students by the Association of American Medical Colleges. The University of Missouri-Columbia School of Medicine does not expect to participate in the early decision program but will be processing applications that involve completion of an application by January 15. Decisions are made by the School of Medicine by April 1.

FEES AND EXPENSES

FIRST YEAR

University Fees, including	
Medical School Fee	\$1,140.00
Student Activities Fee	44.00
ESTIMATES:	
Books and Supplies	125.00
Instruments	150.00
Microscope Rental**	60.00
Room and Board***	<u>1,220.00</u>
Total (approximate)	\$2,739.00

SECOND YEAR

University Fees, including	
Medical School Fee	\$1,140.00
Student Activities Fee	44.00
ESTIMATES:	
Books and Supplies	125.00
Microscope Rental**	60.00
Room and Board***	<u>1,220.00</u>
Total (approximate)	\$2,739.00

THIRD YEAR*

University Fees, including	
Medical School Fee	\$1,207.50
Student Activities Fee	49.00
ESTIMATES:	
Books and Supplies	125.00
Room and Board***	<u>1,480.00</u>
Total (approximate)	\$2,861.50

FOURTH YEAR*

University Fees, including	
Medical School Fee	\$1,275.00
Student Activities Fee	49.50
ESTIMATES:	
Books and Supplies	125.00
Room and Board***	<u>1,220.00</u>
Total (approximate)	\$2,669.50

*Includes one summer session prorated over third and fourth years.

**For those who wish to purchase a microscope, specifications may be obtained by request from the Associate Dean.

***Figures given are for a single person sharing double room in the UMC-owned dormitories, and include room and board. University-owned apartments are available for married students at rates ranging from \$85 to \$105 a month, exclusive of utilities. Off-campus housing is available at varying prices.

Due dates for payment of first- and second-year fees are noted on fee statement for fall and winter semesters. Fees in the third and fourth years are paid semi-annually by January 1 and July 1. The fees listed are for the entire year. A diploma fee of \$5 must be paid by all graduates.

FINANCIAL ASSISTANCE

Scholarships and Awards

HEALTH PROFESSIONS SCHOLARSHIP FUNDS. Funds are available from the federal government to aid "students of exceptional financial needs" in completing their medical education. In general, eligibility involves parental or student (if no longer parents' dependent) net federal taxable incomes of less than \$10,000 per year. Scholarships are available only to students who have received Health Professions Loans in previous years.

FEDERAL ARMED FORCES MEDICAL SCHOLARSHIPS. Accepted or enrolled medical students are eligible to apply for these scholarships through application to the Surgeon General of the Army, Navy, or Air Force. Students accepted into the program receive military junior officers' pay plus reimbursement for all medical school educational costs. For each year medical students participate in the program they must commit one year to the appropriate military service.

PUBLIC HEALTH SERVICE SCHOLARSHIPS. Scholarships similar to those for the Armed Services are available, based on contractual arrangements to serve in the Public Health Service, including the National Health Service Corps.

CURATORS' SCHOLARSHIPS. Four accepted applicants (who are Missouri residents) of unusual promise as medical students and physicians are selected by the Committee on Admissions to receive scholarships, \$1050 each, for their first year only.

JOSEPH COLLINS FOUNDATION. A limited number of national scholarships are awarded each year. Each school may submit a nominee for the award which provides a maximum of \$1,500 yearly.

NATIONAL MEDICAL FELLOWSHIPS. Minority students often can obtain significant stipendiary support for their early years in medical school from N.M.F.

BOYCE-BYNUM SCHOLARSHIPS. An award up to \$200 per year may be made at the discretion of the Associate Dean for Students, based on financial need. The funds have been contributed by the Columbia Pathology Group.

JAMES S. ROLLINS SCHOLARSHIP IN MEDICINE. Established in 1889 by James S. Rollins, "Father of the University of Missouri," an award of \$50 is made each year to a first year medical student selected on the basis of merit and character.

MEDICAL SCHOOL FOUNDATION SCHOLARSHIP. An award of \$50 is made each year to a second year medical student selected for excellence of scholarship and scientific leadership.

DOCTOR'S DAY AWARD. Established by the Boone County Medical Society Women's Auxiliary, an award of \$100 is made each year to a worthy medical student deserving financial help.

DR. FRED KYGER, JR. SCHOLARSHIP IN OBSTETRICS. Established by Dr. Kyger, Class of

1906, an award of \$100 is made each year to the fourth year medical student with the best record in Obstetrics.

PARKER B. FRANCIS AWARDS IN ANESTHESIOLOGY. One or two awards of \$50 are made annually to students who have demonstrated outstanding achievement in anesthesiology service.

MISSOURI STATE MEDICAL ASSOCIATION AWARD. An award of \$100 and a scroll are given to the top medical student in each graduating class.

SURGERY AWARD. Established by Dr. Hugh E. Stephenson Jr., professor of surgery, in honor of Dr. William J. Hinton, an award of \$100 is given each year "for original effort or investigation by an inquiring mind." Open to all students doing work in the Department of Surgery.

BIOCHEMISTRY AWARD. A book award is presented each year to a first year student who has done outstanding work in biochemistry.

MICROBIOLOGY AWARD. A book award is presented annually to the outstanding student in medical microbiology.

UPJOHN AWARD. Outstanding achievement in academic and clinical proficiency is recognized by a \$150 award to a fourth year student.

PSYCHIATRY AWARD. A \$100 award is presented each year to a fourth year student for outstanding work in the field of psychiatry.

DR. J. C. PARRISH SCHOLARSHIP IN MEDICINE. An award of \$250 is given to an outstanding third year student each year. The award was established in memory of Dr. Parrish, who practiced medicine in Vandalia, Mo., for many years.

Loan Funds

Several loan programs make funds available to medical students who need assistance with school costs and living expenses in order to complete their medical education. For this purpose loans are available through the following programs.

GUARANTEED STUDENT LOANS (GSL). These are special bank loans, generally through the University or the student's or parents' bank, in which the Federal Government pays most of the interest for low and medium income families until graduation. Financial aid applicants, in general, must seek such aid before other aid is granted.

ROBERT WOOD JOHNSON FUND. Limited funds are available for those women, ethnic minorities, and persons from rural backgrounds who have financial need.

M. PINSON NEAL LOAN FUND. Established by the Medical School Foundation, in honor of Dr. Neal, Professor Emeritus of Pathology.

HEALTH PROFESSIONS STUDENT LOAN FUND. Under this program federal money is provided to the University to aid deserving students in meeting educational costs. The loans are based on financial need and are repayable, at low interest, within ten years after completion of internship and residency. Special "forgiveness" provisions are available to minority or disadvantaged students and to physicians who practice in areas in great need of health care services.

MISSOURI STATE MEDICAL FOUNDATION. A loan fund established in 1961 and supported by the Missouri State Medical Association is available to Missouri residents.

UNIVERSITY OF MISSOURI MEDICAL SCHOOL FOUNDATION. A perpetual non-profit corporation whose purpose is to promote and further medical education in Missouri.

GEORGE WILLIAM GAY MEMORIAL FUND. A loan fund established in honor of his father by George R. Gay, M.D. 1961, available to Missouri residents, particularly from southeast Missouri.

GREENE COUNTY MEDICAL SOCIETY LOAN FUND. A loan fund supported by the Greene County Medical Society; preference to residents of Greene County.

RAYMOND A. McCANSE MEMORIAL FUND. A loan fund established by family and friends in memory of Dr. McCanse, Class of 1941, provides short-term loans without interest. Other emergency loan funds, including one sponsored by *Mutation* (the student yearbook), are available.

AMA LOAN PROGRAM. The American Medical Association has established a loan program to provide financial assistance to students whose grades in the first semester of medical study are satisfactory. As much as \$1,500 may be borrowed annually, with a limit of \$10,000 for a period of seven years. The loans are repayable with interest, after the medical training is completed. The interest charges prior to repayment may be waived in some instances for minority students.

Additional loan funds are available from UMC as required to meet needs of individual students. Applications for all loans and Health Professions Scholarship Funds should be made at the office of the Associate Dean for Student Affairs, School of Medicine.

STUDENT FELLOWSHIPS

A very limited number of fellowships are made available by grants from the National Institutes of Health, voluntary health agencies, and other groups to encourage research which contributes to the student's training and development as a physician.

Several outstanding students each year elect to spend the year following their sophomore year in one of the pre-clinical departments, studying in depth with a faculty member on a problem of particular interest to them. During this time they participate in activities of the department.

A significant percentage of students accept fellowships for similar purposes during the free periods of their clinical

years; and some students in last year's freshman class accepted summer fellowships of this nature. Selection for these fellowships is made by individual departments or faculty members.

STUDENT RESEARCH DAY

As a means of recognizing student research projects of unusual excellence, a Student Research Day is an annual part of Medical School activities.

At this time, students selected by an interested faculty-student committee present brief reports of their research before assembled faculty and students, and defend their presentations in the discussion which follows. Those individuals considered to have presented the best papers subsequently represent the medical school at the American Medical Student Association's annual Research Forum and the Midwest Regional Student Research Forum. In recent years, several Missouri students have won national recognition at these scientific meetings.

ALPHA OMEGA ALPHA

The Missouri Gamma Chapter of Alpha Omega Alpha, national honorary medical society composed of faculty, house staff, and students, was established at UMC in 1957. This high honor is given to outstanding medical students in their junior and senior years.

The society provides lectures annually at the Medical Center, occasional presentations on leaders in medicine, and seminars on current issues in medicine. The society recognizes academic excellence and helps further it with the visiting professor programs and other special events.

STUDENT AFFAIRS COUNCIL AND OTHER STUDENT ORGANIZATIONS

For many years the local chapter of the American Medical Students Association functioned as a student governing body through elected class officers and representatives. In the academic year 1967-68,

a broader based Student Executive Committee came into existence as an advisory group to the Dean on policy matters involving students and student-faculty interrelations. To coordinate with the reorganized governance structure of the School of Medicine, the S.E.C. became the Student Affairs Council in 1976.

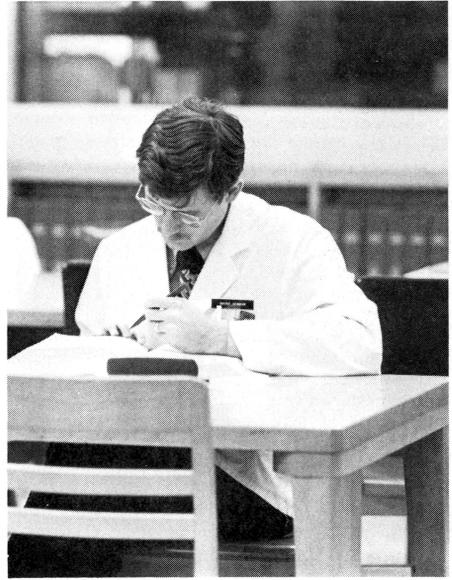
The S.A.C. incorporates within its organizational plan class presidents, the A.M.S.A. president, representatives of other student organizations, and specifically designated S.A.C. representatives elected by each class. The president of S.A.C. is elected by a school-wide ballot. Invited faculty members act as consultants.

A.M.S.A., too, continues to make substantial contributions to the medical school by sponsoring medical, social and cultural events, seminars, intramural athletics, and a faculty home-visit program for interested students at which widely ranging topics are discussed.

An Honor Council, composed of elected representatives of each class, administers

the Honor Code. The Code was written by the student body in the early 1960's and was revised in 1970 and 1976.

The Yearbook *MUtation*, is produced annually by a student staff.



MEDICAL CURRICULUM

The goal of the educational program is to help the medical student acquire a basic fund of knowledge, to learn those skills and attitudes essential in all physicians, and to encourage an inquiring mind.

The faculty places high priority on giving students a great deal of responsibility for their own educational progress. This allows considerable individualization of the program for each student. The faculty further has recognized the potential values of small group instruction and an integrated interdepartmental educational program.

Each multidisciplinary laboratory for first- and second-year medical students has facilities for 16 students, thus encouraging small group discussion and close faculty interaction.

Within the laboratory students have individual personal office and laboratory areas where they perform the major part of their studies. Available to them are bookcases, file drawers, microscope locker, a laboratory bench and storage for the cadaver used in studies during the first year. An advanced audiovisual learning center provides closed circuit television, access to a library of films, slides, and other teaching aids including computer-assisted instruction; much of the material is available in the students' multidisciplinary laboratories.

At the end of the second year each student is involved in selecting a sequence of clinical rotations for the third and fourth years. Major emphasis is on freedom for students to vary their curriculum, recognizing the variance in learning styles, previous educational experience, and future goals.

Research and the scientific experiment have become an integral part of the teaching techniques of the medical school since it is essential that the well-prepared physician must not only be acquainted with current medical knowledge but also must have the capacity to accept and synthesize a vast complex of new information as

it becomes available. Many students use at least a part of their "free" or elective periods to further clinical and research experience at this or at other medical centers, in the United States or abroad.

The current curriculum, in outline form, is as follows:

<i>FIRST YEAR</i>		<i>Hours</i>
FIRST SEMESTER	Anatomy	180
<i>Aug.-Dec.</i>	Biochemistry	210
	Human Ecology and Behavioral Science	45
	Perspectives in Medicine (not required)	(30)
		435
SECOND SEMESTER	Anatomy	240
<i>Jan.-May</i>	Physiology	180
	Human Ecology and Behavioral Science	30
	Introduction to Clinical Medicine	15
		564
 <i>SECOND YEAR</i>		 <i>Hours</i>
FIRST SEMESTER	Microbiology	180
<i>Aug.-Dec.</i>	Pathology	180
	Introduction to Clinical Medicine	75
	Human Ecology and Behavioral Science	15
		450
SECOND SEMESTER	Pathology	180
<i>Jan.-May</i>	Pharmacology	135
	Introduction to Clinical Medicine	90
	Radiology	15
		420

THIRD AND FOURTH YEARS

This is a two-year experience commencing in May following the completion of the second year and ending at graduation two years later. The two-year period is divided into twelve 8-week blocks during which the student is required to take the following:

Medicine—2 blocks	Family Medicine Preceptorship
Surgery—2 blocks	Physical Medicine & Rehabilitation—1 block
Child Health—1 block	Free Time—3 blocks
Psychiatry—1 block	Elective—1 block
Obstetrics-Gynecology—1 block	

Under this curriculum, each student takes a 4-week preceptorship. This program, sponsored by the Department of Family and Community Medicine pro-

vides each student with the opportunity to share in the role of the practicing physician, usually in a small community, both in the profession and as a citizen. Student response to this program has been enthusiastic for it is an opportunity to become better acquainted with medicine outside the academic setting.

The Elective block is to be spent in an educational pursuit. Numerous opportunities are available to the student both within and without the Medical Center. The Free Time blocks may be spent by the student in any way he chooses. However, educational opportunities of great variety are available to the individual who chooses to use free time in further educational experiences as do the great majority of students.

A number of students spend these periods in research programs at the Medical Center. Others enroll in the graduate program in one of the basic medical science or other university departments and work toward an M.S. or Ph.D. degree during this time. Still others use these periods for study abroad, for clinical experience at this or other health institutions, or in a variety of other pursuits which each student personally feels would be most valuable at the particular time. The choice rests with the student.

The student's experience in planning an individualized program is preparatory to the latter period in professional life when formal training has been completed and one must assume responsibility for a continuing education to keep abreast of new knowledge in Medicine.

EVALUATION, STUDENT PROMOTION, AND GRADUATION

Students in the School of Medicine are evaluated by an honors pass-fail system. The Council of Department Chairmen and the general faculty, ultimately responsible for certification of all candidates for the M.D. degree, recognize that awarding that degree indicates that the candidate clearly demonstrates both the academic and personal qualities of a competent physician.

A student-faculty Promotions and Advisory Committee is responsible for reviewing student performance in the School of Medicine. PAC advises the Educational Council and the School of Medicine faculty concerning academic advancement.

