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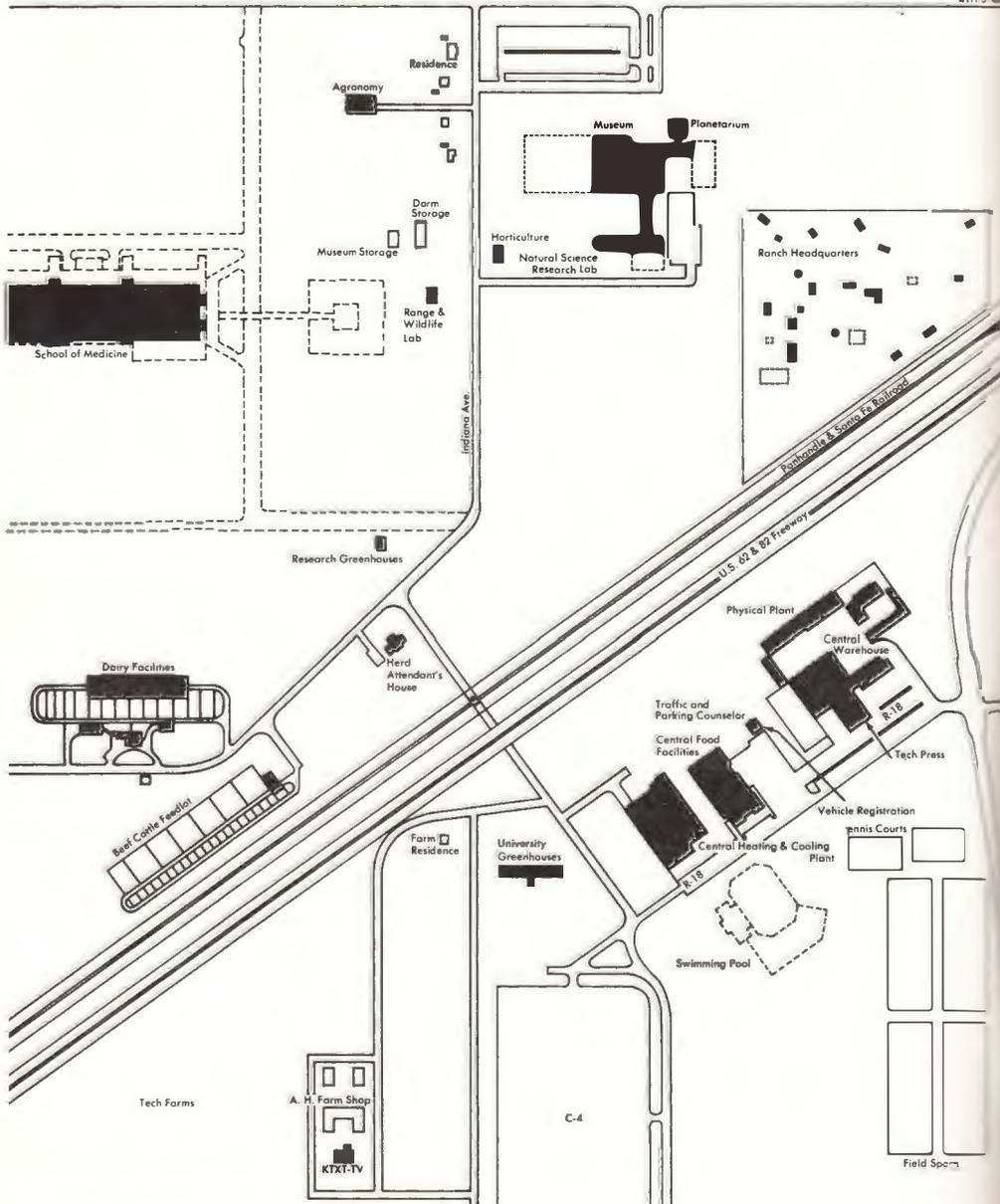
Texas Tech University School of Medicine

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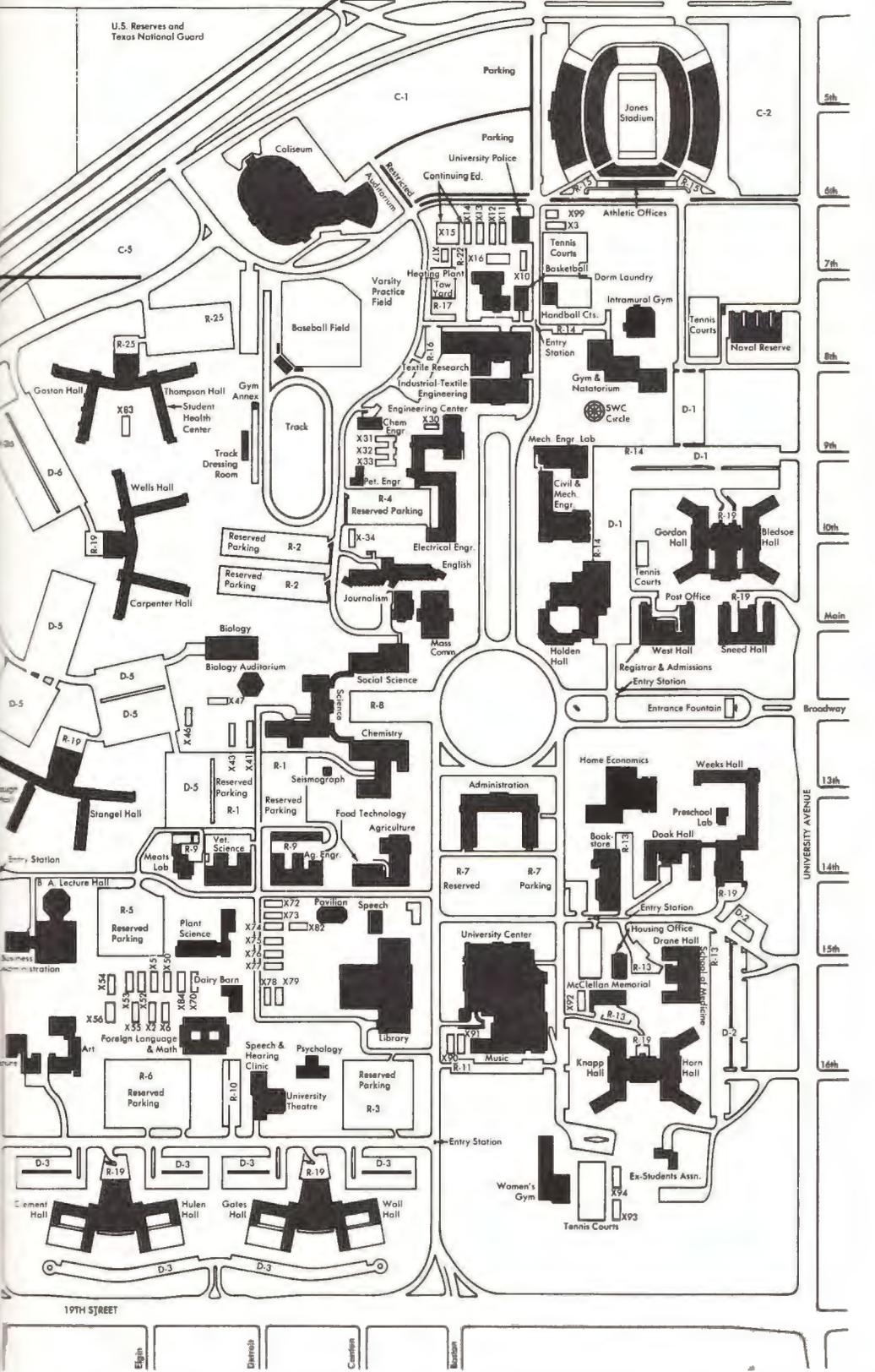
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TEXAS TECH UNIVERSITY
LUBBOCK, TEXAS

- Permanent Buildings
- Temporary Buildings
- Future Buildings





Parking

C-1

C-2

5th

Parking

University Police
Continuing Ed.

Parking

6th

C-3

7th

R-25

Baseball Field

Athletic Offices

Tennis Courts

Basketball

Dorm Laundry

Handball Cts.

Entry Station

Intramural Gym

Tennis Courts

Naval Reserve

8th

R-25

Thompson Hall

Student Health Center

Gym Annex

Track

Varsity Practice Field

Textile Research

Industrial Textile Engineering

Engineering Center

Chem Engr.

Pet. Engr.

Reserved Parking

Electrical Engr.

English

Journalism

Mass Comm.

Gym & Natatorium

SWC Circle

D-1

Mech Engr Lab

Civil & Mech Engr.