GRADUATE PROGRAMS

Graduate programs leading to the M.S. and Ph.D. degrees are offered in Anatomy, Biochemistry, Microbiology, Medical Sociology, Nutrition, Pathology, Pharmacology, and Physiology. Master's degree programs are also offered in Community Health, Public Health, and Health Services Management. Students have the opportunity for combined M.D.-graduate degree programs.

DUAL DEGREE PROGRAMS

The Master's-M.D. program utilizes the flexibility of the medical curriculum to enable a medical student to pursue and receive a master's degree in any chosen area within the four-year span of enrollment in medical school.

Master's programs are available in all the basic sciences, public health, health services management, and community health in the School of Medicine and in the various other disciplines throughout the campus including science, humanities, engineering, agriculture, journalism, business, and the arts.

A six-year M.D.-Ph.D. program is available for the student seeking a research career. After acceptance into medical school, students must be accepted by the graduate program of their choice. A minimum of two additional years are to be worked into the medical curriculum to satisfy requirements for the Ph.D. This is usually accomplished by a post-sophomore year and a post-M.D. year.

Ph.D. programs are available in anatomy, biochemistry, microbiology, nutrition, pharmacology, physiology, psychology, pathology, and medical sociology with School of Medicine faculty and in

various other disciplines of other colleges and divisions of the campus.

Fellowship support may be provided for the Ph.D. portion of this program while loan and scholarship funds may be available for the M.D. curriculum, based on need.

Inquiries concerning combined degrees should be made to the Dean's Office, School of Medicine.

RESIDENCIES AND GRADUATE FELLOWSHIPS

All residency training programs at the UMC Medical Center are accredited by the national accrediting groups.

Residencies are offered in 20 medical specialties: anesthesiology, dermatology, family medicine, general preventive medicine, medicine, obstetrics and gynecology, pathology, child health, physical medicine and rehabilitation, adult psychiatry, child psychiatry, radiology, general surgery, neurological surgery, ophthalmology, orthopedic surgery, otolaryngology, plastic surgery, thoracic and cardiovascular surgery, and urology. A limited number of fellowships are available in the clinical departments for postgraduate study beyond the residency level.

Details on each of the programs are available from the appropriate departmental chairman or service chief. See the faculty listing at the back of this Bulletin or write the Dean's Office.

Special loans for house officers, at four per cent interest, are available to residents of the state of Missouri.

OFFICE OF CONTINUING EDUCATION AND EXTENSION

The function of this office is to develop, promote, and coordinate the Medical Center's continuing education programs for many of the health professionals of the state. This includes physicians, nurses, technologists, therapists, nutritionists, health service managers, hospital pharmacists, and others.

Through the utilization of the academic resources of the Medical Center, new knowledge and skills can be made available to the health professionals of the state, and through the use of such knowledge and skills, better health care for the citizens of Missouri will become manifest.

Currently, several program techniques are used. Frequent conferences and short courses are held at the Medical Center, as well as at other locations in Missouri. Faculty visits to local communities can often be arranged to fit the needs of the practicing professionals in those communities.

Sabbatical programs for individual practicing physicians can be arranged. In this program, a physician may spend time in a particular clinical department at the Medical Center, arranging the time and curriculum by mutual agreement between an appropriate faculty member and the physician. In this way, a tailored educational experience can be developed to meet the individual physician's perceived needs.

The Medical Center is fully accredited by the AMA Council of Medical Education for continuing medical education of physicians.

DEPARTMENTS AND COURSES

INTERDEPARTMENTAL COURSES

PERSPECTIVES IN MEDICINE

Perspectives in Medicine is a not-for-credit course with three primary aims:

1. the professionalization of the student, including understanding of the role model of the physician and the interaction of the physician with patients and society;
2. the clinical correlation allowing a better understanding of the clinical relationship of the courses offered in the first year; and
3. orientation and faculty guidance during the first semester.

At the present, three faculty members are assigned per lab, giving a ratio of three physicians to sixteen students.

The course has a diversified content, aiming directly at the needs of the students within the multidisciplinary laboratory. Emphasis on clinical correlation and patient contact is an important part of the course. Other recurrent topics include discussions of patient/physician relationships and medical ethics, the life of the physician, and health care delivery.

The course has repeatedly received approval from a large majority of the first-year students who find it both worthwhile and stimulating.

HUMAN ECOLOGY AND BEHAVIORAL SCIENCES

The Human Ecology and Behavioral Sciences course sequence, for all first- and second-year medical students, examines issues of health, health care, and health care delivery from the point of view of the behavioral sciences. The course sequence seeks to develop awareness of the factors which account for the interaction and continuity in human life, health, and disease. It provides knowledge resources for future physicians in their roles as practitioners, as leaders of the health care team, and as resources in societal concerns with health care policies. This course sequence and all programs of the Section of Behavioral Sciences are addressed to the involvement of Medicine

with clients, with the community, and with national concerns for equitable health service for all.

205M HUMAN ECOLOGY AND BEHAVIORAL SCIENCE I (3).

206M HUMAN ECOLOGY AND BEHAVIORAL SCIENCE II (2).

207M HUMAN ECOLOGY AND BEHAVIORAL SCIENCE III (2).

INTRODUCTION TO CLINICAL MEDICINE

Introduction to Clinical Medicine is a three-semester interdepartmental course for all first- and second-year medical students, under the direction of a chairman selected by the Dean of the School of Medicine. Goals and curriculum are set by a committee composed of representatives of the departments of Medicine, Obstetrics-Gynecology, Surgery, Child Health, Family and Community Medicine, Psychiatry, and of the student classes. The overall objective of the course is to facilitate the transition of the student to practitioner of medicine by introducing basic skills involved in recognition of clinical symptoms and signs, and in formulation and management of patient problems.

220M INTRODUCTION TO CLINICAL MEDICINE I (1).

221M INTRODUCTION TO CLINICAL MEDICINE II (2).

222M INTRODUCTION TO CLINICAL MEDICINE III (3).

The means to accomplish these goals include lectures, laboratory sessions and, in particular, teaching in small groups in the clinical setting, led by a member of the hospital teaching staff.

DEPARTMENT OF ANATOMY

Research facilities include RCA EMU-3F and EMU-4 electron microscopes, histology, ultramicrotomy, and chemical preparation laboratories; and complete darkroom facilities.

Research currently in progress in the department is concerned with find struc-

ture of the human ovary and the effects of hormones on the fine structure of target organs; post-natal organ development in the marsupial; morphology and function of blood leukocytes and hematopoietic tissues; the embryological differentiation of muscle and tendon; structure and function of vertebrate exocrine glands; and neuro-embryology.

GRADUATE PROGRAMS

The department offers a number of elective courses and encourages the use of dissection facilities by medical post-graduates and residents. In addition, graduate programs leading to the M.S. and Ph.D. degrees are available in those fields in which special research facilities exist and in which active staff research is in progress. Selected UMC senior students who are specifically interested in graduate work in human anatomy, and who have a baccalaureate graduation requirement of 15 hours or less, may be permitted to begin graduate work in anatomy on a dual enrollment basis.

Medical students who have completed their first year of medicine may apply for a two-year graduate assistantship in anatomy, spreading the second year of the medical curriculum to two years.

201 ELEMENTARY ANATOMY LECTURE (3). Prerequisite: 5 hours biological science or equivalent.

202 ELEMENTARY ANATOMY LABORATORY (2). Prerequisite: must be taken concurrently with 201.

205M MEDICAL MORPHOLOGY (9). f.

206M MEDICAL MORPHOLOGY (11). Continuation of 205M. w.

300 PROBLEMS (cr. arr.)

301 HUMAN GROSS ANATOMY (4). Prerequisites: 201, comparative anatomy or equivalent, instructor's consent. f.

302 HUMAN GROSS ANATOMY (5). Prerequisites: same as 301. w.

303 HUMAN DEVELOPMENTAL ANATOMY (3). Prerequisites: vertebrate embryology & instructor's consent. w.

304 HUMAN HISTOLOGY AND ORGANOLGY (4). Prerequisites: 10 hours of biology & instructor's consent. w.

305 ANATOMY OF THE HUMAN NERVOUS SYSTEM (4). Prerequisites: 201, comparative anatomy or equivalent, & instructor's consent. w.

306 AUTONOMIC NERVOUS SYSTEM (2). Prerequisite: same as 305. f.

308 HEMATOPOIETIC ORGANS (2). Prerequisites: basic histology & instructor's consent. w.

312 BIOLOGY OF THE ENDOCRINE ORGANS OF MAN I (2). Prerequisites: advanced standing in biological sciences, instructor's consent. f.

313 BIOLOGY OF THE ENDOCRINE ORGANS OF MAN II (2). Prerequisites: 312, instructor's consent. w.

405 MAMMALIAN REPRODUCTION (3). Prerequisites: graduate standing in one of animal, biologic, medical, or veterinary sciences; instructor's consent; Biochemistry 304 or equivalent. w.

410 SEMINAR (1). f, w.

450 RESEARCH (cr. arr.)

490 RESEARCH (cr. arr.)

DEPARTMENT OF ANESTHESIOLOGY

Anesthesiology is defined as a practice of medicine dealing with:

1. the management of procedures for rendering a patient insensible to pain during surgical, obstetrical and certain medical procedures;

2. the support of life functions under the stress of anesthetic and surgical manipulations;

3. the clinical management of the patient unconscious from whatever cause;

4. the management of problems in pain relief;

5. the management of problems in cardiac and respiratory resuscitation;

6. the application of specific methods of respiratory therapy;

7. the clinical management of various fluid, electrolyte, and metabolic disturbances.

Student contact is established and maintained throughout the four years of medical school education.

Teaching methods are varied, comprising informal seminars, formal seminars, interdepartmental conferences, and direct personal supervision of students administering anesthesia in the operating rooms.

Didactic presentations are held Monday, Wednesday, and Friday, 48 weeks each year.

ANESTHESIOLOGY ELECTIVE (10). JUNIOR AND SENIOR STUDENTS. The goals are to provide students (a) an understanding of certain truths associated with the anesthetic state (e.g., the inability of a person to protect himself from the environment; concomitant and common depression of systems of the body other than the nervous system); (b) an

opportunity to learn to think and react quickly and correctly in times of stress; (c) to develop knowledge and skills at maintaining artificial ventilation and circulation; (d) to develop technical skills (e.g., insertion of endotracheal catheters, intravenous infusions); (e) to understand some of the rationale in the choice of an anesthetic agent or technique; (f) to relate the morbidity and mortality of anesthesia to surgical patients; (g) to inform students of the functions of anesthesiologists in the care of non-surgical patients (e.g., respiratory therapy, pain problems); and (h) to attract students to the speciality of anesthesiology. Eight-week periods are preferred although four-week electives are available. Actual participation in anesthetic evaluation and administration for surgical procedures is combined with close individual supervision. Arrangement for electives is with the department chairman.

GRADUATE PROGRAMS

Ten house staff positions are provided, of which two or three are categorical first year. The continuum in anesthesiology consists of the Base Clinical year, two Clinical Anesthesia years, plus an Optional year. This program is approved at all levels. Close supervision in the operating rooms is provided with a gradual and progressive increase in responsibility and difficulty in types of cases for each resident. Optional year programs, including such areas as pulmonary intensive care and research, are tailored to the individual resident's needs and desires.

DEPARTMENT OF BIOCHEMISTRY

The department teaches biochemistry and biophysics for medical students and offers beginning and advanced courses in these two areas for graduate students. Within the department are the laboratories and specialized equipment needed for the variety of research in progress.

Each faculty member directs an active research program. Research projects currently under investigation include mechanisms and control of enzyme reactions, effects of radiation on proteins, control processes in amino acid metabolism, effects of drugs on cells in tissue culture, biochemistry of bone, germfree research, comparative nutrition, oxidative enzymes, structure of membrane lipids

and metal ion interactions with peptides and proteins.

10 BIOCHEMISTRY, THE FIELD AND THE PROFESSION (1).

110 INTRODUCTORY BIOLOGICAL CHEMISTRY (3). Prerequisite: 5 hours general chemistry. f,w.

193 GENERAL BIOCHEMISTRY (3). Prerequisites: Chemistry 1; 110, Chemistry 210-211, or Chemistry 205; sophomore standing. f,w.

195 GENERAL BIOCHEMISTRY LABORATORY (2). Prerequisites: same as 193. f,w.

203 ELEMENTARY BIOCHEMISTRY (3). Prerequisite: 3 hours organic chemistry. w.

204 ELEMENTARY BIOCHEMISTRY LABORATORY (2). To be taken concurrently with 203. Prerequisite: organic chemistry. w.

206 MEDICAL BIOCHEMISTRY (9). Prerequisite: 8 hours general chemistry, 5 hours organic chemistry. Some quantitative chemistry recommended. f.

270 BIOCHEMISTRY (3). Prerequisites: one year inorganic chemistry, 5 credits organic chemistry with laboratory. Quantitative analysis recommended. f.

272 BIOCHEMISTRY (3). Prerequisite: 270. w.

274 BIOCHEMISTRY LABORATORY (3). Prerequisites: 270 & 272, or 272 concurrently. w.

299 SEMINAR (1). Prerequisites: senior standing, a minimum of 10 hours chemistry including a biochemistry course with laboratory.

300 PROBLEMS (1-3).

301 BIOPHYSICS (3). Prerequisites: general chemistry & physics, calculus & biological sciences course. f.

303 TECHNIQUES IN NUTRITIONAL BIOCHEMISTRY (3). Prerequisites: six hours biochemistry or concurrent with 272 or 322. w.

304 GENERAL BIOCHEMISTRY LECTURES (5). Prerequisites: organic chemistry & quantitative chemistry & biology. f.

305 BIOCHEMISTRY LABORATORY (3). Prerequisites: organic chemistry & quantitative chemistry. f.

310 TRACE ANALYSIS (3) (same as Chemistry 310). Prerequisite: quantitative analysis. w.

311 INTERPRETATION OF MOLECULAR SPECTRA (3). Prerequisites: organic chemistry & instructor's consent. f.

312 INSTRUMENTAL METHODS OF ANALYSIS (4) (same as Chemistry 312). Prerequisites: Chemistry 223 & Chemistry 231 or Chemistry 231 concurrently. f,w.

320 BIOCHEMISTRY (3). Prerequisites: Chemistry 210, 211, 212, 221, 230, & 5 hours biology; concurrent registration on last two acceptable. f.

322 BIOCHEMISTRY (3). Prerequisite: 320. w.

350 CHROMATOGRAPHY (3). Prerequisite: one semester physical chemistry or instructor's consent.

375 TOPICS IN BIOCHEMISTRY (cr. arr.) Prerequisites: general biochemistry; others as specified by instructor each semester course is offered.

400 PROBLEMS (1-6).

401 PLANT BIOCHEMISTRY (3). Prerequisite: 272 or 320-322 or 304 or instructor's consent. alt. f. odd yrs.

402 ADVANCED PHYSIOLOGICAL CHEMISTRY OF DOMESTIC ANIMALS (3). Prerequisites: 272 & Chemistry 212 or equivalent. alt. w. even yrs.

403 TOPICS IN BIOCHEMISTRY (2-3). Prerequisites: general biochemistry, others as specified by instructor each semester course is offered.

404 COMPARATIVE BIOCHEMISTRY (2). Prerequisite: biochemistry. f.

406 COMPARATIVE NUTRITION AND METABOLISM (2) (same as Nutrition 406). Prerequisite: biochemistry. w.

410 SEMINAR (1). f,w.

412 BIOCHEMISTRY OF HORMONES (3). Prerequisite: 272 or instructor's consent. alt. w. even yrs.

413 REPRODUCTIVE BIOLOGY SEMINAR (1) (same as Animal Husbandry 413). Open to qualified students of graduate standing in the field of reproductive biology. f,w.

420 CHEMISTRY OF ENZYME COFACTORS (3). Prerequisites: 8 hours organic chemistry; 8 hours biochemistry.

422 ANALYTICAL BIOCHEMISTRY—CHROMATOGRAPHY (2). Prerequisite: graduate standing or instructor's consent. f.

423 ANALYTICAL BIOCHEMISTRY—MULTIPLE AUTOMATIC MICROANALYSIS (1). Prerequisite: graduate standing or instructor's consent. f.