R-14

D-1

D-1

Gordon Hall

Tennis Courts

Post Office

Registrar & Admissions

Entry Station

Bledsoe Hall

R-19

West Hall

Sneed Hall

9th

10th

Main

Broadway

Biology

Biology Auditorium

Social Science

R-8

Chemistry

Seismograph

Food Technology

Agriculture

Ag. Engr.

R-9

Vel. Science

Meats Lab

Plant Science

Dairy Barn

Speech

Psychology

Library

Speech & Hearing Clinic

University Theatre

Reserved Parking

R-3

Administration

R-7

Reserved

Parking

R-7

Reserved

Parking

University Center

Music

R-11

Women's Gym

Tennis Courts

Ex-Students Assn.

R-13

13th

14th

15th

16th

UNIVERSITY AVENUE

19TH STREET

Elgin

Elmwood

Courtside

Boatman

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ACADEMIC CALENDAR

TTUSM Class of 1975

21 August 1972	Orientation
22 August 1972	First day of classes, Trimester I
23-26 November 1972	Thanksgiving Holidays
20 December 1972	End, Trimester I
21 Dec. 1972-1 Jan. 1973	Christmas Holidays
2 January 1973	First day of classes, Trimester II
27 April 1973	End, Trimester II
30 April 1973	First day of classes, Trimester III
17 August 1973	End, Trimester III
27 August 1973	First day of classes, Trimester IV
22-25 November 1973	Thanksgiving Holidays
19 December 1973	End, Trimester IV
20 Dec. 1973-1 Jan. 1974	Christmas Holidays
2 January 1974	First day of classes, Trimester V
29 April 1974	First day of classes, Trimester VI
16 August 1974	End, Trimester VI
26 August 1974	First day of classes, Trimester VII
21-24 November 1974	Thanksgiving Holidays
18 December 1974	End, Trimester VII
19 Dec. 1974-1 Jan. 1975	Christmas Holidays
2 January 1975	First day of classes, Trimester VIII
6 June 1975	End, Trimester VIII

ACADEMIC CALENDAR

TTUSM Class of 1976

2 July 1973	First day of classes, Trimester I
2 November 1973	Last day of classes, Trimester I
5 November 1973	First day of classes, Trimester II
22-25 November 1973	Thanksgiving Holidays
22 Dec. 1973-1 Jan. 1974	Christmas Holidays
8 March 1974	Last day of classes, Trimester II
9-17 March 1974	Vacation
18 March 1974	First day of classes, Trimester III
29 June 1974	Last day of classes, Trimester III
30 June-7 July 1974	Vacation
8 July 1974	First day of classes, Trimester IV
26 October 1974	Last day of classes, Trimester IV
28 October 1974	First day of classes, Trimesters V & VI
28 Nov.-1 Dec. 1974	Thanksgiving Holidays
22 Dec. 1974-5 Jan. 1975	Christmas Holidays
30 August 1975	Last day of classes, Trimesters V & VI
31 August-7 September 1975	Vacation
8 September 1975	First day of classes, Trimesters VII & VIII
27-30 November 1975	Thanksgiving Holidays
21 Dec. 1975-4 Jan. 1976	Christmas Holidays
5 June 1976	Last day of classes, Trimesters VII & VIII

ACADEMIC CALENDAR

TTUSM Class of 1977

1 July 1974	First day of classes, Trimester I
2 November 1974	Last day of classes, Trimester I
4 November 1974	First day of classes, Trimester II
28 Nov.-1 Dec. 1974	Thanksgiving Holidays
22 Dec. 1974-5 Jan. 1975	Christmas Holidays
8 March 1975	Last day of classes, Trimester II
9-16 March 1975	Vacation
17 March 1975	First day of classes, Trimester III
28 June 1975	Last day of classes, Trimester III
29 June-6 July 1975	Vacation
7 July 1975	First day of classes, Trimester IV
25 October 1975	Last day of classes, Trimester IV
28 October 1975	First day of classes, Trimesters V & VI
27-30 November 1975	Thanksgiving Holidays
21 Dec. 1975-4 Jan. 1976	Christmas Holidays
4 September 1976	Last day of classes, Trimesters V & VI
5-12 September 1976	Vacation
13 September 1976	First day of classes, Trimesters VII & VIII
25-28 November 1976	Thanksgiving Holidays
19 Dec. 1976-2 Jan. 1977	Christmas Holidays
4 June 1977	Last day of classes, Trimesters VII & VIII

ACADEMIC CALENDAR

TTUSM Class of 1979

12 August 1975	Registration & Orientation
13 August 1975	Classes Begin
1 September 1975	Labor Day Holiday
27-30 November 1975	Thanksgiving Holidays
9 December 1975	Classes End
10-16 December 1975	Study Week
17-19 December 1975	Final Examinations
21 December 1975-4 January 1976	Christmas Holidays
5 January 1976	Classes Begin
21-28 March 1976	Spring Vacation
4 May 1976	Classes End
5-11 May 1976	Study Week
12-14 May 1976	Final Examinations
10 August 1976	Registration
11 August 1976	Classes Begin
6 September 1976	Labor Day Holiday
25-28 November 1976	Thanksgiving Holidays
7 December 1976	Classes End
8-14 December 1976	Study Week
15-17 December 1976	Final Examinations
19 December 1976-2 January 1977	Christmas Holidays
3 January 1977	Classes Begin
20-27 March 1977	Spring Vacation
3 May 1977	Classes End
4-10 May 1977	Study Week
11-13 May 1977	Final Examinations

GENERAL INFORMATION

Texas Tech University School of Medicine

Organization

Background

The 61st Legislature of the State of Texas authorized Texas Tech University School of Medicine by legislative action in May, 1969. It is a separate institution but shares the same President and Board of Regents as Texas Tech University.

The School of Medicine represents the first operational School of the Health Sciences Centers. The Health Science Centers is the organizational unit within which one or more health professional schools can function. Deans of health professional schools report to the Vice President for the Health Sciences Centers.

It took only 39 months for the School to become operational—23 months from the arrival of the Dean, who was the first full-time employee. Thirty-six freshman and 25 junior medical students began classes on August 21, 1972. According to the Association of American Medical Colleges, this was the fastest development time on record for a senior medical school authorized prior to the existence of any staff or facilities.

In October, 1971, Texas Tech University School of Medicine received provisional accreditation from the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges. Full accreditation was obtained after the first class of 24 graduates received the Doctor of Medicine degree, March 31, 1974.

The School has been in its temporary quarters, Drane Hall, a renovated dormitory, since December, 1971. Another renovated dorm, Thompson

Hall, began operation as the interim clinical teaching facility in April, 1973. The first completed phase of the new building is scheduled for occupancy in 1976. Ground was broken for the School's permanent quarters, on a 250-acre plot of the Texas Tech campus, in February, 1973. It is the only school of medicine in Texas to be located on the campus of a major university.

The Lubbock County Hospital District will build a teaching hospital adjacent and physically attached to the School's permanent quarters. There currently are medical training affiliation agreements with 33 West Texas hospitals and health care institutions, with additional affiliations currently under negotiation.

Directions

The curriculum and educational emphasis is on providing medical students with the skills to become competent primary care physicians with a major emphasis on family practice. There is a desperate need, in the nation as well as in Texas, for physicians who can provide comprehensive health care. Primary care encompasses the fields of general practice, family practice, general internal medicine, general pediatrics and general obstetrics-gynecology. Primary care is the provision of health services characterized by the delivery of first contact medicine, the assumption of long-term responsibility for the patient regardless of the presence or absence of disease, and the integration of the physical, psychological and social aspects of health care to the limits of the capability of the practitioner.

Tutorial Team Instruction

An important element in the School of Medicine is the Tutorial Team Instruction program. Tutorial Teams consist of a faculty mentor and 8 to 10 students at various levels of training. This program is designed to meet student needs which are not regularly met by the school curriculum. These needs fall in to three broad categories: 1) academic and personal counseling; 2) educational experiences not provided by the curriculum; 3) opportunities to develop communication skills.

The mentor not only functions as a member of the group but also serves as a student advocate as needed, monitors student academic performance and provides a role model for the students.

This program provides a forum for students and faculty to discuss controversial and sensitive issues in small group settings and allows students the opportunity to take an active role in their educational experiences. Additionally, students learn to function as group members and receive personalized attention as required.

Outreach Programs

Texas Tech University School of Medicine is a regional medical school and a vital part of its philosophy of education and service is its outreach program.

Unlike schools in large urban areas where the medical school-medical center complex may be located in a few square blocks of real estate, many of the Texas Tech University School of Medicine facilities and faculty are distributed throughout West Texas—an area encompassing approximately 126,000 square miles and 106 counties. The regional medical school concept complements the program in family practice training at TTUSM. In a large, urban medical center, primary and ambulant care may be only classroom concepts to medical students. At TTUSM students work and learn in actual primary health care delivery situations, in ambulatory clinical environments.

In addition to affiliation agreements with selected health care institutions throughout the West Texas region, the



School of Medicine has developed a Regional Academic Health Center (RAHC) system. The RAHC's are a part of the region's health education system along with affiliated health care institutions. There currently are three RAHC's in operation: Amarillo, El Paso and at the main campus in Lubbock. Senior medical students may receive part of their training in the clinical environment of an RAHC outside of Lubbock. The RAHC's also will conduct continuing education programs for health professionals in their respective areas.

The RAHC's will be staffed and operated by the faculty of the School of Medicine, with resident physicians as junior members of the medical staff with the rank of instructor.

Faculty

The full-time faculty and professional staff of the School of Medicine currently numbers 187. In addition, 300 West Texas area health care professionals and scientists have been appointed to the part-time faculty of the School of Medicine. As the School's educational programs grow and as the Regional Health Education Centers develop, both the full-time faculty and the part-time faculty will grow with them.

Physical Facilities

Texas Tech University School of Medicine is on the campus of Texas Tech University. It is occupying temporary quarters until the permanent medical school building is completed in 1976.

The three major facilities currently operated by the School are Drane Hall, Thompson Hall and the former University Health Center building.

Drane Hall houses the School's administrative offices, medical library, educational support activities and non-clinical academic departments. In addi-

tion, student tutorial team areas, student and faculty conference and seminar rooms, and anatomical laboratory facilities are in Drane Hall.

Thompson Hall houses clinical departments of the School and contains ambulatory patient care clinics, the Student Health Clinic, an After Hours Clinic for university students, laboratory medicine space, a pharmacy and facilities for radiology, physical therapy, and educational media services. Thompson Hall also contains additional tutorial team space and student conference areas.

In addition, laboratory facilities for the basic science departments of the School of Medicine are maintained in the Texas Tech University Chemistry and Biology buildings and in the former University Health Center building.

Health Sciences Information Center

At the core of the Health Sciences Information Center is the medical library, developed in the record time of eleven months. Current resources of the medical library total 36,000 items including books, serials, pamphlets, microfilms, microfiche, audio tapes, discs, slides, films and filmstrips. By 1976 it is expected that the number of books and serials will reach approximately 60,000. The medical library has been granted full status as a resource library in the National Library of Medicine network and has access to NLM resources through such services as MEDLINE. Medical students also have access to the Texas Tech University library, which contains approximately 1,360,000 items including 775,000 volumes and substantial holdings in the sciences.

Admission

General Requirements

General admissions requirements include at least three years of senior college level study in an accredited institution, and a baccalaureate degree is strongly recommended. Because of the curriculum flexibility, there are no preferred undergraduate majors. Equal consideration is given to humanities majors provided they demonstrate motivation for a career in medicine and an aptitude for handling scientific material. Emphasis is placed on a baccalaureate or prebaccalaureate program that constitutes a logical whole, regardless of the field.

Recommended undergraduate credits include evidence of satisfactory completion of the following:

Courses	Semesters
Chemistry (including Organic)	4
General Biology	2
Physics	2

In addition, a reasonable working knowledge of a foreign language is recommended. There is no language requirement for admission to Texas Tech University School of Medicine, but conversational Spanish is recommended as a highly useful course for the students if they intend to practice in Texas or the Southwest in general. Calculus also is highly recommended but not required.

The Medical College Admission Test (MCAT) also is required of all applicants for admission to the School of Medicine. The MCAT should be taken in the spring of the year in which the application to medical school is submitted. Application to take the MCAT should be made to MCAT Registration, The American College Testing Program, Box 414, Iowa City, Iowa—52240. Application blanks may be obtained through the counseling and testing service at the student's college or university.

Students interested in graduate study in Basic Medical Sciences should contact the appropriate medical school department chairman.

The undergraduate student planning a career in medicine is advised to complete the minimum recommended courses prior to his senior year so that his college transcript record is available for evaluation by the Admissions Council.

Application Procedures

Texas Tech University School of Medicine is a participant in the centralized application service provided by the Association of American Medical Colleges (AAMC). Applicants need complete only one application when applying to any of the medical schools participating in the American Medical College Application Service (AMCAS), and supply only one set of transcripts to AMCAS. The application will be reproduced and the transcripts standardized prior to distribution to medical schools designated by the applicant. Texas Tech University School of Medicine will then notify the applicant of additional information that must be provided and of the admission decision.

An individual using AMCAS must be applying for the first year of study leading to the M.D. degree. Students applying for transfer or advanced standing must request application information and material directly from the Office of the Registrar at Texas Tech University School of Medicine.

AMCAS applications may be obtained from the Association of American Medical College Application Service, Suite 301, 1776 Massachusetts Ave. Northwest, Washington, D.C., 20036, or from the Office of the Registrar at this school. The completed forms are returned directly to the AAMC. Early application is advisable. The deadline for receipt of

applications at Texas Tech University School of Medicine is October 31.

If the information in the AMCAS application is favorable, the applicant will be sent additional application material from this school. This should be completed and returned to the Office of the Registrar, Texas Tech University School of Medicine, along with an application fee of \$10. A personal interview may then be re-

quired after which the Admissions Council will make a final decision. Applicants are carefully evaluated with regard to their potential for pursuing a curriculum leading to the Doctor of Medicine degree. Academic achievement, MCAT scores and the interview constitute the major factors for applicant evaluation. The Admissions Council may request additional information when appropriate.

Timetable of Application and Acceptance

Filing of formal application by applicant

Earliest date: July 1

Latest date: October 31

Early Decision deadline date: August 15

Application fee: \$10 due with application

Notification of acceptance by School

Earliest date: October 1

Latest date: When class is filled

Time from receipt of application to acceptance notice: varies

Applicant response to acceptance offer

Preferred time: 2 weeks

Maximum time: 3 weeks

Deposit fee to hold place in class (applies on tuition): \$100, due upon acceptance

Tuition and Fees

All fees are subject to change without prior publication.

The full amount of tuition and fees for the twelve month school year is due at registration.

Approximate Cost for 12-Month School Year

	Resident	Non-resident
Tuition	\$ 400	\$ 1200
Building Use	150	150
University Center	15	15
Student Activity Fee	72	72
Laboratory and Course Fee	49	49
General Property Deposit	7	7
	<hr/>	
	\$ 693	\$ 1493

For further information about Admissions contact: Registrar, Texas Tech University School of Medicine, P.O. Box 4569, Lubbock, Texas 79409.

Financial Aid

The Texas Tech University School of Medicine is fortunate in having a limited number of funds available for students who need financial assistance. Applications for loans are submitted to the Office of Student Financial Aid. Principal funds from which loans are available to qualified students are:

Health Professions Student Loan Fund; Texas Opportunity Plan; American Medical Association-Education and Research Foundation Loan Fund; Robert Wood Johnson Foundation Loan Fund; Texas Medical Association Loan Funds; National Medical Fellowship; the Pauline Lane Memorial Fund; Chris Mansell Medical Student Loan Fund; Minnie Stevens Piper Foundation; Walter B. Mantooth Medical Student Loan Fund; and Guaranteed Student Loan Program.

Information regarding these funds may be obtained from the office of Student Financial Aid.

Texas Tech University Medical School Foundation

The Texas Tech University Medical School Foundation was formed in August, 1970, exclusively for charitable, education and scientific purposes and to assist in the establishment of the School of Medicine. It was chartered by the Secretary of State, State of Texas as a non-profit corporation with a perpetual duration, on February 18, 1970.

The foundation is responsible for

accepting donations, gifts and grants of money and property and administering these funds on a charitable, educational or non-profit basis on behalf of the School of Medicine. In addition, the Foundation helps provide support for training facilities, research, and financial assistance for students.

Officers currently serving the Texas Tech University Medical School Foundation are:

S.C. Arnett, Jr., M.D., Chairman
Harris Underwood, Vice Chairman
James G. Morris, M.D., Secretary
Leo E. Ells, Treasurer
Edward R. Smith, Immediate Past Chairman

Student Life Organizations

The student body of Texas Tech University School of Medicine holds memberships in the Student American Medical Association, the Texas Academy of Family Practice and the Organization of Student Representatives. In addition, a chapter of the Christian Medical Association has been established. The School of Medicine student government is currently working on plans to establish a chapter of a national medical fraternity at Texas Tech University School of Medicine.

Student Offices

Students are assigned office space which serves as their home base for individual and group study. Four students are assigned to each room and each student is provided a desk and storage space.

Housing

Texas Tech University maintains 20 residence halls, which house approximately 8,000 students. Medical students are eligible for University housing if they desire it, and assignments will be made according to student preference if space is available. Students interested in University housing should contact the Texas Tech Housing Office, P.O. Box 4629, Texas Tech University, Lubbock, Texas 79409, for further information.