424 ANALYTICAL BIOCHEMISTRY—MASS SPECTROMETRY (2). Prerequisites: two courses in organic chemistry, one course in physics, & instructor's consent. w.

425 BIOPHYSICS TOPICS (2-4). Prerequisites: calculus & physics & physiology or equivalent. alt. w. odd yrs.

440 HORMONES AND METABOLISM (2). Prerequisites: 304 & instructor's consent. alt. w. odd yrs.

450 RESEARCH (2-8).

461 ADVANCED CARBOHYDRATE METABOLISM AND BIOLOGICAL OXIDATIONS (2). Prerequisite: 304 or equivalent. alt. w. odd yrs.

462 ADVANCED METABOLISM: PROTEINS AND NUCLEIC ACIDS (2). Prerequisite: 304 or equivalent. alt. f. odd yrs.

463 ADVANCED LIPID METABOLISM (2). Prerequisite: 304 or equivalent. f.

464 PHYSICAL BIOCHEMISTRY: PROTEINS, ENZYMES, NUCLEIC ACIDS (2). Prerequisites: 320 or equivalent & physical chemistry & differential integral calculus. w.

465 ADVANCED METABOLISM: AMINO ACIDS (2) (same as Nutrition 465). Prerequisite: 304 or equivalent. alt. w. even yrs.

466 REGULATION OF ENERGY METABOLISM (2). Prerequisite: 304 or 322 or equivalent. alt. w. odd yrs.

490 RESEARCH (cr. arr.)

GRADUATE PROGRAMS

Graduate programs leading to the M.S. and Ph.D. degrees are offered. For details contact the Director of Graduate Student Admissions.

DEPARTMENT OF CHILD HEALTH

The focus of the Child Health Department is on the model of a child within a family within a society. Growth, nutrition, development, mental and physical health, interviewing, and patient care are the major areas of emphasis. The special emotional and physical features of infancy and childhood distinguishing children from adults are emphasized.

In the first two years, the early processes of growth and development are described. In the third year, appraisal of normal newborns, infants, and older children, as well as intensive illness in these groups, is carried out by students. In the ambulatory setting, intensive focus is placed on optimum health maintenance, acute care needs, and consultative and continuous management of complex health problems.

The pediatric training experience base involves daily conferences, lectures, teaching rounds, admission and care of hospitalized patients, and examination of ambulatory patients. Participation in an active neonatal unit provides newborn experience. Research activities of the department are involved with cardiology, child abuse, cystic fibrosis, diabetes, endocrinology, gastroenterology, growth, hematology, infectious diseases, nutrition, neonatology, and renology.

The department is also involved in developing some programs of patient care for children in conjunction with other

agencies in the surrounding areas. It also has evolved an interdisciplinary program dealing with children having multiple handicaps.

PEDIATRICS: THIRD YEAR (10). During the clinical years, an eight-week full-time clerkship is required. Students are assigned patients on the ward and newborn nursery and in the diagnostic outpatient clinics for independent history-taking, examination, and clinical and laboratory evaluation, followed by discussion with a member of the staff. In addition to general pediatric clinics, subspecialty clinics are held in the fields of prematurity, diabetes, endocrinology, nutrition, gastroenterology, hematology, allergy, cardiology, neurology, and rheumatology. Clinical experience is supplemented by participation in daily conferences, lectures and seminars.

PEDIATRICS, ELECTIVE (10). All fourth-year students are encouraged to spend elective time in pediatrics. During this period, there will be extensive exposure to everyday pediatric problems in the outpatient clinics, and a shorter period of intensive inpatient training, with increasing responsibility in both areas. Preceptorship with a practicing pediatrician, laboratory and clinical research, or a combination of these may also be arranged. These programs should not be confused with research fellowships which are available during the student's clinical years. Arrangements for such fellowships may be made through the department chairman.

GRADUATE PROGRAMS

One to three years of approved graduate training in pediatrics is available by arrangement. The straight internship or first-year residency is devoted to general pediatric training on the ward, newborn nursery, and outpatient clinic, with major responsibility for patient care. The house officer supervises the work of medical students and makes daily rounds with attending staff. Emphasis is placed upon continuing follow-up care of well and sick children by the same house officer. During the second year, general pediatrics experience continues with increasing independent responsibility and with more intensive experience in the pediatric specialties for short periods of time. The third year involves senior residents in new experiences such as school health, management of chronic handicaps, and family counseling, along with other supervisory and teaching responsibilities. Advanced traineeships for those interested in teaching and research are available in many subspecialty fields.

DEPARTMENT OF FAMILY AND COMMUNITY MEDICINE

The department has responsibility for teaching, research, and service activities covering the spectrum from primary medical care to community medicine.

Educational activities include:

1. graduate degree program leading to the Master of Science in Public Health degree, with emphasis on such areas as community health education, epidemiology, public health, and environmental science;
2. training of Family Practice residents;
3. education of medical students and other health professions students in behavioral sciences, epidemiology, and biostatistics; and
4. coordinating and evaluating the medical student preceptorship program.

Organizational units of the department include sections of Behavioral Sciences, Community Health, Community Health Education, and Family Medicine.

In addition to the intradepartmental activities indicated above, individual faculty members act as liaisons between the department and a wide variety of academic and non-academic programs and institutions throughout the University, state, and nation. Examples include the Sinclair Research Farm, Environmental Trace Substances Laboratory, state and local health agencies, Extension Division, departments of Sociology, Rural Sociology, Statistics (College of Arts and Science), Industrial Engineering (College of Engineering), Veterinary Public Health (College of Veterinary Medicine).

COMMUNITY HEALTH PRECEPTORSHIP (10). Five-week assignment to a family physician in private practice.

25 COMMUNITY HEALTH (2). f,w.

300 PROBLEMS (1-3). Prerequisite: instructor's consent.

305 INTRODUCTION TO COMMUNITY HEALTH EDUCATION (3). Prerequisite: senior standing.

310 THE HEALTH CARE SYSTEM (3). Prerequisite: senior standing. f.

315 GROUP PROCESS IN COMMUNITY HEALTH (2). Prerequisite: instructor's consent.

317 PLANNING FOR CHANGE IN COMMUNITY HEALTH (3). Prerequisites: senior standing & instructor's consent.

330 STATISTICAL ASPECTS OF PUBLIC HEALTH (3). Prerequisite: concurrent registration in 420 or instructor's consent. f.

347 THE SOCIOLOGY OF COMMUNITY HEALTH (3) (same as Rural Sociology 347, Sociology 347). Prerequisites: Sociology 1 & Rural Soc. 1.

350 SPECIAL READINGS (1-3). Prerequisite: instructor's consent.

400 PROBLEMS (1-3). Prerequisites: graduate standing & instructor's consent.

410 PRINCIPLES OF COMMUNITY HEALTH EDUCATION (3). Prerequisites: f. graduate standing; w. senior standing & instructor's consent.

411 METHODS IN COMMUNITY HEALTH EDUCATION (3). Prerequisite: 410.

412 PLANNING FOR CHANGE I (2). Prerequisites: graduate standing & instructor's consent.

415 HEALTH ASPECTS OF THE ENVIRONMENT (3). Prerequisites: completion of 330 & 420, or equivalent, or instructor's consent.

420 PRINCIPLES OF EPIDEMIOLOGY (3). Prerequisite: concurrent registration in 330 or equivalent, or instructor's consent. f.

421 ADVANCED EPIDEMIOLOGY (3). Prerequisite: completion of 420 or instructor's consent. w.

422 RESEARCH AND EVALUATION IN COMMUNITY HEALTH EDUCATION (3). w.

424 PUBLIC HEALTH AND MEDICAL CARE ECONOMICS (3) (same as Economics 424). Prerequisite: Economics 201 or Economics 351 or instructor's consent. w.

431 STATISTICAL EPIDEMIOLOGY (3). Prerequisites: completion of 330 & 420, or instructor's consent.

440 PUBLIC HEALTH ADMINISTRATION (3). Prerequisites: completion of 330 & 420, or instructor's consent. w.

441 MEDICAL CARE AND CHRONIC DISEASES (2). w.

442 LABOR RELATIONS IN THE HEALTH INDUSTRY (3). Prerequisites: graduate standing & instructor's consent.

443 PUBLIC HEALTH SOCIAL WORK (2). Prerequisites: completion of 330 & 420, or instructor's consent. w.

444 COMMUNITY HEALTH IN DEVELOPING SOCIETIES (2-3). Prerequisites: completion of 330 & 420, or instructor's consent. f.

449 EPIDEMIOLOGY OF ZONOOSES (3) (same as Veterinary Microbiology 449). Prerequisites: epidemiology & medical microbiology or instructor's consent. alt. f. odd yrs.

450 RESEARCH (cr. arr.)

460 ADMINISTRATION OF HEALTH CARE ORGANIZATIONS (3). Prerequisites: 310, Business Administration 301, & instructor's consent. w.

470 COMMUNITY HEALTH PLANNING (3). Prerequisites: 310, Business Administration 301, & instructor's consent. w.

471 APPLICATION OF MANAGEMENT SCIENCE TO THE HEALTH CARE SYSTEM (3). Prerequisites: 460, Computer Science 201, Statistics 207, & instructor's consent. f.

472 FINANCIAL MANAGEMENT FOR HEALTH CARE ORGANIZATIONS (3). Prerequisites: 460, Business Administration 344, & instructor's consent. w.

473 DECISION MAKING FOR HEALTH CARE ORGANIZATIONS (2). Prerequisites: 470 & 471. w.

474 HEALTH CARE LAW (1). Prerequisites: 460 & instructor's consent. f.

478 ORGANIZATION AND MANAGEMENT FOR MENTAL CARE (3). Prerequisite: 310 or 460. w.

490 RESEARCH (cr. arr.)

491 FIELD EXPERIENCE IN COMMUNITY HEALTH (cr. arr.) f,w,s.

492 FIELD EXPERIENCE IN COMMUNITY HEALTH EDUCATION (cr. arr.) Restricted to students specializing in Community Health Education. Prerequisite: consent of Community Health Education faculty.

GENERAL REQUIREMENTS

The master's program in Community Health consists of a 32-hour program of graduate credit leading to the degree of Master of Science in Public Health (M.S.P.H.). Various course requirements cover the specialized content necessary for professional practice in particular areas of public health. A minimum of 9 to 11 months of full-time enrollment should be anticipated by the student.

The requirements for the degree are those established by the Graduate School, the Department of Family and Community Medicine, and the elective areas of concentration. The elective areas of concentration include Community Health Education, Environmental Sciences, Epidemiology, and Public Health (individualized program).

In order to qualify for admission, an applicant must present: (1) a prior doctoral degree from an approved school, *or* (2) a bachelor's degree, having maintained a 3.0 grade point average ($A=4$) in the final two years of academic work. Applicants must also take the Graduate Record Examination, available several time a

year from the Educational Testing Service, Princeton, N.J. The qualified applicant must also submit three satisfactory letters of recommendation.

BEHAVIORAL SCIENCES

The Section of Behavioral Sciences represents a bridge between the behavioral sciences and the Medical Center. These behavioral sciences consist of a number of essentially defined disciplines with a common denominator of concern with human behavior, either as individuals or as members of social groups. From these disciplines, the Behavioral Sciences faculty select areas of knowledge appropriate to health fields.

The unit has a variety of functions which include major teaching commitments within the medical school curriculum. The staff also participates in the teaching of graduate programs in Community Health, Nursing, Nutrition, and Dietetics, and in the undergraduate programs of the various allied health professions.

The Behavioral Sciences faculty has a wide range of concerns in research. Some of the studies currently underway relate to social science aspects of disease and of illness care. Examples of the types of research activities of the section include the psychological preparation of cholecystectomy patients for their operations, investigations of qualitative variations in pain associated with different clinical procedures, the perceptions that pharmacists hold of their profession and marketing roles, and studies of career choices and decision-making among medical students. Other studies relate to various aspects of health services needs and health services delivery.

The section also serves as the laboratory for doctoral students in the graduate program in medical sociology of the Department of Sociology, and also occasionally for graduate students from other disciplines interested in health-related research.

For additional information concerning the Section of Behavioral Sciences, write

the Director, Section of Behavioral Sciences, Department of Family and Community Medicine, UMC Medical Center, Columbia, Mo. 65201.

COMMUNITY HEALTH

The Section of Community Health includes the departmental programs in Environmental Sciences, Epidemiology, and Public Health. Each of the three areas of the concentration has specific requirements and opportunities as follows:

Environmental Sciences

The candidate for the M.S.P.H. with emphasis on environmental sciences has two minor options. The general M.S.P.H. degree from the department requires meeting only departmental requirements. The area degree program in environmental sciences requires, in addition, meeting such requirements as the directors of the area degree program might specify. For either program the number of hours required for attaining the degree varies according to the student's previous background. Individuals who demonstrate (generally on the basis of experience) competence in some aspect of environmental science are not required to complete redundant field training or academic course work. Students without previous experience are required to demonstrate both academic and practical competence before completing the degree. Details of this program are individualized according to students' needs.

Epidemiology

The graduate program in epidemiology emphasizes the study of differences of diseases frequency between and within populations and the causes for such differences. In addition to departmental requirements (32 hours minimum, 12 hours of core courses), a major paper based on original research or re-analysis of existing data is required. Students work closely with faculty in such areas as hospital epidemiology, studies of Mis-

souri mortality and morbidity, and epidemic investigations. Only a limited number of students are accepted for this area of emphasis, and preference is given to students who have (or will have) another professional degree in the health field (e.g., D.D.S., D.O., D.V.M., M.D., R.N.). Other students should expect to undertake an additional semester of course work and/or field experience.

Public Health

The M.S.P.H. degree with concentration in Public Health is a general degree of the department available to candidates holding a professional degree in another discipline (not necessarily health related) who wish to become involved in some aspect of public health not specifically covered by the other areas of concentration within the department. The degree program of a student electing the Public Health concentration is planned on an individual basis considering the candidate's career goals, prior professional preparation, and experience. An adviser is assigned to each candidate based on professional interests compatible with the candidate's interests and goals.

For additional information concerning the M.S.P.H. degree programs in Environmental Science, Epidemiology, and Public Health, write the Director, Section of Community Health, Department of Family and Community Medicine, UMC Medical Center, Columbia, Mo. 65201.

COMMUNITY HEALTH EDUCATION

Preparation to become a professionally qualified community health educator is offered as an area of concentration with the M.S.P.H. degree program. This preparation includes the attainment of special skills to understand the factors which influence health-related behavior and how such understanding is applied to modify health practices.

In addition to the M.S.P.H. degree admission requirements given above, preparation on the bachelor's level or higher in one of the sciences or social

sciences is preferred for those interested in entering the Community Health Education section. However, study in such areas as education, social work, and journalism will be considered. Experience at the community level in working with people toward the solution of health or other social problems is also preferred. Applicants without such experience may be required to undertake an additional semester of field experience and course work.

The course of study consists of 35 hours of graduate credit, including field experience. A written comprehensive final examination *or* thesis is required. The field experience component consists of the equivalent of one day per week of concurrent field work during the winter semester and a 12-week block of full-time field experience during the summer. All field experience is supervised either by the health education faculty or practitioners approved by the faculty.

The Community Health Education program is accredited by the American Public Health Association. A limited number of study grants for health education students are available.

For additional information concerning the program contact: Director, Section of Community Health Education, Department of Family and Community Medicine, UMC Medical Center.

FAMILY MEDICINE

Each undergraduate medical student rotates through a two-month block which includes a four-week preceptorship with a physician in private family practice, and a four-week clerkship within the Medical Center that includes time with Physical Medicine and Rehabilitation. The medical student may take an additional preceptorship on an elective or free block.

There are four- and eight-week electives and clerkships in Family Medicine that are operated out of the Family Medical Care Center that require the student to study family practice under the supervision of the Family Medicine attending faculty.

Outpatient experience under the supervision of Family Medicine attending faculty is also provided in Fulton, Mo., at the Callaway Family Medical Care Center.

The Family Medicine Residency is an approved three-year postgraduate program leading to eligibility for the examination by the Board of Family Practice. Residents are placed in a practice setting in the Family Medical Care Center where they have ongoing responsibility for a number of families who reside in the immediate area. During their first year they have a required inpatient rotation in the University Hospital with the Child Health, Internal Medicine and Obstetrics-Gynecology services. Following this they rotate through other services of their choice while continuing their practice in the model unit.

For additional information concerning these programs write the Director, Section of Family Medicine, Department of Family and Community Medicine, UMC Medical Center, Columbia, Mo. 65201.

HEALTH SERVICES MANAGEMENT

The Graduate Program in Health Services Management is fully accredited by the Accrediting Commission on Graduate Education for Health Services Administration, and is a member of the Association of University Programs in Health Administration. The Master's program in Health Services Management consists of four semesters on campus, plus a three-month summer externship in a hospital or other health agency. The externship occurs between the first and second years of the program.

UMC offers specialized training in Health Services Management through four graduate degree programs: Master of Science in Public Health (Administration), Master of Science in Public Health (Planning), Master of Business Administration, and Master of Science in Public Administration. In addition, there are a number of dual degree programs for

qualified applicants (e.g., M.S.P.H.-M.B.A., M.S.P.H.-M.S.I.E., etc.). Regardless of the degree, specialized training in Health Services Management is similar in its course content.

The purpose of offering four types of degree programs is to supplement rather than duplicate previous training and experience. In all cases, the approach is to tailor the program to the individual student's needs.

The program's close affiliation with local, state, and national associations in hospital administration, health administration, and health planning, and its clinical faculty comprised of key hospital and health administrators and health planning officials throughout the state and nation, provide a wide variety of educational opportunities for students.

To be accepted for advisement in this program, an applicant, in earning a baccalaureate, master's, or doctoral degree, must have maintained an overall grade average of at least 3.0. In the selection process for each program, more emphasis is placed on sound scholarship and the promise of development for the field than on the precise content of the program which the prospective student has followed before applying to study in health services management.

Applicants applying to the MBA Program are required to take the Graduate Management Admission Test. Applicants for the other degrees are required to take the Graduate Record Exam.

Applicants are required to complete the Health Services Management application. A personal interview in Columbia is arranged for each applicant who meets the necessary requirements. In exceptional cases, a health care executive selected by the faculty is asked to conduct an interview when travel to Columbia is not feasible.

A more descriptive brochure and appropriate forms may be obtained by writing: Admissions Director, Graduate Studies in Health Services Management, 403 Noyes Bldg., UMC, Columbia, Mo. 65201.

DEPARTMENT OF MEDICINE

The primary concern and responsibility of departments of medicine traditionally have been to teach the student to think and act like a doctor. The fundamental teaching activities and work available in this Department of Medicine are directed toward that goal. Those efforts begin with our role in teaching the fundamental procedures necessary for the intelligent examination of patients. Emphasis is also placed on the principles of differential diagnosis and the approach to solving the patient's problems as well as on the importance of extrapolating "basic science" information into the art of care of patients. The clinical years provide actual responsible clinical experience in both outpatient and inpatient settings.

At the present time, the inpatient service of the total Department of Medicine is comprised of two major areas, one located in University Hospital, consisting of approximately 120 beds. The second area in the VA Hospital contains a comparable number of beds. All the Medicine bed areas are divided into nursing units and attending teams. Each group of approximately 20-25 patients is the responsibility of a team of senior staff attending physicians, residents, interns, and students.

Medical outpatient activities are housed in University Hospital in Station 1 of the Outpatient Clinic. This section has 17 examining rooms, a student laboratory, conference room, and waiting area for patients. Similar but smaller facilities for outpatient activities are available in the VA Hospital.

Elective opportunities for specialized in-depth clinical and laboratory activities are also available. A student who might wish to develop such an area of concentration within the Department of Medicine is assigned a preceptor. This preceptor can guide the intermix of clinical work, research and other elective activities, and can be especially useful in advising the student regarding the effective use of elective time.

Each division of the Department of Medicine offers opportunities for various

elective experiences: (1) advanced clinical studies in the medical clinics or on the wards; (2) clinical investigations; (3) laboratory research.

The research laboratories for the department are located on the first, fourth, and seventh floors of the Medical Sciences building. Diagnostic facilities for cardiac, pulmonary, and neurologic testing are located in the hospital.

The total teaching activities of the department include first-, second-, third-, and fourth year undergraduate students, physicians, and clinical or research fellows in formal postgraduate training programs.

MEDICINE, THIRD YEAR (10). Students are assigned to medical wards for 9 weeks of intensive instruction in basic internal medicine. Emphasis is placed on developing the fundamental skills of history-taking, physical diagnosis, and case presentation. Attention is focused on learning the principles of clinical diagnosis and on developing a core knowledge of disordered physiology that constitutes representative diseases of the various organ systems. A thorough knowledge and understanding of all the patient's problems is stressed. Third-year students participate in daily patient-teaching rounds and a series of weekly conferences.

MEDICINE, FOURTH YEAR (10). During senior Medicine, students are assigned to either General Medicine or specialty experiences for a period of approximately 8-9 weeks. Experiences in General Medicine involve inpatient care. Experiences in the specialties involve both inpatient and outpatient activities. In selected situations, externships are available, as well as time in a research laboratory.

ELECTIVE MEDICINE (10). Opportunities exist for medical students at all levels after satisfactory completion of the first year. Elective and/or free time may be spent in any of several areas at the present time. They include: Cardiology; Dermatology; Endocrinology; Gastroenterology; Hematology and Oncology; Immunology and Rheumatology; Nephrology; Pulmonary Medicine. The director of the respective division should be contacted for details of opportunities available.

GRADUATE PROGRAMS

Eighteen to 22 straight medical internships and a three- or four-year residency program are offered. Residency training in Dermatology is also available. Fellowships and traineeships for advanced study in specific areas are also available with the department and include Cardiology; Dermatology; Endocrinology and Metabolism; Hematology and Oncology; Im-

munology and Rheumatology; Pulmonary Medicine; Gastroenterology; Nephrology.

DEPARTMENT OF MICROBIOLOGY

The Department of Microbiology is located primarily on the second floor (west) of the Medical Sciences Building. Ten office-laboratories are available to faculty and staff. Of particular interest are the laboratories, designed to accommodate staff and graduate student research, as well as a departmental seminar room and library.

The department has ready access to the animal quarters, directly on the floor below, where specially designed laboratory animal rooms for work on infectious agents are located.

Facilities are available for spectrophotometry, chromatography, electrophoresis, ultracentrifugation, sonic oscillation, lyophilization, tissue culture, germfree work, anaerobic isolation, and other specialized techniques for studying viruses, rickettsia, fungi, bacteria, and animal parasites.

Research interests of the faculty include virus-host cell interactions, microbial ecology, anaerobic bacteria, immuno-chemistry of enzymes, genetic exchange in bacteria, antibiotic resistance and survival of microorganisms in various chemical and physical environments.

205 FUNDAMENTALS OF MEDICAL AND PUBLIC HEALTH MICROBIOLOGY (4). f.

301 MEDICAL MICROBIOLOGY (8). For graduate students & sophomore medical students. Prerequisite: organic chemistry; general bacteriology recommended. f.

302 ECOLOGY AND EPIDEMIOLOGY OF INFECTIOUS AGENTS (cr. arr.) Prerequisite: 301 or equivalent. w.

303 MEDICAL PARASITOLOGY (cr. arr.) Prerequisite: 301 or equivalent. w.

304 IMMUNOLOGY (3). Prerequisites: microbiology & organic chemistry or biochemistry. w.

305 ANTIBIOTICS (4). Prerequisite: general bacteriology. Recommended: advanced microbiology.

306 HISTORY OF MICROBIOLOGY (1). w.

307 INSTRUMENTAL METHODS IN MEDICAL MICROBIOLOGY (2). Prerequisite: course in microbiology. w.

308 MICROORGANISMS INDIGENOUS TO MAN (3). Prerequisite: advanced course in microbiology. w.

309 ANTISEPSIS, DISINFECTION AND STERILIZATION (cr. arr.) Prerequisite: a course in microbiology. w.

310 MICROBIOLOGY OF THE ENVIRONMENT (cr. arr.) Prerequisites: course in microbiology & in biochemistry. w.

314 IMMUNOLOGY LABORATORY (1). Ordinarily taken concurrently with 304. Prerequisite: course in microbiology. w.

315 BACTERIAL AND VIRAL GENETICS (4). Prerequisites: course in microbiology & in biochemistry. w.

400 PROBLEMS (cr. arr.) Prerequisite: strong background in microbiology. f,w,s.

401 ADVANCED MEDICAL MICROBIOLOGY (cr. arr.) Prerequisite: 301 or equivalent. f.

402 VIROLOGY (4). Prerequisites: medical microbiology & biochemistry. w.

403 ADVANCED MICROBIOLOGY (cr. arr.) Prerequisites: microbiology & chemistry. w.

404 PHYSIOLOGY OF PATHOGENIC ORGANISMS (cr. arr.) Prerequisites: general bacteriology & biochemistry. w.

405 ADVANCED VIROLOGY (4). Prerequisite: 402 or equivalent. w.

406 MEDICAL MYCOLOGY (3). Prerequisite: medical microbiology. w.

407 ADVANCED IMMUNOLOGY (2). Prerequisite: 304. w.

410 SEMINAR (1). f,w.

490 RESEARCH (cr. arr.)

DEPARTMENT OF NEUROLOGY

The academic activities of the Department of Neurology are primarily concerned with the students' development of certain fundamental skills in the diagnosis and treatment of disease of the nervous system.

There are many diseases which manifest themselves solely and exclusively as disorders of the central and peripheral nervous system, but a large number of diseases, of all organ systems, may concurrently affect the nervous system. The recognition of these primary and secondary diseases of the nervous system constitute a significant portion of the training in clinical medicine.

Fundamental to the acquisition of skills in clinical neurology is a firm foundation in the basic sciences of neurology: anatomy, biochemistry, physiology, and pathology. The Department of Neurology participates in the teaching of these basic sciences during the first two years of medical school. The techniques of neurological examination and diagnosis are taught in the Introduction to Medicine course. Didactic and bedside teaching are provided during the third year of medical school.

Elective clerkships allow participation in the care of hospitalized patients on the Neurology Service.

NEUROLOGY—Second Year. Students are taught the principles of neurologic diagnosis as a part of the Introduction to Medicine course.

NEUROLOGY—Third and Fourth Years. Students participate in consultations rendered to other hospital services by Neurology and are presented a series of didactic lectures on diseases of the nervous system.

NEUROLOGY ELECTIVE—Third and Fourth Years. Students are assigned as clinical clerks to the service and participate in all clinical and teaching functions of the Department. Prerequisite: one previous clinical clerkship in either Medicine, Child Health (Pediatrics), or Surgery.

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

The program in Obstetrics and Gynecology is designed to provide a thorough experience for the student, resident, or post-graduate physician in human reproductive biology, normal and abnormal obstetrics, clinical gynecology, gynecologic endocrinology, gynecologic oncology, and gynecological surgery.

Student teaching is integrated through a four-year interval. An elective experience is offered to freshman medical students in basic human reproductive biology. During the sophomore year, participation in correlative courses is directed at reinforcement of knowledge of human reproductive physiology and its relationship to normal obstetrics. Clinical Obstetrics and Gynecology is scheduled during the final 24 months of medical training and provides experience for the students in normal and abnormal ob-

stetrics, and clinical and operative gynecology.

Teaching methods vary from informal discussion, laboratory research, lectures, and interdepartmental conferences, to graded assignments of patient responsibility.

OBSTETRICS AND GYNECOLOGY, CLINICAL EXPERIENCE (10). Students are assigned to the clinical service in groups of varying size. Normal and complicated obstetrics and gynecology are taught by lecture, ward rounds, seminars, and attendance in clinics, wards, delivery rooms, and operating rooms. Weekly conferences with Radiotherapy and Pathology and seminars on maternal mortality, infertility, and gynecologic endocrinology are held twice weekly.

OBSTETRICS AND GYNECOLOGY, ELECTIVE (10). Any student in the clinical elective period may make special arrangements with the department to do special work on a subject of interest.

GRADUATE PROGRAM

The residency program in Obstetrics and Gynecology provides broad and intensive experience in the specialty, leading to board certification. Resident physicians participate in the student teaching program and exercise primary clinical and surgical responsibility for both obstetric and gynecologic patients.

DEPARTMENT OF OPHTHALMOLOGY

There are two main areas of concern in the teaching of Ophthalmology. The first of these has to do with the intrinsic diseases of the eye which may lead to blindness; the second concerns examination of the eyes as a reflector of systemic disease. In the first instance we have an obligation to make sure that the general physician is properly aware of those diseases and conditions which threaten vision. In the second instance we must provide the physician with those powers of observation which make the examination of the eye an indispensable part of the general physical examination and evaluation. Changes in the eye accompany a great variety of physiologic and pathologic changes of all organ systems. Some of these have highly specific diagnostic value and become powerful tools for the internist.

The teaching of Ophthalmology is interdisciplinary and must take place at each step of the medical curriculum, beginning with the basic sciences. The technique of ophthalmology is taught during the course in Introduction to Medicine. Small group conferences and teaching at the bedside on the wards of Medicine and Pediatrics continue throughout the third and fourth years.

An elective is provided for those students who wish to acquire more clinical or research experience.

The department has well-equipped clinical and surgical facilities which provide for all the recognized subspecialty activities of Ophthalmology. A unique patient population makes clinical research possible in a wide variety of areas. Laboratory research capability currently centers about the facilities of the Missouri Lions Eye Tissue Bank and the laboratory of protein chemistry.

OPHTHALMOLOGY, SECOND YEAR. Students are taught the principles of ophthalmology as a part of the Introduction to Medicine course.

OPHTHALMOLOGY, THIRD AND FOURTH YEARS. The ocular signs of systemic disease are taught to students as they rotate through the services of Medicine, Child Health (Pediatrics), and Neurology.

OPHTHALMOLOGY ELECTIVE—SENIOR STUDENTS—8 WEEKS. Senior students who choose this elective are assigned to the service as junior residents, so that they may take part in all clinical and teaching functions of the Department.

GRADUATE PROGRAMS

The department is approved for a three-year residency. Clinical and research fellowships are available for a fourth year of training. Postdoctoral fellowships and graduate assistantships for candidates for advanced degrees are made possible through collaboration with the Department of Biochemistry.

DEPARTMENT OF PATHOLOGY

The Department of Pathology is responsible for teaching general pathology, systemic pathology, and clinical pathology. General pathology involves the basic mechanisms of disease, including such

things as inflammation and repair, infectious disease, and neoplasia. The study of organ systems, in which the diseases of each body system are systematically covered, is the subject of systemic pathology. In clinical pathology, the application of clinical laboratory medicine to the assessment of human disease is studied.

In teaching undergraduate pathology, considerable emphasis is devoted to integrating the subject matter with what the student learns in anatomy, biochemistry, physiology, and clinical medicine. In general, this is achieved by teaching via the case method. Cases are studied in conjunction with several other courses during the second semester.

210M GENERAL AND CLINICAL PATHOLOGY, SECOND YEAR (8). Prerequisite: first year Medical School or equivalent. f.

212M SYSTEMIC AND CLINICAL PATHOLOGY, SECOND YEAR (8). Open only to medical students. Prerequisite: 210M or equivalent. w.

310 GENERAL PATHOLOGY (5). Prerequisites: Biochemistry 206, Physiology 250, Anatomy 301, 302, 304, 305 & instructor's consent. f.