In addition, there are numerous off-campus apartments and housing facilities available near the campus. Students are expected to make their own arrangements concerning off-campus housing.

Student Accident and Sickness Insurance

Medical students enrolled at Texas Tech University School of Medicine may subscribe to a supplemental Student Accident and Sickness Insurance Plan that provides 24-hour coverage on or off campus and while in the care of any qualified physician (according to the policy provisions). The 12-month plan covers all vacations and remains in force for a full year even if the student is graduated or drops out of school. A married student may include his spouse and children on the 12-month plan for an additional premium. This insurance plan is available to students at the time of registration for classes.



Student Health Service

The Texas Tech University School of Medicine operates the Student Health Service and provides treatment for all students in the Texas Tech University complex, including the School of Medicine.

The Student Health Service provides treatment through the ambulatory clinic. Physicians and health care personnel are available 24 hours a day. Treatment is confined to the clinic; student health service physicians do not make routine dormitory or house calls. Transportation for the transfer of ill students is available through the University Police Service.

Regular clinic hours are 8 a.m. to 5 p.m. Monday through Friday in the Student Health Clinic, 2nd Floor, South Wing of Thompson Hall. At other hours, services may be secured by telephoning or visiting the After Hours Clinic, 1st Floor, West Wing of Thompson Hall. A nurse is on duty and a physician on call at all times.

Between the hours of 8 a.m. to 5 p.m. Monday through Friday the services of a laboratory are available for a variety of tests. Also, between 8 and 5 Monday through Friday pharmacy service is available.

Student requiring in-patient care or who have serious injuries or chronic illnesses requiring hospitalization will be given necessary emergency care by the Student Health Clinic and then transferred to a local hospital for additional treatment.

The Health Service staff will notify the parents, guardians or nearest relative of a patient believed to be threatened with a serious illness or thought to be in need of an emergency surgical operation.

The Student Health Service cannot be responsible for continuing treatment of students suffering from chronic diseases. The student health primary care physicians will provide referrals to specialists to give special care to students who need it and who are unacquainted with Lubbock physicians.

Three components are represented in the Student Health Service program. They are:

Personal health services, including preventive, diagnostic, therapeutic and rehabilitative care for both physical and emotional problems. Environmental surveillance and control, including occupational medicine.

Education for health that includes educational programs for individuals through which they may be motivated to healthful individual and community behavior.



The Course of Study

The course of study leading to the Doctor of Medicine degree is composed of 36 months of basic science and clinical study.

A comprehensive education in the broad spectrum of general medicine is provided in order to give the student a solid foundation of medical training as appropriate preparation for further training in any branch of specialty of medicine.

Curriculum Revision

Since Texas Tech University School of Medicine is a new and developing school, the curriculum will undergo continual review for possible revision to make it more responsive to the needs of students. The curriculum is subject to change at the discretion of the administration of Texas Tech University School of Medicine on the advice of the Curriculum Council.

Curriculum

Texas Tech University School of Medicine utilizes an interdisciplinary approach to medical education that integrates clinical department material into the instructional programs of the basic sciences in order to describe the clinical significance of disease processes on the organ systems. (For example, ophthalmology and neurology teach the functions and common disorders of the extraocular muscles as part of the basic instruction in anatomy.) This interdisciplinary instruction begins at the earliest possible point in the educational experience.

In the clinical years, basic science departments may participate in teaching rounds, clinical conference, and at the bedside.

Electives

A wide range of electives are available to senior medical students in all basic and clinical science fields. An Elective Counseling Group is available to work with students in planning an elective program to meet students' needs and interests.

Students must consult with their elective counselors in the last half of the junior trimesters in order to have an approved elective program arranged prior to the beginning of the senior trimesters.

Required Interdisciplinary Curriculum

Semester I

MCS 5261—Clinical Sciences I: An orientation for all students in the philosophy of current medical education which is being developed and the background of scientific, environmental, social, and political and economic factors that have influenced the development of modern health and medical care services.

Semester II

MCS 5312—Clinical Sciences II: Continuation of Clinical Sciences I.

Semester III

MCS 6433—Clinical Sciences III: Fundamentals of Medical Practice. A consideration of the concepts and principles underlying the identification and evaluation of human disease processes in a clinical setting where medical students will function and relate to patients in the context of the total response of a patient to disease and his environment.

Semester IV

MCS 6834—Clinical Sciences IV: Fundamentals of Medical Practice. Continuation of Clinical Sciences III.

Freshman Curriculum

The freshman and sophomore curricula is designed to impart core knowledge in the basic medical sciences. In addition to the instruction in basic sciences, the student may be exposed to patients and patient care relatively early in the freshman curriculum as part of the emphasis on clinical training integrated with basic science education.

Summary of Freshman Semesters

Semester I

Subject	Hours
Anatomy	330
Biochemistry	178
Clinical Sciences	32
Total	540

Semester II

Subject	Hours
Anatomy	155
Physiology	165
Psychiatry	43
Clinical Sciences	71
Total	434

Sophomore Curriculum

The sophomore semesters provide additional training in the basic sciences as well as in-depth training in the diagnosis and management of disease.

Summary of Sophomore Semesters

Semester III

Subject	Hours
Biochemistry (Genetics)	28
Microbiology	51
Pathology	174
Pharmacology	103
Psychiatry	62
Clinical Sciences	58
Total	476

Semester IV

Subject	Hours
Biochemistry (Clinical)	42
Epidemiology	48
Microbiology	80
Oral Medicine	15
Pathology	156
Clinical Sciences	150
Total	491

Junior Curriculum

The junior curriculum is designed to transmit those essential skills required for any type medical practice. Essential clinical skills are learned through clerkships in internal medicine, general surgery, pediatrics, obstetrics-gynecology and psychiatry.

Summary of Junior Semesters

Semester V-VI

Subject	Weeks
Clinical Lectures	2
Clerkships	
Medicine	8
Obstetrics & Gynecology	8
Pediatrics	8
Psychiatry	8
Surgery	8

Senior Curriculum

The senior curriculum includes 12 weeks devoted to Family Practice and four weeks devoted to Medicine. A period of 24 weeks of the senior curriculum is devoted to electives. Electives are in a large group of courses a student may choose to fulfill his elective credit requirements. These choices can be independent of one another.

Academic Regulations

All credits are expressed in trimester (semester) hours. The lowest passing grade for any course is 70. The lowest acceptable grade point average (GPA) for promotion and/or graduation is 75. No student shall be promoted with a GPA less than 75.

Students who receive the grade I (Incomplete) will have a maximum of two trimesters in which to complete work for the course and remove this grade. The course will have to be repeated; otherwise, the grade remains an I and carries no credit. Grades of I received as a result of illness will be dealt with on an individual basis.

Transfer of credits toward the Doctor of Medicine degree is never automatic but rather should be made at the discretion of the Dean upon recommendation of the appropriate advisory faculty bodies.

Academic advancement (promotion) of medical students from the freshman year to the sophomore year (from Semester II to Semester III), from the

sophomore year to the junior year (from Semester IV to Semester V), from the junior year to the senior year (from Semester VI to Semester VII), will be governed by the Dean, upon recommendation of the faculty promotion council, which will consider all facets of a student's endeavor (evidence of academic achievement, evidence of professional development and evidence of ethical and responsible standards of conduct).

It is implicit in the requirements for the Doctor of Medicine and all other degrees conferred by Texas Tech University School of Medicine that the faculty recommend each candidate for graduation. This requirement is the final requirement for all degrees and is in addition to any and all specific degree requirements. In considering candidates for graduation, the faculty will consider not only academic achievement, but the ethical, professional and personal standards of conduct as a potential physician evidenced by each candidate.



Departments and Courses

Doctor of Medicine Program

Anatomy

Professor William G. Seliger, Chairman
Professors: Sproat, Berlin
Associate Professors: Hillman, Rylander,
Richards
Assistant Professors: Bolender, Casady,
Dalley, Gault, Sterrett, Wilbur, Yee
Instructor: Owen

The core courses of anatomy are designed specifically as the first anatomy teaching episode for the training of physicians, not for the training of professional anatomists. When unlimited time is available to teach anatomy, the traditional methods are excellent, but today new clinical materials and techniques have seriously curtailed the available time for anatomy. The obvious solution, then, is to find more efficient and effective methods of teaching anatomy and to screen out all material from the basic courses that is not needed to train the general physician.

To accomplish this, the Department of Anatomy has restructured its courses and teaching methods to fit the needs of today's physician. The faculty uses a minimum number of hours for formal lectures and emphasizes the laboratory time. The course material is trimmed down to what directly applies to the training and practice of a physician. The students are taught to find material in source books rather than to commit large amounts of material to memory. New teaching methods using audio-visual aids, notes and microscopic demonstrations increase the efficiency of the microanatomy laboratory time. Most of the dissection by students is deleted from the core anatomy course and added to advanced classes in anatomy.