311 GENERAL PATHOLOGY LABORATORY (3). Prerequisites: Biochemistry 206, Physiology 250, Anatomy 301, 302, 304, 305, or the equivalents, & instructor's consent. f.

312 ADVANCED PATHOLOGY (5). Prerequisites: 310 & 311 or its equivalent & instructor's consent. w.

313 ADVANCED PATHOLOGY LABORATORY (3). Prerequisites: 310 & 311 or its equivalent & instructor's consent. w.

404 ADVANCED PATHOLOGY (cr. arr.) Prerequisite: instructor's consent.

430 COMPARATIVE PATHOLOGY (3) (same as Plant Pathology 430, Veterinary Pathology 430).

491 RESEARCH (cr. arr.) Open only to properly qualified graduate students. (Background of advanced chemistry and mathematics required.) Prerequisite: instructor's consent.

PATHOLOGY ELECTIVE (10). Any medical student in the elective period may make special arrangements with the department to do research on a subject of interest.

GRADUATE PROGRAMS

Advanced Degree. The Department of Pathology offers graduate programs leading to the M.S. in Pathology and the Ph.D. degree in the area of Pathology. The research interests of the faculty include morphology of immune processes, cyto-

genetics of the X chromosome, studies on the cellular and molecular basis of disease, computer disease patterns, biochemical changes in early cell injury, and structure and biogenesis of membranes.

Postgraduate Medical (Residency).

The graduate instruction program is divided primarily between training in clinical pathology and training in anatomical pathology. The latter includes autopsy examinations, the surgical specimens and exfoliative cytological material. In addition, residents are given training in administration. They also help in the teaching of medical students and students enrolled in the medical technology curriculum. The training in clinical pathology is complete since the department supervises the central clinical pathology laboratory. The main theme in the training is for residents to learn the medical and technological aspects of the practice of clinical laboratory medicine.

DEPARTMENT OF PHARMACOLOGY

The Department of Pharmacology is housed on the fifth floor of the Medical Sciences Building. Research laboratories and department offices are located in this area.

A course in pharmacology is included in the medical student's schedule during the fourth semester. The purpose of the course is to provide a background in pharmacology sufficient to prepare the student for transition to the clinical years of medical study or advanced study in the Graduate School. Special emphasis is placed on actions, mechanisms of action, therapeutic uses and toxicological manifestations of selected drugs from the major groups of therapeutic compounds.

The objective of instruction in Medical Pharmacology is to produce physicians who will use drugs intelligently for the benefit of their patients. The course in Medical Pharmacology is not one in practical therapeutics with primary emphasis on drug therapy in clinical medicine, since the student is not yet experienced in the clinical sciences. How-

ever, instruction in the relevance of the mechanism of action of drugs to treatment of specific clinical problems will be emphasized whenever possible.

The Department of Pharmacology is beginning a new period of growth and development; future plans include provisions for additional instruction in pharmacodynamics and clinical pharmacology for senior medical students and house staff. In addition to these programs, various courses in advanced pharmacology are offered for graduate credit and as electives to medical students. The department encourages medical students to undertake advanced work and research in pharmacology and to consider simultaneous study toward a master's or doctoral degree.

Current research in the department includes studies on effects of drugs on biomembranes, molecular pharmacology of renal plasma membranes, hormone-receptor interactions, biochemical studies of the action of coumarin anticoagulants, binding of drugs (anticoagulants) to plasma proteins, toxicology of organotins, drug transport by bile and liver, drug metabolism and distribution, regulation of hepatic lipid metabolism and control of plasma lipid and lipoproteins by hypolipidemic agents.

GRADUATE PROGRAMS

The department offers graduate programs leading to the Master of Science and the Doctor of Philosophy degrees.

204 ELEMENTS OF PHARMACOLOGY (2). Prerequisite: Physiology 201 or equivalent. f.

320 PHARMACOLOGY (8). Prerequisites: 5 hours biochemistry & Physiology 305 or equivalent. w.

334 HISTORY OF PHARMACOLOGY (1). Prerequisite: 320 or equivalent. w.

400 PROBLEMS (cr. arr.)

410 PROBLEMS (cr. arr.)

410 SEMINAR (1). f,w.

420 PHARMACOLOGICAL METHODS (2). Prerequisite: 320 or equivalent. alt. f. even yrs.

427 FATE OF DRUGS IN THE ANIMAL BODY (2). (same as Veterinary Anatomy-Physiology 427). Prerequisites: 10 hours physiology, 5 hours pharmacology & 5 hours biochemistry. alt. w. odd yrs.

431 EFFECTS OF DRUGS ON ENZYMES (1). Prerequisite: 320 or equivalent. alt. f. odd yrs.

434 PHARMACODYNAMICS OF AUTONOMIC DRUGS (2). Prerequisite: 320 or equivalent. alt. f. odd yrs.

436 PHARMACODYNAMICS OF CARDIOVASCULAR DRUGS (1). Prerequisite: 320 or equivalent. alt. f. odd yrs.

438 PHARMACODYNAMICS OF BEHAVIOR DRUGS (2). Prerequisite: 320 or equivalent. alt. f. odd yrs.

450 RESEARCH (cr. arr.)

490 RESEARCH (cr. arr.)

DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION

Conventional and curative medical resources, while essential to Physical Medicine and Rehabilitation, are not sufficient for the management of those disease processes which result in loss or defect in normal human function such as mobility, self care, and communication skills as such defects limit personal, social, recreational, and economic activities. The patients' needs may be so broad that, in addition to applying specialized clinical medical skills, the program in Physical Medicine and Rehabilitation must incorporate the contributions of many medical, medically related, and behavioral sciences in the restorative process.

Educational programs in the department include:

1. medical students' clinical clerkship;
2. residency training program;
3. physical therapy curriculum;
4. occupational therapy curriculum;
5. clinical training in other allied health programs;
6. non-degree programs in prosthetic and orthotic training leading to certification;
7. continuing education for the health professions.

Medical students are offered a four-week supervised clinical experience during their fourth year. A three-year residency training program leading to Board eligibility is currently provided for two residents a year.

A Bachelor of Science degree is offered in both the Physical Therapy curriculum and the Occupational Therapy curricu-

lum. About 30 students are accepted in each class in Physical Therapy, and 25 in the Occupational Therapy program. A basic master's degree is also offered in occupational therapy. For further details concerning the curricula refer to the Contents for page numbers of these areas.

Also within the department, clinical training is offered in social work, vocational rehabilitation counseling, recreation therapy, speech pathology, audiology, and rehabilitation nursing. Recently enlarged clinical facilities for all training programs are available in the Medical Center and the adjacent Rusk Rehabilitation Center.

The department is comprised of a unique pattern of elements drawn from several scientific and medical disciplines; thus, research opportunities are quite varied. Scientific studies include:

1. the structural and functional characteristics of the human organism in relation to mobility, self-care and other normal human activities;
2. the physiological and biochemical responses of tissues, organs, and body systems to external physical sources of energy and to internal energy production in exercise, which enhance and aid the healing process and the restoration of useful function;
3. pathology of the neuromusculoskeletal system and the physiologic disturbances produced thereby;
4. electrophysiology as applied to the diagnosis of neuromuscular disease and measurement of impaired function; and
5. the compensatory mechanisms, including the prescribed use of drugs and exercise, artificial limbs, etc., and the behavioral sciences (psychopathology, motivation, and learning) in relation to, adjustment to, and compensation for lost or impaired mental, social, or vocational abilities associated with physical disability.

PHYSICAL MEDICINE AND REHABILITATION (5). Each medical student is provided a four-week clinical clerkship to develop an overall concept of restorative care and the principles of rehabilitation. Experience is gained in working with the allied health professions in the delivery of comprehensive health care.

RESEARCH IN PHYSICAL MEDICINE AND REHABILITATION (10). Original research requiring formal research report.

CLINICAL FELLOWSHIP IN PHYSICAL MEDICINE AND REHABILITATION (10). Eight-week experience in the clinical practice of Rehabilitation

Medicine for selected students. Prerequisite: clinical clerkship in Physical Medicine & Rehabilitation.

210-211 FUNDAMENTALS OF APPLIED CLINICAL PATHOPHYSIOLOGY (3 hrs. each). Courses use self-instruction techniques, lectures, and small group discussions. Covers fundamentals of pathophysiology and clinical medicine of the different body systems. For physical and occupational therapy students.

DEPARTMENT OF PHYSIOLOGY

The Department of Physiology has the responsibility of teaching the physiological sciences to undergraduate, medical and graduate students. Medical physiology is offered in the second semester of the medical student's curriculum.

Major research interests of the faculty include myocardial metabolism in coronary insufficiency, renal physiology, the influence of hormones on electrolyte balance, the role of the adrenal cortex and kidney in heart failure and hypertension, the control of the metabolism of the hypoxic heart, hibernation and other forms of depressed metabolism, the general mechanism of radiation damage, mechanisms involved in enzyme induction, intestinal transport mechanisms in vertebrates, ion transport in smooth muscle, microcirculation, and synaptic transmission in the central nervous system.

GRADUATE PROGRAMS

The Department of Physiology offers graduate programs leading to the Master of Arts and the Doctor of Philosophy degrees. The department also offers a survey course in human physiology for students in the College of Arts and Science and other interested students.

201 ELEMENTS OF PHYSIOLOGY (5). Prerequisite: 5 hours general zoology or equivalent.

208 HUMAN PHYSIOLOGY (4). Course primarily for nurses. Prerequisites: 201 & Anatomy 201 or equivalents & department chairman's consent.

250 MEDICAL PHYSIOLOGY (8). Medical students only. w.

303 PHYSIOLOGY OF ENVIRONMENTAL STRESS (2). Prerequisites: 201, 5 hours chemistry & 5 hours physics or equivalents. w.

305 MAMMALIAN PHYSIOLOGY (6-10). Prerequisite: instructor's consent. w.

335 SYSTEMS ANALYSIS OF PHYSIOLOGICAL PROCESSES (3). Prerequisite: 201 or an equivalent college-level biology course.

400 PROBLEMS (cr. arr.)

410 SEMINAR (1). f,w.

418 ADVANCED MAMMALIAN PHYSIOLOGY (3). Prerequisite: instructor's consent. w.

421 ANIMAL CRYOPHYSIOLOGY (2). Prerequisites: courses in biophysics, physiology, & zoology.

422 COMPARATIVE VERTEBRATE PHYSIOLOGY (2). Prerequisites: one course in physiology, organic chemistry, physics, comparative anatomy. alt. f. even yrs.

430 CARDIOVASCULAR PHYSIOLOGY (2). Prerequisites: 305 or Veterinary Anatomy-Physiology 220V & Veterinary Anatomy-Physiology 221V or equivalent. alt. f. odd yrs.

439 RENAL PHYSIOLOGY (2). Prerequisites: 305, Veterinary Anatomy-Physiology 220V & Veterinary Anatomy-Physiology 221V or equivalent. alt. f. even yrs.

445 MICROCIRCULATORY CONTROL MECHANISMS (2). Prerequisite: 305 or Veterinary Anatomy-Physiology 420, or Biological Sciences 270. alt. w. even yrs.

450 RESEARCH (cr. arr.)

490 RESEARCH (cr. arr.) f,w,s.

DEPARTMENT OF PSYCHIATRY

Psychiatry and the basic behavioral sciences are taught in all four years of the medical course. Members of the Department of Psychiatry participate actively in planning and teaching the first-year course in Human Ecology and Behavioral Science and the second-year course in Introduction to Medicine. The educational objectives of the psychiatry faculty, both in those courses taught independently and in those taught in cooperation with other departments, are to develop the students' understanding of the biology of human adaptation and the behavioral components which are an integral part of medical science and medical practice; to develop their awareness of the role of emotional factors in human health and illness, and the relationship between physician and patient; to develop their skill in using communication as a preventive, diagnostic, and therapeutic tech-

nique; and to develop their abilities to practice comprehensive medical care.

All members of the staff participate in both educational and clinical activities. Research interests of the department are broad, but tend to center about the interrelationships between psychiatric disorder and the social environment, psychobiology, and various aspects of child development. In both research and teaching activities—as well as in clinical activities—close cooperation is maintained with other departments of the School of Medicine and UMC, and with appropriate community and State agencies and divisions.

PSYCHIATRY, THIRD AND FOURTH YEARS (CLINICAL CLERKSHIP) (10). Experience in the clinical study and care of psychiatrically disordered adults and children. Under supervision, students participate with increasing responsibility in selected activities of the psychiatric inpatient, outpatient, and liaison and consultative services, including work in other departments of the hospital and in affiliated public mental hospitals and community mental health agencies. Students have the opportunity to plan a portion of the clerkship core program in accordance with their own interests. Eight weeks full time during the third or fourth year; required of all medical students.

PSYCHIATRY ELECTIVE (THIRD AND FOURTH YEARS) (10). Special work in Department of Psychiatry on a subject of the student's choice, during the elective and free periods in the junior or senior year. Such work may include experience in additional clinical clerkship service, or preceptorship under practicing psychiatrists in psychiatric hospitals or clinics or community mental health services, or laboratory or clinical research, or a combination of these. Joint programs with other clinical or basic science departments can be arranged. Open to all students in third and fourth years. Subject to approval of department chairman and staff members who will supervise student's work.

GRADUATE PROGRAM

An approved four-year residency program provides training in all requisite phases of psychiatry necessary to produce competent specialists. Supervised clinical experience with children and adults; seminars in the basic medical and behavioral sciences; training and participation in research activities and exposure to internal medicine, family practice, and child health are included. A particular emphasis in this department is on the sociocultural, community, and public

health aspects of psychiatry, taught in cooperation with other departments of the School of Medicine and UMC, and with appropriate community and State agencies and divisions.

The curriculum provides the resident with in-depth supervised experience, graduated responsibility in the second and third years, and a project-oriented, elective fourth year. Residents may enter the program at any level, with starting dates of July 1 or January 1.

The department also offers an approved two-year residency training program in child psychiatry, available after completion of three years of approved prior residency in general psychiatry. Child Psychiatry is a section of the Department of Psychiatry and shares the same eclectic approach to education and patient care.

Advanced training is available to students in other academic disciplines, including anthropology, biochemistry, internal medicine, obstetrics, pediatrics, physiology, pharmacology, preventive medicine, public health, psychology, social work, and sociology, as well as for practitioners of general and family medicine.

DEPARTMENT OF RADIOLOGY

Radiology, a medical specialty deeply rooted in the physical and biological sciences, contributes strongly to undergraduate medical education because it provides additional perspectives into subject matter taught in each of the four years of the medical school curriculum. The Department of Radiology comprises three major clinical activities and a fourth section dedicated to teaching and research.

1. Radiologic Diagnosis. Radiography, fluoroscopy, cineradiography, ultrasound, thermography, and computerized axial tomography are used to visualize normal and abnormal structure and function. Through interpretation of such examinations the radiologist provides essential diagnostic and clinical information for patient care. In teaching, the radiologist augments the more tradi-

tional techniques employed by the anatomist, physiologist, and pathologist for displaying normal and diseased structure and function. A unique aspect of the radiological method is that it permits structure and function to be demonstrated in the living subject.

2. Radiation Oncology. This is a clinical service concerned primarily with the science of cancer management, using radiation. The section is equipped with a modern 700 Curie Telecobalt machine, 2 MEV Van de Graaff, 280 K.V.P. machine, and 120 K.V.P. machine. Radium needles and tubes as well as Strontium 90 Plaque are available. Computer facility within the section is a recent addition which is intended to cover the section's needs for treatment planning, as well as storage and retrieval of patient information. In almost every case, the management of cancer patients depends on mutual discussion between the radiation oncology service and other concerned services. Tumor conferences are a major feature of this multidisciplinary approach to the management of malignant diseases. The radiation oncologist is an essential member of the team in such conferences which play a major role in teaching as well as in reaching therapeutic decisions.

3. Nuclear Medicine. The clinical use of radioisotopes for diagnosis, therapy, and investigation is the concern of nuclear medicine. As tracers, radionuclides permit determining anatomic sites of localization and deposition, spaces and volumes, metabolic rate and turnover, and flow and circulation. Particularly significant diagnostic applications are rapidly evolving which entail *in vitro* scanning of patients to delineate organs, lesions, and tumors and for the evaluation of their functional characteristics, giving rise to the development of specific radiopharmaceuticals. Higher activities of radionuclides are administered to patients as internal sources of radiation for the treatment of hyperactive organs and systems, neoplasms, and metastases. Radioimmunoassay techniques permit rapid, accurate measurement of minute quanti-

ties of a variety of substances ranging from thyroid hormones to digitalis.

4. Radiological Sciences. Teaching activities of this section include instruction of resident physicians in radiology, as well as more formal courses presented by the staff in the School of Medicine, the College of Arts and Science, and the Graduate School. The staff provides basic science support for the clinical sections and is engaged in research in a variety of physical, chemical, and biological systems.

GRADUATE PROGRAM

The Department of Radiology offers graduate training in radiology directed toward providing (1) comprehensive training in clinical radiology, including special procedures; (2) opportunities for research; and (3) opportunities for experience in teaching. A prime goal for the departmental training program is to continue to attract highly competent medical graduates who have an interest in investigation and teaching and who are motivated to pursue academic careers in radiology.

Training in general radiology, radiation therapy, or diagnostic radiology requires four years for eligibility to be certified by the American Board of Radiology. These four years of training include three years in an approved training program in radiology, plus a year of internship or a year in another specialty or an additional year of radiology. A fifth year of training, tailored to meet special needs and desires, can be arranged on an individual basis.

Neuroradiology. Three months of training in neuroradiology are provided to all residents in Radiology. Additional study in this subspecialty can be arranged.

Special Procedures. Practical experience in a wide range of special procedures is provided to each resident for three months.

Nuclear Medicine. In the course of a three-month rotation, the general radiology resident participates in the on-

going clinical activities of the Nuclear Medicine Section. More intensive and advanced preparation is offered to qualified residents taking a one- or two-year residency program in Nuclear Medicine designed to meet specialty board requirements. Also, graduate programs of study and research leading to higher degrees in Nuclear Medicine are offered to qualified students, in cooperation with the Division of Biological Sciences, and the Chemistry and Physics departments.

The Tumor Registry. The Tumor Registry provides a repository of retrievable records with pertinent information on diagnosis, treatment, and follow-up for cancer patients. The Registry provides comprehensive and reliable statistics relating to cancer and cancer management in upgrading patient care, teaching purposes, and research projects.

Mid-America Bone Diagnostic Center and Registry. In 1971, the American College of Radiology appointed the University of Missouri-Columbia Department of Radiology as one of three bone tumor registries in this country. The Department of Radiology now has the Mid-America Bone Tumor Diagnostic Center and Bone Tumor Registry, which is designed to give free diagnostic consultation service to physicians regarding bone radiographs and cases. These cases are compiled in the registry, and the patients are followed on a long-term basis to provide data relative to diagnosis, treatment, and survival. These data are retrievable for study of disease entities, for research projects in bone disease, and for conferences presented throughout the year.

Computer Research. Clinical radiologists work in cooperation with members of several other departments, including Electrical and Industrial Engineering, Computer Science, Space Science, and Economics to investigate, demonstrate, and evaluate a broad range of computer applications in radiology. Areas of interest receiving intensive effort at present include the following:

1. an on-line computer system for recording X-ray consultations;
2. an on-line storage and retrieval system for medical information;
3. computer aided diagnosis;
4. analysis of the diagnostic content of radiant images; and
5. completely automated "interpretation" of digitized radiant images.

The program provides opportunities for radiologists at all levels of training to become active in this important field of research, which has received substantial funding from the USPHS.

DEPARTMENT OF SURGERY

The Department of Surgery consists of a faculty and supporting staff dedicated to the teaching of surgery through the mechanism of providing superior care for surgical patients and to the generation of new basic and clinical information about surgical problems. The surgical discipline offers a learner the opportunity to utilize basic skills to formulate a thesis of patient management and then, frequently, to test the thesis in the operating suite or on the wards. The Department emphasizes close personal interactions between learners and instructors.

The professional components of the Department are staffed by full-time board-certified specialists and include the divisions of: Cardio-Thoracic Surgery; General Surgery; Neurological Surgery; Orthopedic Surgery; Otolaryngological Surgery; Plastic Surgery; and Urologic Surgery. Surgical patients and activities are interfaced with all functions of the Medical Center, e.g., child health, medicine, obstetrics and gynecology, nuclear medicine, radiology, laboratories, etc., so that intra- and inter-departmental interchanges are common. Each division offers clinical and laboratory experiences to students. The surgical clinics and wards, special diagnostic units, operating rooms, recovery rooms, and intensive care units offer the surgical student an opportunity to participate in the diagnosis and management of surgical disorders.

Members of the surgical faculty are engaged in a wide variety of clinical and

laboratory research projects. Students are encouraged to participate in these programs during their free and elective time and to develop research interests of their own as well.

SURGERY CLERKSHIP. Two periods of time are allotted to the Department of Surgery during the junior and senior years. Although the required clerkship is completed during these two periods, additional surgical experience may be obtained during the student's elective and/or free time.

JUNIOR SURGERY (10). Students spend the entire time on General Surgery. Although the student is exposed to the entire spectrum of general surgery, emphasis is placed upon surgical physiology and anatomy and upon the principles of diagnosis and treating common surgical disorders. Students are an integral part of the surgical team and participate in the preoperative examination and evaluation of the patients, assist in the surgical procedures, and aid in the postoperative management. Teaching rounds are supplemented by lectures, seminars, and conferences.

SENIOR SURGERY (10). Students spend one week in the Emergency Department and then elect to spend three weeks on one of the surgical specialties of Cardio-Thoracic Surgery, Neurological Surgery, Otolaryngology, Orthopedic Surgery, Plastic Surgery or Urologic Surgery and four weeks on another. The student assumes junior house officer responsibilities while on each service and is expected to function as a member of that surgical team. Clinical responsibilities are increased in proportion to the student's knowledge and ability. Lectures, seminars, and conferences are held in addition to the teaching rounds.

SURGICAL ELECTIVES (10). Each of the surgical divisions offers electives in clinical and investigational surgery. These electives offer the student an opportunity to obtain an in-depth experience with very close supervision.

GRADUATE PROGRAMS

Each division of surgery has an established, approved resident training program. Residents may be admitted into the Plastic Surgery training program after 3 or 4 years of General Surgery residency and into the Cardio-Thoracic training program after completion of a General Surgery residency. Residents advance into the other surgical training programs after completing a one- to two-year period designed to enhance their knowledge of surgical physiology and basic surgical skills. Twelve first-year surgical residents are accepted each year. The residency training programs are tailored according to the resident's desires within the guidelines established by the respective residency boards, and each resident is encouraged to spend additional time in laboratory investigation and clinical fellowships.

OTHER PROGRAMS

SCHOOL OF NURSING

The School of Nursing, which had been under the direction of the School of Medicine, became autonomous on September 1, 1973.

The School now offers an undergraduate program leading to a B.S. in Nursing, a graduate program leading to an M.S. in Nursing, and programs of continuing education in nursing. Both academic programs are approved for full accreditation by the National League for Nursing.

The undergraduate curriculum is composed of selected general and professional courses. It requires enrollment for a minimum of three academic years for students who have completed specific pre-nursing courses. The program may be shortened for the graduate of a diploma

or associate degree program in nursing who achieves successfully on advanced credit examinations in nursing.

The graduate program leading to a Master of Science degree in Nursing is designed to prepare qualified nurses to function in an expanded health care role in a variety of health care settings. Functional preparation in teaching, management, and clinical research are available. The program entails approximately four semesters of course work and includes investigation of a nursing problem.

The continuing education program of the School provides opportunity for professional nurses to increase their knowledge and skills in the practice of nursing. Expanding professional data, changing responsibilities, and measuring

social demands for demonstrated quality in nursing performance influence the content and delivery of the program. The expertise of the School's faculty, with selected adjunct instructors, is available for the various short courses and conferences of the program.

For additional information about the programs of the School, see the *School of Nursing Bulletin*.

NUTRITION/DIETETICS

The College of Home Economics, in conjunction with the Department of Nutrition and Dietetics at the UMC Medical Center, offers three baccalaureate dietetic programs. Two of these programs are specialized coordinated undergraduate dietetic programs, Medical Dietetics and Food Systems Management. Students are accepted into these programs at the end of four semesters at an accredited college or university. Clinical experience is coordinated with the didactic component of the curriculum, so that after four academic years (plus one summer of eight weeks for Medical Dietetics) the student will have earned a bachelor's degree and fulfilled the requirements of the American Dietetic Association for membership.

The third option is a general program in which the student earns a B.S. degree from UMC, fulfilling certain undergraduate requirements specified by the American Dietetic Association. In the general program, equal emphasis is placed on clinical dietetics and food systems management. After receiving the B.S. degree, the student then enters an approved internship in a hospital or food service organization. This type of internship is not available at the UMC Medical Center.

Graduate programs include majors at the master's and doctoral levels in Human Nutrition, Clinical Nutrition, Nutrition Education, Food Systems Management, and various combinations. The facilities of the College of Home Economics and the Department of Nutrition and Dietetics

at the Medical Center are jointly available for training and research in these areas.

For a brochure on programs write to the College of Home Economics, UMC, or to the Department of Nutrition and Dietetics, Medical Center.

ALLIED HEALTH PROFESSIONS

The School of Medicine in cooperation with the College of Education offers programs in the Allied Health fields described below. The curriculum for each field is designed to prepare the individual to meet the clinical, teaching, and/or administrative responsibilities usually assigned to those who have attained the baccalaureate degree. All curricula meet the standards of the major professional organization concerned with the training of specialists in the field.

Admission. Enrollment in the various Allied Health curricula is limited. Students may be admitted to the University and to the College of Education for pre-professional work, but must make formal application for the professional phase of each program. Transfer students must correspond with a representative of the appropriate program to determine eligibility for that program. Eligible students may then complete application to UMC and enroll in the College of Education. Out of necessity, first priority for admission must go to qualified Missouri residents.

In addition to the student's academic record, attributes such as personality, motivation, attitude, interest, commitment, and knowledge of the profession are considered in selecting students for the professional phase of the programs.

Curricular Requirements. The curricular requirements for all programs include the following:

1. the General Education requirements of the College of Education as outlined in the College of Education Bulletin;
2. the pre-professional prerequisites of the individual program (these vary by program, particularly in the science area);
3. the course work required in the major professional area; and

4. twelve semester hours of course work in Professional Education selected in consultation with the adviser.

Prerequisites. There are specific and definite prerequisite courses for each program. These prerequisites, for the most part, must be met in order for the student to be considered for admission to the program. Students should contact the Program Director or Academic Adviser for information regarding prerequisites and for assistance in planning their program to facilitate mobility into the curriculum of their choice.

Residence Requirements. In order to qualify for a bachelor's degree in any of the Allied Health Sciences, students must spend at least the senior year enrolled at UMC. Students entering with advanced standing must complete a minimum of three courses in Professional Education, including Supervised Teaching Practicum, and at least six semester hours in the major field of specialization at UMC.

Information regarding each program may be obtained by writing: Office of the Dean, College of Education, UMC, Columbia, Mo. 65201, or by contacting the director at the address shown under each of the following programs.

MEDICAL TECHNOLOGY

Medical Technologists are health professionals who are responsible for many routine and specialized tests in the clinical laboratory for the purpose of developing data which may be utilized by a qualified physician for the determination of the presence and extent of disease, as well as implications pertaining to the cause of disease. The myriad of tests and procedures performed or supervised by the medical technologist in the clinical laboratory includes the major areas of hematology, immunology, chemistry, blood banking, microbiology, mycology, parasitology, and urinalysis.

Cytotechnologists are health professionals trained in special laboratory techniques for detecting body cell changes which are particularly important in the early detection of cancer.

To be eligible for the Bachelor of Science in Medical Technology or the Bachelor of Science in Medical Technology with emphasis in Cytotechnology, students must complete the requirements of the College of Education and those of the National Accrediting Agency for Clinical Laboratory Sciences.

The last calendar year of the program is spent in rotation through the laboratories within the Department of Pathology, School of Medicine. Students attend regular lectures and demonstrations presented by the Pathology teaching staff and are under their direct supervision. Graduates are eligible for examination and certification by the Board of Registry of the American Society of Clinical Pathologists (ASCP).

Because of limited enrollment, students must correspond with the Program Adviser regarding procedures for admission. Admission to the University does not constitute admission to the Medical Technology Curriculum.

Additional information, including a list of course requirements, may be obtained by writing: Academic Adviser, Medical Technology Curriculum, Department of Pathology, UMC, Columbia, Mo. 65201.

OCCUPATIONAL THERAPY

Occupational Therapists are health professionals concerned with alleviating physical or emotional problems, modifying functional ability, and encouraging health adaptations as measured by the skills of daily living, play, recreation, and work. Through these activities, selected for their therapeutic value, the Occupational Therapist calls for a response from the individual which alters or influences the physical or emotional condition, tests and evaluates capacity for employment, and broadens independent living ability and social well-being.

To be eligible for the Bachelor of Science in Occupational Therapy, students must complete the requirements of the College of Education and those outlined by the American Medical Associa-

tion and the American Occupational Therapy Association.

In conjunction with the Department of Higher and Adult Education of the College of Education, a program leading to a basic master's degree in Education with emphasis on Occupational Therapy is offered. Students seeking admission to this program must have a bachelor's degree in an area other than Occupational Therapy.

Because of limited enrollment, admission to UMC does not constitute admission to the Occupational Therapy Curriculum. Students qualifying to enter are selected in December of each year. Students must apply, by letter, for admission to the Occupational Therapy Curriculum by November of each year. Those selected for the program begin work in the summer immediately following the sophomore year.

All students spend at least three semesters and one summer session on the Columbia campus; much of the time consists of professional classes and clinical experiences. The student evaluates and treats patients at the UMC Medical Center and at other hospitals and rehabilitation facilities in Missouri. This clinical experience, under the supervision of a qualified therapist, is necessary before the student is fully qualified to practice Occupational Therapy.

Additional information, including a list of course requirements, may be obtained by writing: Director, Occupational Therapy Curriculum, Rusk Rehabilitation Center, UMC, Columbia, Mo. 65201.

PHYSICAL THERAPY

Physical therapists are health professionals who evaluate and treat people disabled or handicapped as the result of disease or injury, such as arthritis, birth defects—cerebral palsy and spina bifida, amputations, strokes, fractures, spinal cord injuries, respiratory disorders, or many other abnormal conditions of bones, muscles, joints, and other body systems. The physical therapist uses the therapeutic properties of exercise and physical



agents in the treatment of all age groups, and instructs patients in self-care activities and in the use of braces, crutches, artificial limbs, and wheel chairs.

To be eligible for the Bachelor of Science in Physical Therapy, students must complete the requirements of the College of Education and those of the American Medical Association and the American Physical Therapy Association. No certificate program or graduate program is offered in Physical Therapy.

Because of limited enrollment, admission to UMC does not constitute admission to the Physical Therapy program. Application forms for the professional phase of the program may be obtained from the Physical Therapy Curriculum Office during the month of October. Students selected for the program begin work in the summer immediately following the sophomore year.

The last two years of the curriculum consist of professional classes, laboratory experiences, independent study, clinical education, and professional education courses. Most of the full-time clinical education is obtained during the second semester of the senior year, although the student is introduced to patient care from the very beginning of the program. During clinical education, the student

evaluates and treats patients at various hospitals, clinics, and rehabilitation centers. This experience, under the supervision of a qualified therapist, is necessary before the student is fully qualified to practice Physical Therapy.

Additional information, including a list of required courses, may be obtained by writing: Director, Physical Therapy Curriculum, Rusk Rehabilitation Center, UMC, Columbia, Mo. 65201.