Thus, by careful incorporation of modern teaching methods, modern in-

struments, improved faculty contact and careful screening of course material, today's medical student can be taught the necessary material in greater depth and in a more meaningful manner despite the reduced amount of time.

Required Courses

MAN 5411—ANATOMY I m: Human microanatomy and embryology. An integrated course of Anatomy starting with the ultrastructural and light microscopic study of cells and continuing through developmental and microscopic anatomy. This course must be taken in conjunction with MAN 5811 Anatomy I g.

MAN 5811—ANATOMY I g: A highly integrated course of general anatomical study (including human prosection) which embodies the gross morphology of the body and coordinates it with the clinical, developmental and microscopic aspects of the human body. This course must be taken in conjunction with MAN 5411 Anatomy I m.

MAN 5612—ANATOMY II: Neuroscience—A detailed course of neuroscience, passing from the study of ultrastructural cytology, through the light of microscopic, gross and neuroanatomical aspects of the nervous system. This course includes strong emphasis on the functional and clinical aspects of neuroscience.

Undergraduate Courses for Allied Health Students

ANM 261—HUMAN ANATOMY AND PHYSIOLOGY: This course is designed to acquaint the student with the principles and substance of human biology. It is intended for students who have little or no background in the physical and biological sciences, but who require a knowledge of the structure and function of the human body as part of their education for careers in health professions. It is not intended to be a part of a sequence of general science courses; but is rather meant to orient the student toward human structure and function. It will include the structure and function of the following organs or sys-

tems: skin, musculoskeletal, cardiovascular, respiratory, renal, reproductive, endocrine, gastrointestinal, neurological, eye, ear, nose and throat of man. Emphasis is placed on presenting these materials from the standpoint of preparing allied health students to assume their roles on the health care team. This course will consist of lectures, demonstrations, prosections, the study of human prosected material and a wide variety of special human anatomical models.

ANM 212—APPLIED ENDOCRINOLOGY: A lecture and laboratory course reviewing the endocrine system and its effect on body, organ, tissue and cellular function in health and disease.

ANM 223—HUMAN BIOLOGY AND MICROSCOPIC TECHNIQUES: This lecture and laboratory course is designed to orient the student in tissue structure, development and function. Special emphasis is given to those anatomic areas where cytologic specimens may be obtained.

Biochemistry

Professor Francis J. Behal, Chairman

Professor: Shetlar

Consulting Professor: Nau

Associate Professors: Lloyd, Morrow

Assistant Professors: Garner, Haller, Little, Pelley, Starnes

The Department of Biochemistry of the School of Medicine provides the educational and research programs in biochemistry for (1) professional students in medicine and related health sciences, (2) biochemistry graduate students and (3) graduate students minoring in biochemistry.

Medical School Program: The Department of Biochemistry provides a required comprehensive course in medical biochemistry for first year medical students. The course is divided into lectures, laboratory-demonstrations and clinical correlation conferences. These largely clinical conferences afford students the opportunity to ask questions and to participate in discussions regarding lecture material. They establish a close relationship between the students, the faculty and the department. Finally, the clinical correlation sessions help demonstrate to the students the rele-

vance of biochemistry in modern medicine. The laboratory-demonstrations provide foundational material for developing the concept of laboratory assisted diagnosis of disease. Recent advances in understanding disease are presented with illustrative cases from the medical literature. If the biochemical basis of the disease has been determined, the rationale for diagnosis and therapy will be examined. The Department of Biochemistry provides a required course in clinical biochemistry to second year medical students.

These required courses and the other elective courses in biochemistry that are available for medical students in their third and fourth years are described below.

Required Courses

MBC 5721—Biochemistry I: Medical Biochemistry. A study of life processes at the molecular level with emphasis on the biochemistry of the life processes of man in health and disease.

MBC 6223—Biochemistry II: Human Biochemical Genetics. A study of the chromosomal molecular basis of genetically related disease processes with emphasis on the concepts of human genetic disorders and their consequences.

MBC 6324—Biochemistry III: Clinical Biochemistry. A study of clinical biochemistry with emphasis on the interpretation of clinical laboratory data and the concepts of laboratory-assisted diagnosis of human disease.

Biomedical Engineering and Computer Medicine

Associate Professor Blair A. Rowley, Chairman

Professors: Ayoub, Portnoy

Associate Professors: Jarzembki, Bateman

Assistant Professor: Anderson

This department is concerned with the education, research and development of technology in medicine and the allied health fields. Interdisciplinary methods are used which enable the department to draw on specialists, covering a wide range of expertise.

Educational efforts are directed towards a better understanding by the health professional of technology, how it functions and how to use it effectively.

Efforts also are directed towards the appropriate use of computers in the medical setting and the development of biomathematical expertise in medical research.

Courses are available for engineers and life scientists leading to a graduate degree with emphasis in Biomedical Engineering. Students have the option of pursuing the Masters or Ph.D. level through the Masters of Engineering and Interdisciplinary Ph.D. programs administered in the College of Engineering.

In research, the department is developing concepts and applications of technology to the problems of health care delivery. In addition, programs in bioelectric phenomena, instrumentation and rehabilitation are available.

Research also is directed in the area of computer usage and biostatistical theory. In particular, the application of computer technology to medically remote populations is an ongoing program.

The department also offers senior electives for medical students.

The department also provides engineering development for all departments of the medical school. It furnishes expertise in intensive care, life support, implantables, monitoring, transduction, safety and instrumentation. In addition, consultation is available to the medical community at large in these areas.

Required Courses

MCH 6314—Epidemiology and Biostatistics: This course introduces principles and methods of epidemiologic investigation, both of infectious and noninfectious diseases. In the laboratory, problems are considered in order to provide experience in methods of collecting and analyzing field

observations. These begin with the investigation of an epidemic and proceed to interpretation of the results and discussion of control measures. This course also will provide a basic introduction to statistical methods with emphasis on those techniques frequently encountered in medical and epidemiological literature. Liberal use of these techniques will be made in the laboratory portion of the course.

Dermatology

**Assistant Professor: Barbara H. Way,
Acting Chairman**

Diseases of the skin comprise a high proportion of the cases seen by physicians. Because many skin lesions are expressions of an underlying systemic disease, it is important that all physicians, family practitioners and specialists alike, become familiar with the skin and learn to recognize the clues that may aid in diagnosis; therefore, the student is given the opportunity to participate in the care of the most common diseases of skin, those most likely to be seen in practice and those having systemic significance. Consideration also is given to the diagnosis and treatment of industrial dermatoses and to the preventive measures that are available. The roles of allergy in dermatology and the psychosomatic aspects of skin diseases also are considered. Venereal diseases from the point of view of morphologic diagnosis, serologic diagnosis and therapy will be included in the instructional program.

Family Practice

**Professor Thomas Nicholas, Chairman
Associate Professors: Matthewson, Squyres,
Saxton, Haidinyak**

**Assistant Professor: Yates
Instructors: Chauncey, Klover, McLeroy**

The Family Practice Department has the responsibility for training medical students and their supportive personnel in the diagnosis and treat-

ment of prevalent illnesses, recognition of rare diseases and in utilization of referral techniques for problem cases. The program demonstrates health maintenance methods through early recognition of change from the norm, through anticipation of such change, recognition of environmental problems and through the natural history of disease.

Family Practice is a clinical department that functions, not only to teach and train primary care physicians, but to serve as a model for organizing the medical health care team. The Department's research is searching for more effective methods of delivery of medical care; its laboratories are clinical settings that include emergency rooms, ambulatory care centers, nursing homes, physicians' offices and community health care clinics of various types.

The Family Practice curriculum is a blend of classroom study and active participation in the rendering of patient care in clinics. Senior students spend 12 weeks in Family Practice Clinic, including a four-week Rural Preceptorship program.

Required Courses

MFP 8018—Family Practice: Family-oriented health care, both in the office and hospital, will be combined with seminars concerned with clinical skills, family dynamics and social cultural relationships. The team approach to health care will be emphasized along with community and psychological medicine.

MFP 8528—Family Practice Rural Preceptorship: Students will be assigned to a variety of practices within the Regional Health Education Areas for a supervised exposure to day to day practice problems. Emphasis is on the application of clinical skills within the demands and limits of actual practice in a rural area.

Medicine

Professor Albert W. Holmes, Jr., Chairman
Professors: Glennon, Bartholomew
Associate Professors: Blackwood,
Assistant Professors: Beceiro, Paragas

The Department of Medicine strives to instruct students in the fundamental principles of medicine and to instill in them the desire to seek and to understand the mechanisms, natural history, and manifestations of disease. The students are shown the importance of treating the patient as an entire entity and of establishing empathy for the patient. The analytical approach to the diagnosis and treatment of medical problems is emphasized. Current literature is studied and the students learn the importance of keeping abreast of new developments in medicine.

Because the most effective way to learn is at the bedside, the students work at an assigned hospital with the patients. Their work is supervised closely by full-time and part-time medical school clinical faculty members who guide them in their experiences. The teaching techniques include seminars at the hospitals, patient oriented conferences and group discussions of the various diseases in the student's patients.

Required Course

MIM 7817—Internal Medicine: To study the presentation of disease, its diagnosis and treatment, primarily by working at the bedside with patients. Some didactic material will be given, but principal learning will be by close student-physician-patient interactions.

Microbiology

Professor John M. McKenna, Chairman
University Professor William W. Frye
Associate Professors: Dyson, Lefkowitz
Assistant Professors: Baskett, Evans, Fralick, Jones

The Department of Microbiology in the School of Medicine offers educational and research programs in Microbiology for (1) professional undergraduate students in the medical curriculum and related health sciences, (2) graduate students majoring in Microbiology and (3) other students requiring instruction in Microbiology.

Medical School Program: The Department of Microbiology offers a required comprehensive course spanning two trimesters in Medical Microbiology for second year medical students. The course is divided into lectures, laboratory-demonstrations, and clinical correlation conferences. The clinical correlative conferences, offered by members of the various clinical departments in the School of Medicine, can afford the students an opportunity to inquire into the relevance of Microbiology in modern medicine, especially in infectious diseases. The laboratory-demonstrations provide clinical material for helping to establish the diagnosis of disease by standard laboratory diagnostic methods. Wherever possible, recent advances in understanding infectious diseases are presented from the recent medical literature.

The interplay of the parasite (bacterial, mycotic, and viral) and host in the development and subsequent outcome of infectious diseases is the central theme of this course. A study of the biochemical, biological aspects of immune mechanisms and disorders of the immune system also is integrated into the course.

The required course and elective courses which are available for medical students in their third and fourth years are described below.

Required Courses

MMB 6731—Medical Microbiology: A study of the role and place of bacteria, fungi and viruses in human infectious disease processes, with emphasis on the interplay of the host and parasite relationships. Heavy emphasis will be placed on the biochemical, biological and medical aspects of immune mechanisms and disease processes together with a study of immune deficiencies and diseases of the immunologic mechanism.

Neurology

William H. Gordon, Jr., J.D., M.D.,
Clinical Professor and Chairman

The objective of the undergraduate teaching program of the Department of Neurology is to provide a practical application of the information concerning the normal structure and function of the nervous system acquired in earlier phases of study to the understanding and therapy of clinical neurological disorders. Of particular importance to the student's general medical education is the acquisition of skill in history taking and in performing the neurological examination.

Obstetrics and Gynecology

Professor Jack M. Schneider, Chairman
Professor: Misenhimer
Associate Professors: Ochoa, Williams, Mast
Assistant Professor: Varma

An interdisciplinary group will present seminars, round tables, grand rounds and didactic sessions to demonstrate to the student a team approach to health care delivery. Perinatal Health Care is used as a model to facilitate introduction of the team ap-

proaches to obstetric-newborn physiology, patho-physiology, and anatomy utilizing basic science educators, nurse educators, social workers, nutritionists, and specially trained physician specialists in maternal-fetal and neonatal preventive health maintenance and illness management.

Obstetrics and gynecology deals with the woman as a primary care patient during her reproductive years, and with those functional aberrations and diseases of the female generative tract occurring at any time during life. The course of study provides the student with a basic knowledge of the reproductive process and an understanding of the function of the female reproductive system, especially during pregnancy and childbirth. The student gains practical experience through the management of normal pregnancy, the evaluation of the status of the fetus in utero, the supervision of labor, in the conduct of delivery, as well as management of complications.

Gynecology instruction focuses on presenting the basic principles of gynecologic examination and the diagnosis and therapy of disease of the female reproductive system. This includes the physiology of menstruation, fertility, infertility and fertility regulation, as well as gynecological disease, cytology, oncology and pathology.

Required Course

MOB 7847—Obstetrics-Gynecology: A study of the treatment of female patients by the primary care practitioner. ●bstetrics-gynecology spans the entire age range of womanhood and is extensively health oriented with emphasis on prevention of illness and on surgical and obstetrical techniques. The quality of human life is emphasized.

Ophthalmology

Professor James Price, Chairman

Professors: Tyner, Buessler

Associate Professor: Pratt

The basic objective of the instruction in ophthalmology is to enable the student to integrate the principles of basic and clinical science into the understanding and skills necessary for a comprehensive health care practitioner to adequately evaluate and manage ocular disorders. To accomplish this end, interdisciplinary instruction is given regarding both intrinsic and systemic diseases affecting the ocular structures. The purpose is to instill in the students appreciation of the disorders that can impair vision and of the eye as a source of useful diagnostic information regarding systemic diseases.

The various techniques of ocular examination and treatment essential to the provision of high quality comprehensive primary health care are taught throughout the medical educational sequences in order that the students recognize the integration of such skills into the general physical examination and treatment of patients. Students desiring additional clinical or research experience in ophthalmology can obtain further information about elective course work from the department chairman.

Orthopaedic Surgery

Professor J. Ted Hartman, Chairman

The primary goals of the department are to teach medical students, train physicians in the speciality of orthopaedic surgery, provide high quality medical care and further medical knowledge through clinical and basic research.

The departmental functions are divided into administration, teaching, patient services and research in pediatric orthopaedics, adult orthopaedics, traumatic orthopaedics and orthopaedic research. The principles of orthopaedic surgery are coordinated with the teaching of the basic sciences as applicable.

Pathology

Professor Harry F. Sproat, Chairman
Professor: Schultz
Associate Professors: Mac Nair, Alexander, Buddingh
Assistant Professor: Pence

Pathology, often called the bridge between the basic sciences and clinical medicine, is concerned with the study of the causes, progressive mechanisms and effects of disease. The teaching of laboratory procedures that are helpful in the above studies are correlated with the teaching of the tissue changes that occur in the organ systems in disease processes.

The programs of the department are organized into four divisions: Anatomical Pathology; Clinical Pathology; Forensic Pathology; and Comparative.

In addition, the pathology department is involved in inter-departmental teaching and participation wherever indicated.

Required Courses

MPA 6743—Pathology I: General Pathology and Introduction to Clinical Pathology. A study of the major categories of general disease processes with an introduction to basic clinical laboratory procedures in which the students are required to attain a satisfactory degree of proficiency.

MPA 6744—Pathology II: Organ System Pathology. A study of specific disease states by organ systems. During both trimesters, teams of three or four students also rotate on autopsy call at local hospitals where they observe autopsy examinations under the supervision of local pathologists who are members of the clinical staff.

MPA 6100—Pathobiology: Medical Zoology. A study of the protozoan, helminth and arthropod parasites of man, vectors and animal reservoirs of human disease, and venomous and poisonous animals.

Pediatrics

Professor Robert E. Merrill, Chairman
Professor: Blankenship
Associate Professor: Erickson, Alva
Assistant Professors: Driscoll, Menchaca, Varma, Wells, Sekine, Harrison

The course of study in the Department of Pediatrics provides each student with an adequate, closely supervised and progressively responsible learning experience in the care of infants and children, either sick or well. To this end, primary emphasis is placed on practical application of basic science knowledge to the solution of clinical problems. Students observe and participate in diagnostic and care programs concerned with the pre-



mature and the newborn, growth and developmental processes, endocrinology, allergy, cardiology, psychiatry, communicable diseases and in the problems of a nutritional or metabolic nature. There will be emphasis on preventive as well as therapeutic medicine. Both the ambulant and hospitalized patient, along with well-baby care, offer the student interested in family practice or in pediatrics as a specialty, the necessary broad range of experience.

Required Course

MPD 7837—Pediatrics: A comprehensive overview of the physician's role in the care of the well and sick child.

Pharmacology and Therapeutics

Professor Alexander D. Kenny, Chairman
Associate Professor: Messiha
Assistant Professor: Lombardini

Pharmacology is a broadly based health science that, from many aspects, is concerned with the study of drugs or chemicals as therapeutic agents. It ultimately is concerned with the development of effective treatment of disease processes. The framework of modern pharmacology scans an extraordinarily wide range of problems and employs equally diversified approaches to the solution of these problems.

Required Course

MPH 6513—Clinical Pharmacology: A study of pharmacology with emphasis on mechanisms of drug action, drug interaction and therapeutics.