RADIOLOGIC TECHNOLOGY

Radiologic technologists are health professionals who work closely with physicians specializing in the use of X-ray and radioisotopes in patient diagnosis and treatment. They are responsible for operating equipment, for positioning and preparing patients for X-rays, for keeping patient records, and for taking X-ray films of internal parts of the body. The Radiologic Technologist must be capable of keeping delicate and complicated equipment in working order and must often deal with patients who are under stress. Radioactive substances involved with the use of the X-ray and patient treatment are potentially dangerous, requiring a high degree of specialized knowledge and expertise in the performance of professional tasks.

To be eligible for the Bachelor of Science in Radiologic Technology, the student must complete the requirements of the College of Education and the American Registry of Radiologic Technologists. (Certification is granted by the American Registry of Radiologic Technologists upon successful completion of examination.)

The baccalaureate program is a specialized one, concentrating upon the completion of formal training of individuals as instructors. To that end, students with background training and/or experiences in radiologic technology are the most appropriate applicants. Because of limited enrollment, applicants must correspond with the Director of the program to determine qualification for admission. Students are selected during

the summer following their freshman year and enter the program in January. Admission to UMC does not constitute admission to the professional phase of the program.

A 24-month hospital-based program leading to certification only is offered through the Department of Radiology, School of Medicine.

Further information concerning these programs may be obtained by writing: Director, Radiologic Technology Curriculum, Department of Radiology, UMC, Columbia, Mo. 65201.

RESPIRATORY THERAPY

Respiratory therapists are health professionals who specialize in the treatment, diagnostic evaluation, and care of patients with deficiencies and abnormalities associated with the cardio-pulmonary system. This involves the therapeutic use of medical gases, and administration apparatus, environmental control systems, humidification, aerosols, medications, ventilatory support, rehabilitation, the assistance with cardiopulmonary resuscitation, and maintenance of natural, artificial, and mechanical airways. Specific testing techniques are employed in respiratory therapy to assist in diagnosis, monitoring, treatment, and research. These activities include measurement of ventilatory volumes, pressure, flows, blood gas analysis, and other related physiologic monitorings.

To be eligible for the Bachelor of Science in Respiratory Therapy, the student must complete the requirements of the College of Education and the American Medical Association's Council on Medical Education Joint Review Committee for Respiratory Therapy Education.

This program is a specialized one, concentrating on the completion of formal therapy training, and the qualification of the individuals as instructors of therapy. *No other professional options, such as departmental administration or clinical specializations, are offered.* To that end, the program is essentially a transfer one, accepting at the junior level individuals

with backgrounds in natural science and either work experience or some training in respiratory therapy. It is not designed as an initial level certificate program.

Students seeking admission to the Respiratory Therapy Curriculum must correspond with the Director of the program regarding procedures. Admission to UMC does not constitute admission to the curriculum.

Further information, including a list of course requirements, may be obtained by writing: Director, Respiratory Therapy Curriculum, UMC, 302 Clark Hall, Columbia, Mo. 65201.

ADMINISTRATIVE FACULTY

Joseph M. White, Provost for Health Affairs; Prof. of Anesthesiology. M.D. 1947, Texas Southwestern Medical School at Dallas

Charles C. Lobeck, Dean, School of Medicine; Prof. of Child Health. M.D. 1952, Rochester

Brent M. Parker, Assoc. Dean; Chief of Staff; Prof. of Medicine. M.D. 1952, Washington (St. Louis)

Herbert S. Goldberg, Assoc. Dean; Prof. of Microbiology. Ph.D. 1953, Ohio State

Thomas S. Culley, Assoc. Dean, Veterans Affairs; Assoc. Prof. of Surgery (Orthopedics). M.D. 1953, Vanderbilt

Jerry A. Royer, Assoc. Dean, Student Affairs; Assoc. Prof. of Family & Community Medicine. M.D. 1967, Indiana

James D. Dexter, Asst. Dean, Admissions; Assoc. Prof. of Neurology. M.D. 1963, Missouri-Columbia

Joe S. Greathouse Jr., Director, University Hospital. M.H.A. 1957, Northwestern

SCHOOLS OF PHARMACY, DENTISTRY

The School of Pharmacy and The School of Dentistry are located at the University of Missouri-Kansas City. For information regarding curricula in these fields, write the Director of Admissions and Registrar, UMKC, 5100 Rockhill Rd., Kansas City, Mo. 64110.

Jack Horn, Administrator, University Hospital; Asst. Prof. of Health Services Management. M.B.A. 1967, George Washington

MEDICAL CENTER SUPPORTIVE SERVICES

Continuing Medical Education: William D. Bradshaw, M.D., Medical Director

Communications: Mary K. Yeagain, B.J., Director
Computer Center: Rod Price, Director

Educational Resources Group: Merlyn C. Herrick, Ed.D., Director

Information Science: Donald A. B. Lindberg, M.D., Director

Laboratory Animal Medicine: Richard C. Doyle, D.V.M., Director

Medical Library: Dean Schmidt, M.A., Associate Librarian

FACULTY AND STAFF

DEPARTMENT OF ANATOMY

C. Roland Leeson, Chairman; Prof.; M.D. 1959, Ph.D. 1971, Cambridge

J. Harry Cutts, Prof. Ph.D. 1958; Western Ontario

James A. Green, Prof. Ph.D. 1950, Illinois

Edward W. Lowrance, Prof. Ph.D. 1937, Stanford

Milton D. Overholser, Prof. Emeritus. Ph.D. 1928, M.C. 1931, New York

Herbert E. Brown, Assoc. Prof. Ph.D. 1955, Utah

John D. Decker, Assoc. Prof. Ph.D. 1965, New York Upstate

William R. Goadge, Assoc. Prof. Ph.D. 1957, Washington (Seattle)

Kaye H. Kilburn, Assoc. Prof. M.D. 1954, Utah

William J. Krause, Assoc. Prof. Ph.D. 1969, Missouri-Columbia

Barrie D. Smith, Assoc. Prof. Ph.D. 1962, Iowa

Gary B. Dunkerley, Asst. Prof. Ph.D. 1968, Texas (Medical Branch)

Neil Granader, Asst. Prof. Ph.D. 1976, Michigan

DEPARTMENT OF ANESTHESIOLOGY

G. W. N. Eggers Jr., Chairman; Prof. M.D. 1953, Texas

Kenneth K. Keown, Prof. M.D. 1941, Hahnemann
Hedayatollah Elyassi, Assoc. Prof. M.D. 1967, Tehran
Richard A. Rink, Assoc. Prof. M.D. 1941, Northwestern

James O. Alyea, Asst. Prof. M.D. 1954, Kansas

Alice F. Gambill, Asst. Prof. M.D. 1949, Oklahoma

E. Scott McCord, Asst. Prof. M.D. 1965, Missouri-Columbia

M. Frederica Godshalk, Asst. Prof. M.D. 1969, Maryland

Charles D. Gregorius, Instructor. M.D. 1973, Nebraska

Vishnudut Ramyeed, Instructor. M.B., Ch.B. 1970, Edinburgh

James F. Whitacre, Instructor; Supervisor of Respiratory Therapy. M.S. 1948, Rochester

Erna L. Lindahl, Instructor. B.S. 1975, Missouri-Columbia

William A. Markel, Instructor. B.S. 1971, Missouri-Columbia

Michael W. Prewitt, Instructor. B.S. 1976, Missouri-Columbia

Russell D. Sheldon, Clinical Assoc. Prof. M.D. 1949, Washington (St. Louis)

Bruce J. Gordon, Clinical Instructor. M.D. 1969, Northwestern
 Ira Hubbell, Clinical Instructor. M.D. 1963, Missouri-Columbia
 Joseph G. Kelly, Clinical Instructor. M.S. 1971, Missouri-Columbia

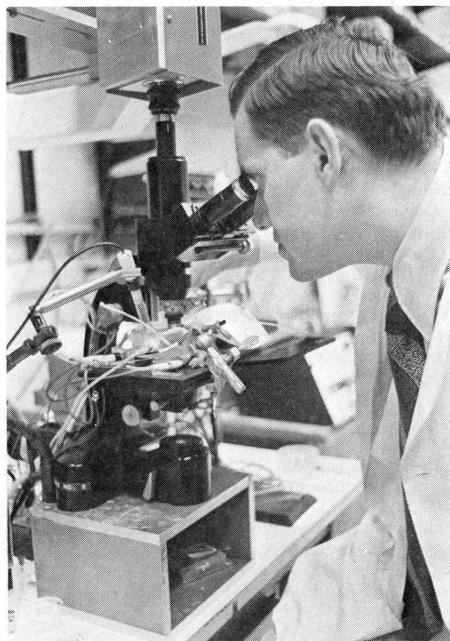
DEPARTMENT OF BIOCHEMISTRY

James L. Gaylor, Chairman; Prof. Ph.D. 1960, Wisconsin
 Benedict J. Campbell, Prof. Ph.D. 1957, Northwestern
 Milton S. Feather, Prof. Ph.D. 1962, Purdue
 Goerge B. Garner, Prof. Ph.D. 1957, Missouri-Columbia
 Charles W. Gehrke, Prof.; Manager Experimental Station Chemical Laboratories. Ph.D. 1947, Ohio State
 Owen J. Koeppe, Prof.; Provost for Academic Affairs. Ph.D. 1953, Illinois
 Thomas D. Luckey, Prof. Ph.D. 1946, Wisconsin
 Arlene P. Martin, Prof. (Biochemistry & Pathology). Ph.D. 1947, Rochester
 Dennis T. Mayer, Prof. Emeritus. Ph.D. 1937, Missouri-Columbia
 Merle E. Muhrer, Prof. Ph.D. 1944, Missouri-Columbia
 Boyd L. O'Dell, Prof. Ph.D. 1943, Missouri-Columbia
 Edward E. Pickett, Prof. Ph.D. 1948, Ohio State
 Marie L. Vorbeck, Prof. (Biochemistry & Pathology). Ph.D. 1961, Cornell
 Robert L. Wixom, Prof. Ph.D. 1952, Illinois
 John M. Franz, Assoc. Prof. Ph.D. 1955, Iowa
 Camillo A. Ghiron, Assoc. Prof. Ph.D. 1964, Utah
 Russell L. Larson, Assoc. Prof. (Biochemistry & Agronomy). Ph.D. 1962, Illinois
 Samuel Roy Koirtyohann, Assoc. Prof.; Program Director, Environmental Trace Substances Center. Ph.D. 1966, Missouri-Columbia
 Ezio A. Moscatelli, Assoc. Prof.; Investigator, Dalton Research Center. Ph.D. 1958, Illinois
 William D. Noteboom, Assoc. Prof. Ph.D. 1965, Illinois
 Beryl J. Ortwerth, Assoc. Prof. (Biochemistry & Ophthalmology). Ph.D. 1965, Missouri-Columbia
 Arnold A. White, Assoc. Prof.; Investigator, Dalton Research Center. Ph.D. 1954, Georgetown
 Creighton N. Cornell, Asst. Prof. D.V.M. 1962, Missouri-Columbia
 David O. Quissell, Asst. Prof. of Biochemistry & Child Health. Ph.D. 1971, Wisconsin
 Douglas D. Randall, Asst. Prof. Ph.D. 1970, Michigan State
 James Wyche, Asst. Prof. (Biochemistry & Biological Sciences). Ph.D. 1972, Johns Hopkins
 Warren L. Zahler, Asst. Prof. Ph.D. 1968, Wisconsin

DEPARTMENT OF CHILD HEALTH

Giulio J. Barbero, Chairman; Prof. M.D. 1947, Pennsylvania
 Eleanor Shaheen, Assoc. Chairman; Prof. M.D. 1950, Pennsylvania
 Constantine S. Anast, Prof. M.D. 1947, Chicago
 Robert L. Jackson, Prof. M.S. 1934, Michigan
 Harry Stoockle, Prof. M.D. 1944, Medical College of Virginia
 Calvin W. Woodruff, Prof. M.D. 1944, Yale
 Nasrollah Hakami, Assoc. Prof. M.D. 1958, Tehran

Zuhdi Lababidi, Assoc. Prof. M.D. 1965, American University, Beirut (Lebanon)
 J. Ricardo Martinez, Assoc. Prof. M.D. 1960, Tulane
 Alan E. Oestreich, Assoc. Prof. M.D. 1965, Johns Hopkins
 James M. Pickens, Assoc. Prof. M.D. 1956, Texas (Galveston)
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 Robert Edmonds, Clinical Asst. Prof. M.D. 1960, Washington (St. Louis)
 Robert Harris, Clinical Asst. Prof. M.D. 1961, Missouri-Columbia
 Charles Scheuber, Clinical Asst. Prof. M.D. 1948, Baylor
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Harold M. Kane, Asst. Prof. M.A., Missouri-Columbia

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Charles Mengel, Chairman; Prof. M.D. 1957, Johns Hopkins
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- Thomas Burns, Prof. M.D. 1947, M.S. 1948, Utah
James Butt, Assoc. Prof. Northwestern; M.D. 1959, Western Reserve
Stephen Brooks, Asst. Prof. M.D. 1968, Missouri-Columbia
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Jack Colwill, Assoc. Dean; Assoc. Prof. M.D. 1957, Rochester
Donald Dickhaus, Assoc. Prof. M.D. 1956, Tulane
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William Gaunt, Assoc. Prof. M.D. 1948, Washington (St. Louis); M.S. 1957, Minnesota
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Daniel Hurst, Asst. Prof. M.D. 1967, Chicago
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David Klachko, Assoc. Prof. M.D. 1955, University of Witwatersrand (South Africa)
Marvin Lesser, Asst. Prof. M.D. 1967, Colorado
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Brent Parker, Prof. M.D. 1952, St. Louis University
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Michael Perry, Asst. Prof. M.D.
James Reynolds, Instructor. M.D. 1972, Missouri-Columbia
Gordon Sharp, Prof. M.D. 1957, Johns Hopkins
Charles Sisk, Assoc. Prof. M.D. 1960, Illinois
J. Ned Smith, Assoc. Prof. M.D. 1949, Iowa
Michael Sorkin, Assoc. Prof. M.D. 1966, Chicago
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Frederick Turner, Asst. Prof. M.D. 1968, Texas
John Van Stone, Asst. Prof. M.D. 1966, Northwestern
Linley Watson, Asst. Prof. M.D. 1966, Kansas
Harold Werner, Asst. Prof. M.D. 1966, Chicago
Richard Whiting, Assoc. Prof. M.D. 1965, St. Louis University
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- Medicine Clinical Faculty**
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Philip Carr, Clinical Asst. Prof. M.D. 1961, St. Louis University
 Frank Catanzaro, Clinical Asst. Prof. M.D.
 Ray Cowley, Clinical Asst. Prof. M.D. 1946, Utah
 Jerry Cupp, Clinical Asst. Prof. M.D. 1968, Missouri-Columbia
 James Deeken, Clinical Asst. Prof. M.D. 1964, Missouri-Columbia
 John Ferguson, Clinical Asst. Prof. M.D.
 Jerry Foote, Clinical Asst. Prof. M.D. 1965, Missouri-Columbia
 William Hamilton, Clinical Asst. Prof. M.D.
 Wyeth Hamlin, Clinical Asst. Prof. M.D. 1943, Cincinnati
 Ione Huntington, Clinical Asst. Prof. M.D. 1950, Southern California
 Lucien Ide, Clinical Asst. Prof. M.D. 1937, Iowa
 Charles Jobe, Clinical Asst. Prof. M.D. 1961, Oklahoma
 Harold Kanagawa, Clinical Asst. Prof. M.D. 1965, Washington (St. Louis)
 John Laird, Clinical Asst. Prof. M.D. 1961, Missouri-Columbia
 Roland Lohmar, Clinical Asst. Prof. M.D. 1960, Missouri-Columbia
 John Matthews, Clinical Asst. Prof. M.D.
 George Olive, Clinical Asst. Prof. M.D. 1953, Tulane
 Pinakin Ravel, Asst. Prof. M.D. 1968, Calcutta (India)
 Richard Reider, Clinical Asst. Prof. M.D. 1954, St. Louis University
 Michael Richmond, Clinical Asst. Prof. M.D. 1961, Missouri-Columbia
 Jack Sanders, Clinical Asst. Prof. M.D. 1955, Harvard
 Louis Stickley, Clinical Asst. Prof. M.D. 1966, St. Louis University
 Sitaraman Subramanian, Clinical Asst. Prof. M.D. 1966, Patna University
 Richard Sylvanovich, Clinical Asst. Prof. M.D. 1961, Warsaw (Poland)
 Jay Ward, Clinical Asst. Prof. M.D. 1969, Missouri-Columbia
 Joseph Werth, Clinical Asst. Prof. M.D. 1963, St. Louis University
 D. Douglas Westoff, Clinical Asst. Prof. Ph.D. 1965, St. Louis University; 1969, Missouri-Columbia
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DEPARTMENT OF MICROBIOLOGY