Physical Medicine and Rehabilitation

Professor Lester E. Wolcott, Chairman
Associate Professor: Richards
Assistant Professors: Heinrich, Gault
Instructors: Scarce, Yairi, Grimm

The Department of Physical Medicine and Rehabilitation participates in educational, service and research activities. A comprehensive restorative patient care program offers the environment for the students' clinical experience as well as a service to the community and the region. This clinical experience is supplemented by educational materials for independent study, conferences and seminars related to structural and functional characteristics of human organisms related to health, mobility, self care and other normal human activities. Electrodiagnostic techniques and therapeutic use of physical agents also are demonstrated. Basic and clinical research activities related to physical medicine and rehabilitation are pursued.

Physiology

Professor Charles D. Barnes, Chairman
Consulting Professor: Nau
Associate Professors: Crass, Hughes, Kopetzky
Assistant Professors: Davies, Holloway, Lutherer
Instructor: Roberts

The Department of Physiology in the School of Medicine offers educational and research programs for students working for professional degrees in medicine, related health science areas and advanced degrees in Physiology.

Medical School Program: One of the foremost functions of the Department of Physiology is to teach human physiology to students in the first and clinical years of medical school. Course work is all medically oriented with major emphasis on body controlling systems and their interrelations. The problem solving approach to altered function in the diseased state also is emphasized. Sessions in clinical physiology demonstrate the applicability of the material presented.

Another important function of this department is the operation of medically relevant programs which lay the foundations for the future practice of medicine.

Required Courses

MPY 5822—Physiology: A study of human physiology with major emphasis on body controlling systems and their interrelations. Pathophysiological mechanisms also are stressed.

Preventive Medicine and Community Health

Professor Robert H. Kokernot, Chairman
Professor: Tyner
Associate Professors: Gruber, Way
Assistant Professor: Hayes

The objective of this department is to identify those aspects of man's relationship to his total environment that influence his health or state of well-being.

The principal goal of this department is directed toward prevention and health maintenance. A new national health strategy has emerged with emphasis on disease avoidance as the best way of assuring higher levels of health and a higher quality of living. It also has become abundantly clear that disease avoidance is by far the most economical approach in terms of money, manpower and effort.

Graduates from this school should have a clear understanding of the prin-

ciples involved in epidemiology if they are to contribute to programs focused on disease prevention and health maintenance. They also should appreciate the relevancy of social, cultural, political and economic issues involved in the successful implementation of such programs.

Within this broad frame of reference, opportunities will exist for postdoctoral training leading to certification by the American Board of Preventive Medicine.

Required Course

MPM 6210—Preventive Medicine and Community Health: This course introduces principles and methods of epidemiologic investigation, both of infectious and noninfectious diseases. It also provides a basic introduction to statistical methods with emphasis on those techniques frequently encountered in medical literature. The application of these techniques and a consideration of official and voluntary health organizations are discussed by invited speakers.

Psychiatry

Professor James W. Larson, Chairman
Professor Bruce H. Beard, Associate Chairman
Professor: Tyner
Associate Professors: Erickson, Messiha, Finocchio, Peddicord, Flemenbaum, Haidinyak
Assistant Professors: Goggin, Troner, Weddige, Baskett

The major purpose of the educational program is to provide comprehensive understanding of the field of psychiatry. The curriculum emphasizes the integration of broadly based knowledge and supervised clinical experience. The students are expected to obtain a basic understanding of the behavioral and emotional disturbances typically presented by psychiatric patients. A major theoretical tenet is that normal growth and development within the life cycle and the biological roots of psychiatry are essential features for a contemporary mastery of psychopathology.

The instructional approach uses a wide variety of innovative techniques within different clinical settings, providing both small group and individualized learning experiences together with traditional lectures to implement the objectives of the program. Co-operative teaching programs, using specialists from other departments, as well as specialists from the Texas Tech University Complex, insure a broadly based choice of elective courses for the student during his final trimester.

Required Courses

MPS 5152—The Psychiatric Interview as Process and Diagnostic Technique: The emphasis in this introductory course is the psychiatric interview, its value as information gathering and therapeutic technique. In small group settings, a faculty member supervises each student interview of a patient. A discussion follows which focuses primarily on the psychopathological implications derived. (Trimester One)

MPS 6273—Normal Growth and Development and Psychopathological Deviations: The primary emphasis of the course is to understand the "normal" life cycle and the human deviations that are considered psychopathological. During the first half of the course, the life cycle from infancy to senescence is studied with an emphasis on the family's role in the socialization process. The second half of the course describes the development of traditional psychiatric syndromes. The students' interview skills are improved in the manner described in the introduction. (Trimester Two)

MPS 7857—Junior Clerkship: The clerkship provides an intensive and comprehensive experience in the field of psychiatry. The students obtain a supervised clinical experience in interviewing, diagnosis and treatment of patients. The students have supervised experience in both inpatient and outpatient facilities, including adult and child psychiatry services. The extent of his experience depends, to a degree, on choice since there are two locations which provide the junior clerkship experience, Amarillo and Lubbock. In most cases the students select a location and, rarely, they are assigned to one. An integral part of the clerkship is the students presentation at a case conference of a diagnostic formulation and treatment plan for a psychiatric patient. A seminar series augments the supervised clinical experience. (Trimester Three)

Radiology

Professor William A. Dunnagan, Chairman

The Department of Radiology is involved in teaching the applications of radiation to the understanding of biological phenomena, the detection of disease and the maintenance of health.

The diagnostic radiologist is involved in every branch of clinical medicine, using X-rays to study physiology and pathologic processes in vivo. The recordings may be observed in a variety of ways including fluoroscopic images, video recordings or as images on X-ray film.

The therapeutic radiologist is concerned with the use of ionizing radiation in the treatment of diseases involving abnormal tissue formation. Radiation and/or drugs may be utilized by the therapeutic radiologist for the destruction of tumor cells.

The field of radiology also encompasses the use of medical isotopes in the diagnostic testing and treatment of disease. In addition, radiology involves medical physics, which is the study of the biological effects of interaction of electromagnetic radiation and tissues.



Surgery

Professor Francis C. Jackson, Chairman

Division of General Surgery

Instruction in the Division of General Surgery acquaints the student with surgery as a clinical discipline concerned with the diagnosis and treatment of injury and illness. The major functions in undergraduate teaching of surgery strongly emphasize diagnosis, preoperative and postoperative care and the role of general surgery in clinical medicine. Students are exposed to the basic operative techniques, but detailed and highly specialized operative skills and maneuvers are not emphasized at this point in their training. In his clinical years, the student takes the patient's history, performs examinations and scrubs with the surgical team. In the preoperative preparation and particularly in the postoperative care of the patient, the student utilizes the clinical application of anatomy, physiology, biochemistry and the other basic sciences.

The student is able to observe and participate in the care of patients in the emergency room, offices and surgical wards. Through conferences, demonstrations and ward rounds with the staff, the student is able to verify his own observations and to correlate them with observations of others. Emphasis is on the overall practical aspects of general surgery that give the student a well-rounded foundation and basic knowledge for whatever phase of medicine he ultimately may choose to pursue.

Required Course

MGS 7827—General Surgery: An introduction to the principles and techniques used in the surgical management of disease.

Division of Plastic Surgery

The principles of plastic and reconstructive surgery presented cover those conditions which will be of use to the practicing physician. The restoration of function following serious head and neck trauma is an important aspect of the instruction, as well as the use of plastic surgery for cosmetic purposes following disfiguring burns or massive trauma to the face, limbs or body. The student observes and participates in the care and treatment of the plastic surgery patient while under the supervision of the staff physician.

Although students are not expected to learn the many details of plastic surgery technique, their clinical experiences are directed towards learning surgical indications.

Division of Urology

The course of instruction in the disorders of the genitourinary tract is designed to present the common urological problems and the methods for their diagnosis based on pathology and physiology. The student is instructed in the principles of urological diagnosis and of urological physical examination. Through a combination of lectures, seminars, demonstrations and staff physician-supervised participation in patient care, the student is able to gain knowledge which is of value to the primary care physician as well as to the student interested in urology as his specialty. The urological diagnostic steps, the diagnosis and treatment of common urological disorders, and the basic pathological and abnormal physiological changes which occur in association with these abnormalities also are presented.

Division of Cardiovascular Surgery

Clinical Professor Donald Bricker, Chief

A comprehensive course in cardiovascular surgery is provided. The core curriculum contains a basic lecture series to acquaint the student with fundamental principles of cardiovascular surgery. The family practice rotation has, in addition, an intensive lecture series designed to encompass the clinical aspects of the specialty in detailed fashion. An elective rotation in clinical cardiovascular surgery is available, which will afford the student exposure to a large number and wide variety of cardiovascular diseases with therapeutic applications.