David J. Hentges, Chairman; Prof. Ph.D. 1961, Loyola
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 Frank B. Engley Jr., Prof. Ph.D. 1949, Pennsylvania
 Herbert S. Goldberg, Prof.; Assoc. Dean. Ph.D. 1953, Ohio State
 Joseph T. Parisi, Prof. Ph.D. 1962, Ohio State
 Reuel R. Hook, Assoc. Prof. Ph.D. 1969, West Virginia
 Hammond G. Riggs Jr., Assoc. Prof. Ph.D. 1969, Texas
 Ronald F. Sprouse, Assoc. Prof. Ph.D. 1968, Oklahoma State
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 Michael Cooperstock, Asst. Prof. M.D. 1968, Michigan

DEPARTMENT OF NEUROLOGY

John A. Byer, Interim Chairman; Asst. Prof. M.D. 1966, Baylor

James D. Dexter, Assoc. Prof. M.D. 1963, Missouri-Columbia
 James M. Pickets, Assoc. Prof. M.D. 1956, Texas
 John E. Somers, Clinical Assoc. Prof. M.D. 1958, Michigan

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

David G. Hall, Chairman; Prof. M.D. 1953, Virginia
 William T. Griffin, Prof. M.D. 1959, Missouri-Columbia
 William D. Trumbower, Asst. Prof. M.D. 1971, Missouri-Columbia
 Alfred Llorens, Assoc. Prof. M.D. 1956, Virginia
 Raymond Der, Asst. Prof. Ph.D. 1971, Missouri-Columbia
 Mostafa Fahim, Prof. Ph.D. 1961, Missouri-Columbia
 Elizabeth James, Assoc. Prof. M.D. 1965, Missouri-Columbia
 Robert E. McDavid, Clinical Asst. Prof. M.D. 1972, Missouri-Columbia
 Philip Fogle, Clinical Asst. Prof. M.D. 1966, Missouri-Columbia
 Howard Roberts, Clinical Asst. Prof. M.D. 1964, Missouri-Columbia
 Mark M. Tendai, Clinical Asst. Prof. M.D. 1971, Missouri-Columbia
 Eugene White, Clinical Asst. Prof. M.D. 1966, Missouri-Columbia
 T. Keith Grebe, Clinical Asst. Prof. M.D. 1972, Missouri-Columbia
 William J. Moss, Clinical Asst. Prof. M.D. 1971, Tennessee

DEPARTMENT OF OPHTHALMOLOGY

William M. Hart, Chairman; Roy E. Mason Distinguished Prof. Ph.D. 1941, M.D. 1948, Temple
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 Bartley R. Frueh, Clinical Assoc. Prof. M.D. 1964, Columbia; M.S. 1970, Michigan
 Leo R. Landhuis, Clinical Assoc. Prof. M.D. 1959, Iowa
 Charles W. Cheek, Clinical Asst. Prof. M.D. 1961, Missouri-Columbia
 Philip E. Morgan, Clinical Asst. Prof. M.D. 1951, Oklahoma
 Joe R. Smith, Clinical Assoc. Prof. M.D. 1955, Washington (St. Louis)

DEPARTMENT OF PATHOLOGY

Fred V. Lucas, Chairman; Prof. M.D. 1950, Rochester
 John F. Townsend, Prof. M.D. 1961, Missouri-Columbia
 George D. Amromin, Prof. M.D. 1943, Northwestern
 Howard Hopps, Prof.; Curator's Prof. M.D. 1937, Oklahoma; Ph.D. 1970, Chicago
 Claude K. Leeper, Prof. M.D. 1946, Washington (St. Louis)
 Donald A. Lindberg, Prof. M.D. 1958, Columbia
 Arlene P. Martin, Prof. Ph.D. 1957, Rochester

- Carlos Perez-Mesa, Prof. M.D. 1949, University of Havana
- Wellington B. Stewart, Prof. M.D. 1945, Rochester
- Duane N. Tweeddale, Prof. M.D. 1952, Creighton
- Marie L. Vorbeck, Prof. Ph.D. 1961, Cornell
- James Esterly, Assoc. Prof. M.D. 1963, Chicago
- Lamont W. Gaston, Assoc. Prof. M.D. 1953, Kansas
- Raymond L. Hodges, Assoc. Prof. LL.M. 1955, George Washington
- Mitchell J. Rosenholtz, Assoc. Prof.; Asst. Dean. M.D. 1956, Minnesota
- Edward Adelstein, Asst. Prof. D.V.M. 1962, M.D. 1969, Missouri-Columbia
- Frank Fristoe, Asst. Prof. M.D. 1966, Missouri-Columbia
- Alan M. Luger, Asst. Prof. M.D. 1972, Duke
- Brian Pape, Asst. Prof. Ph.D. 1972, Michigan State
- Wallace A. Rogers, Asst. Prof. M.D. 1962, Iowa State; M.D. 1965, Minnesota
- Joseph Schroeder, Asst. Prof. M.S. 1965, Missouri-Columbia
- Probodh K. Srivastava, Asst. Prof. Ph.D. 1967, Missouri-Columbia
- Henry Taylor, Asst. Prof. M.D. 1965, Wayne State
- Curtis N. Hunt, Chief Medical Technologist; Instructor. B.S. 1967, Missouri-Columbia
- Roy Baker, Instructor. M.S. 1971, Missouri-Columbia
- Betty Bishop, Instructor. B.S. 1972, Missouri-Columbia
- Sharon Bussard, Instructor. B.S. 1960, Missouri-Columbia
- Phyllis Erhart, Instructor. M.S. 1971, Missouri-Columbia
- John J. Gillespie, Instructor. M.D. 1974, Creighton
- Fran Huston, Instructor. B.S. 1971, William Woods
- Margaret Jackson, Instructor. A. B. 1942, Central Methodist
- Bob Kite, Instructor. B.S. 1970, Missouri-Columbia
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- Lois Long, Instructor. B.S. 1970, Missouri-Columbia
- Martha Mitchell, Instructor. B.S. 1953, Street Clinic-Mercy Hospital, Vicksburg, Miss.
- Bill Murphy, Instructor. B.A.M.C. 1968, School of Medical Technology, Fort Sam Houston
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- Roseanne Quinn, Instructor. B.S. 1967, Quincy College
- Andrea Railey, Instructor. B.S. 1971, East Texas State
- Jeff Schill, Instructor. B.S. 1974, Missouri-Columbia
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- Marcus R. Beck, Clinical Assoc. Prof. M.D. 1947, Nebraska
- Curtis Bourgeois, Clinical Assoc. Prof. M.D. 1962, Louisiana State
- William R. Brangle, Clinical Assoc. Prof. M.D. 1959, St. Louis
- Richard E. Johnson, Clinical Assoc. Prof. M.D. 1939, Johns Hopkins
- John M. Boyce, Clinical Asst. Prof. M.D. 1959, Washington (St. Louis)
- William R. Bynum, Clinical Asst. Prof. M.D. 1951, Oklahoma
- Lawrence Henry, Clinical Asst. Prof. M.D. 1966, North Carolina
- Jose Hori, Clinical Asst. Prof.
- William Miller, Clinical Asst. Prof. M.D. 1966, Missouri-Columbia
- Larry Mosby, Clinical Asst. Prof. M.D. 1962, Missouri-Columbia
- John H. Owens, Clinical Asst. Prof. M.D. 1964, Missouri-Columbia

DEPARTMENT OF PHARMACOLOGY

- Murray Heimberg, Chairman; Prof. Ph.D. 1952, Duke; M.D. 1959, Vanderbilt
- Robert L. Russell, Prof. Ph.D. 1954, Missouri-Columbia
- Leslie L. Eisenbrandt, Emeritus Prof. Ph.D. 1936, Rutgers
- Bertis A. Westfall, Emeritus Prof. Ph.D. 1938, Missouri-Columbia
- Walter D. Wosilat, Prof. Ph.D. 1953, Johns Hopkins
- Keith H. Byington, Assoc. Prof. Ph.D. 1964, South Dakota
- Leonard R. Forte, Assoc. Prof. Ph.D. 1969, Vanderbilt
- Carlos Soler-Argilaga, Visiting Assoc. Prof. M.D. 1960, Barcelona (Spain)
- Ira Weinstein, Assoc. Prof. Ph.D. 1960, George Washington
- Henry G. Wilcox, Assoc. Prof. Ph.D. 1964, Florida
- Samuel Garten, Asst. Prof. Ph.D. 1971, Missouri-Columbia
- Edward H. Goh, Asst. Prof. Ph.D. 1974, Vanderbilt
- Robert A. Harris, Asst. Prof. Ph.D. 1973, North Carolina
- Frederick E. Miller, Asst. Prof. Ph.D. 1971, Cincinnati
- Vincent St. Omer, Asst. Prof. D.V.M. 1962, Ph.D. 1969, Ontario
- Friedhelm Schroeder, Asst. Prof. Ph.D. 1973, Michigan State
- Garf Thomas, Asst. Prof. M.S. 1963, Iowa

DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION

- Charles R. Peterson, Chairman; Prof. M.D. 1955, George Washington
- Herbert W. Craig, Asst. Prof. M.D. 1966, Kansas
- Shirley McCluer, Assoc. Prof. M.D. 1952, Louisiana
- Agnes Moon, Asst. Prof. M.D. 1964, Yonsei University (Korea)
- John Hart, Asst. Prof. D.O. 1969, Kansas City
- Kenneth Callen, Asst. Prof. M.D. 1965, Missouri-Columbia
- Giles D. Carnes, Assoc. Prof. Ph.D. 1958, Missouri-Columbia
- Thomas Culley, Asst. Prof. M.D. 1953, Vanderbilt
- Micheleen Maher, Instructor. M.A. 1974, Michigan State
- Karen Wagner, Instructor. M.Ed. 1973, Missouri-Columbia
- Julie Stephens, Asst. Instructor. M.A. 1974, Missouri-Columbia
- Juliana So, Instructor. M.S.W. 1976, Iowa
- Margaret Jaffe, Instructor. M.S.S.W. 1976, Missouri-Columbia
- Gladys Street, Instructor. R.N. 1940, Missouri-Columbia
- Ross D. Young, Asst. Prof. M.S. 1955, Iowa
- Floyd Tempfel, Instructor. C.P. 1974
- James Strack, Asst. Instructor. C.O. 1976
- Gerald W. Browning, Instructor. M.Ed., St. Louis

James Martin, Instructor. B.S. (P.T.) 1969, Missouri-Columbia
 Janet Brooks, Instructor. B.S. (P.T.) 1973, Missouri-Columbia
 David Horrell, Instructor. B.S. (R.T.) 1971, Missouri-Columbia
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 Thomas Jensen, Asst. Prof. Ph.D. 1974, Ohio
 Donna Haley, Instructor. M.Ed. 1971, Missouri-Columbia
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DEPARTMENT OF PHYSIOLOGY

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 Douglas M. Griggs, Prof. M.D. 1953, Virginia
 Dallas K. Meyer, Prof. Ph.D. 1947, Missouri-Columbia
 Xavier J. Musacchia, Prof. Ph.D. 1949, Fordham
 Wesley S. Platner, Prof. Ph.D. 1948, Missouri-Columbia
 Marvin L. Zatzman, Prof. Ph.D. 1955, Ohio State
 Patrick D. Harris, Assoc. Prof. M.S.E.E. 1963, Missouri-Columbia, Ph.D. 1967, Northwestern
 Allan W. Jones, Assoc. Prof. Ph.D. 1965, Pennsylvania
 J. Ricardo Martinez, Assoc. Prof. M.D., Tulane
 Donald H. York, Assoc. Prof. Ph.D. 1969, Monash University (Australia)
 Ronald H. Freeman, Asst. Prof. Ph.D. 1972, Indiana
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Ferrill A. Purdy, Asst. Prof. M.A. 1952, Missouri-Columbia

DEPARTMENT OF PSYCHIATRY

James M. A. Weiss, Chairman; Prof. M.B. 1949, M.D. 1950, Minnesota
 David Davis, Prof.; Assoc. Chairman. M.B. 1949, M.D. 1974, Glasgow (Scotland)
 James L. Chapel, Prof. (Child Psychiatry); Chief, Child Psychiatry Section. M.D. 1954, Toronto (Canada)
 Theodore F. Henrichs, Prof. (Medical Psychology); Chief, Medical Psychology Section. Ph.D. 1961, North Carolina
 David G. McDonald, Prof. (Medical Psychology). Ph.D. 1959, Washington (St. Louis)
 Arthur J. Robins, Prof. (Mental Health Sciences); Chief, Mental Health Sciences Section. Ph.D. 1953, Minnesota
 Henry V. Guhleman, Jr., Clinical Prof. M.D. 1943, Washington (St. Louis)
 Max Hamilton, Clinical Prof. M.B., 1937, M.D. 1950, London (England)
 G. Derwood Carnes, Assoc. Prof. (Medical Psychology). Ph.D. 1958, Missouri-Columbia
 Tulio Estrada, Assoc. Prof. M.D. 1950, Naticnal, Bogota (Colombia)
 Armando R. Favazza, Assoc. Prof.; Chief, General Psychiatry Section. M.D. 1966, Virginia
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 Philip J. Marco, Assoc. Prof. M.D., Middlesex
 John F. Simonds, Assoc. Prof. (Child Psychiatry). M.D. 1959, Georgetown
 David T. A. Vernon, Assoc. Prof. (Medical Psychology). Ph.D. 1967, Chicago
 William F. Waters, Assoc. Prof. (Medical Psychology). Ph.D. 1968, Case-Western Reserve
 Maarten Nieuwenhuizen, Clinical Assoc. Prof. M.D. 1953, Utrecht (The Netherlands)
 David P. Armentrout, Asst. Prof. (Medical Psychology). Ph.D. 1973, Tennessee
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 Kenneth E. Callen, Asst. Prof.; Director, Psychiatric Education. M.D. 1965, Missouri-Columbia
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 Gary L. Feldman, Asst. Prof. (Medical Psychology). Ph.D. 1973, West Virginia
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 Elizabeth M. Heimburger, Asst. Prof. M.D. 1967, Medical College of Georgia
 Gerald H. Heisler, Asst. Prof. (Medical Psychology). Ph.D. 1972, Southern Illinois
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- James D. Maltby, Assoc. Prof. M.D. 1953, Stanford
- Carroll R. Markivee, Assoc. Prof. M.D. 1949, St. Louis
- Alan E. Oestreich, Assoc. Prof. M.D. 1965, Johns Hopkins
- Wynn A. Volkert, Assoc. Prof. (Radiological Sciences). Ph.D. 1969, Missouri-Columbia
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- Philip K. Lee, Asst. Prof. (Radiological Sciences). Ph.D. 1969, Purdue
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- Paul E. Sauer, Clinical Asst. Prof. (Thoracic & Cardiovascular). M.D. 1962, Arkansas
- Robert King, Clinical Instructor (Urology). M.D. 1962, Wayne State
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The University is governed by a Board of Curators. The President of the University and his staff coordinate programs of all four campuses. The Chancellors are the chief academic and administrative officers for their respective campuses.

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