Division of Neurosurgery

Clinical Professor Jack Dunn, Jr., Chief

It is the purpose of the section of Neurologic Surgery at Texas Tech University School of Medicine to pre-

sent to the students a practical approach to the diagnosis of surgical neurologic conditions and a rational approach to their management. This will be achieved through didactic lectures, clinical conferences and demonstrations, rounds and attendance in the operating suite.

Division of Thoracic Surgery

**Clinical Professor Martin L. Dalton, Jr.,
Chief**

The Division of Thoracic Surgery is concerned with the broad area of training in the surgical aspects of thoracic diseases. The student receives instructions in cardiopulmonary physiology, anatomy and pathology. Beginning in the third year, clinical instruction is initiated as part of the surgical curriculum. The senior year students assume patient care responsibilities under the direction of the clinical faculty. Conferences, ward rounds and operating room experience are used to cor-



relate basic knowledge with practical aspects of patient care.

Members of the faculty provide, through seminars, presentations and symposiums, instruction for family physicians and practicing surgeons as a means of continuing education.

Division of Otorhinolaryngology

Clinical Professor James T. Hall, Chief

This department involves the sum of knowledge regarding the ear, nose and throat structures, and their diseases, as well as the special senses of hearing, olfaction and taste studies in

relation to health and disease. This includes the social, physiological, psychological and physical aberrations of function as they relate to the various organs and to communication sciences.

The instructional program focuses on the specialized techniques for evaluation of organs of the head and neck, the nature of their maladies and methods of therapy. The teaching approach will draw on current progress in experimental work and on established clinical principles. Students are instructed in physical diagnosis of the otorhinolaryngeal region. They learn history-taking and physical examinations on selected patients, participate in diagnostic studies and observe surgery and aftercare.

Texas Tech University Health Sciences Centers Graduate Programs General Information

The basic medical science and health science graduate programs of Texas Tech University Health Sciences Centers are components of the Graduate School of the Texas Tech University Complex. The Health Sciences Centers' graduate programs operate under the general regulations of the Graduate School and under the general administration of the Dean of the Graduate School and the Graduate Council of the Texas Tech University Complex.

The Associate Dean of the Graduate School for Health Sciences (acting for the Vice President for Health Sciences Centers, the Dean of the School of Medicine and the Dean of the Graduate School), and a Health Sciences Centers Graduate Studies Committee, along with the Graduate Faculty from various departments in the Health Sciences Centers are responsible for the actual conduct of these programs within the general policies of the Graduate School of the Texas Tech University Complex.

The Texas Tech University Health Sciences Centers recognize that a strong program of graduate education in the basic medical and related health sciences is a necessary part of its responsibilities and goals. This decision is based on the realization that present-day medicine is dependent on the academic framework and intellectual discipline of the chemical, biological, behavioral and medical sciences. Graduate training in these disciplines is an integral component of the overall program of Texas Tech University Health Sciences Centers.

Opportunities for study and research leading to the Master of Science and Doctor of Philosophy degrees are offered through the departments of Anat-

omy, Biochemistry*, Microbiology*, Pharmacology and Physiology. A Master of Science degree program with a concentration in Health Communications is offered through the Department of Health Communications. Individual departmental program offerings can be found within the specific department descriptions in this Bulletin.

The hallmark of these Master of Science and Doctor of Philosophy degrees is their research emphasis. They will not be conferred as a result of a prescribed period of study, nor will they be conferred upon the completion of any definite amount of course work described in advance. Rather, they will be conferred in recognition of breadth and soundness of scholarship and mastery of a specific field of knowledge. Evidence of such attainment must be provided through the passing of comprehensive written and oral examinations (the Qualifying Examination in the case of the Ph.D.) and through the presentation of an acceptable thesis or dissertation based upon independent research. (The Health Communications program offers a two-month internship in lieu of a thesis.) The completion of a certain amount of graduate course work is an important, but secondary, part of these graduate degree programs. Therefore, the mere accumulation of course credits in no way satisfies the requirements for the Master's degree or the Doctor of Philosophy degree.

More information about these programs may be obtained by contacting the Associate Dean of the Graduate School for Health Sciences. NOTE: Members of the Graduate Faculty at

*Joint programs between the School of Medicine and the Graduate School of Texas Tech University

the Health Sciences Centers are indicated by an asterisk in front of their names in the Faculty section of this Bulletin.

The information given below summarizes the major points of interest to prospective graduate students; applicants should refer to the current Graduate Catalog of Texas Tech University for complete information regarding technical aspects of admission to the Graduate School, tuition and fees, graduate degree requirements, etc., and to the appropriate departmental sections of this Bulletin.

Admission Requirements

The following are the general requirements to any of the graduate programs of Texas Tech University Health Sciences Centers:

1. A bachelor's degree or the equivalent from an accredited college or university.
2. Adequate preparation for the proposed field of graduate study with a minimum grade point average of 3.0 for the last 60 semester hours (junior and senior years) of the applicant's undergraduate study.*
3. Minimum combined score of 1100 on the Aptitude Test of the Graduate Record Examination.
4. A satisfactory physical examination.

Additional requirements of specific departments or programs are given in that department's section of this Bulletin.

*For the Health Communications program, which has been geared at least in part for mid-career people in the health and communication professions, important consideration also will be given to previous professional development, rigorously evaluated.

Application Procedure

General Admission to the Graduate School: All students seeking admission to any of the graduate programs of Texas Tech University Health Sciences Centers must first obtain general admission to the Graduate School of the Texas Tech University Complex. This is granted through the Office of Admissions of the University. The basic prerequisite for admission to the Graduate School, regardless of the type of admission sought, is the possession of an acceptable bachelor's degree from a recognized college or university. In addition, any student transferring from another school must be in good standing when he applies for admission to this Graduate School. General admission is granted on the basis of a formal application and satisfactory transcripts of the applicant's previous academic work. These documents should be submitted at least 30 days prior to the proposed enrollment—60 days by applicants outside the United States. Credentials accepted for admission become the property of the University.

Admission To A Texas Tech University Health Sciences Centers Graduate Program: Once general admission to the Graduate School is obtained, a student may seek admission to one of the graduate programs in the Health Sciences Centers.* Admission to any particular graduate degree program is contingent upon acceptance by the department or other institutional divisions concerned. Application for admission to any of the Health Sciences Centers graduate degree programs is made through the Associate Dean of the Graduate School for Health Sciences.

A student's application, registration, and class attendance are considered an agreement to comply with rules and regulations of the Graduate School of the Texas Tech University Complex and of the relevant graduate program in the Health Sciences Centers as published in this Bulletin, the Graduate School Catalog and other official pub-

*Students seeking admission to the Health Communications program must first be admitted to the graduate program in Mass Communications.

lications of the institution during the student's continued enrollment.

Instructions and materials for making application for general admission to the Graduate School and for admission to any of the graduate programs of Texas Tech University Health Sciences Centers are available on request from Dr. Stanley S. Lefkowitz, Associate Dean of the Graduate School for Health Sciences, Texas Tech University School of Medicine, Post Office Box 4569, Lubbock, Texas 79409.

Fees and Expenses

Tuition Fees: For legal resident students of the State of Texas, the tuition fee, each semester, is \$4 per semester hour, but the total of such charges shall not be less than \$50.

For nonresident students, the tuition fee, each semester, is \$40 per semester hour.

General Fees: Each student enrolled in the University must make a general property deposit of \$7. This deposit is subject to charges for property loss, damages, breakages, or violation of rules in the Library or laboratories.

A laboratory fee of \$2 per semester is charged for all courses in which the combined lecture and laboratory credit is from 1 to 3 semester hours. For courses in which the semester credit is 4 semester hours or more, the laboratory fee is \$4 per semester.

Each student is required to pay a Student Services fee based on the number of semester credit hours for which he is enrolled.

University Center Fee is a \$5 fee authorized by State law to be paid each semester of the long session by every student enrolled for 3 semester hours or more.

Student Use Fee is a fee authorized by State law to be paid each semester by every student enrolled in the University.

Complete information on and explanations of these fees may be found

on pages 34-38 of the 1974-75 Graduate School Catalog.

Academic Policies and Regulations

Complete statements of Graduate School academic policies and regulations and degree requirements are on pages 41-61 of the 1974-75 Graduate School Catalog of Texas Tech University.

Departments and Courses for Graduate Programs

(Credit hours for graduate courses are indicated by the second digit of the course number)

Anatomy

Professor William G. Seliger, Chairman
Associate Professor: Hillman
Assistant Professors: Casady, Sterrett

Majors and Minors for the Master's Degree and the Doctor's Degree in Anatomy

The Department of Anatomy offers programs leading to the Master of Science and Doctor of Philosophy degrees in the anatomical sciences. The objective of this graduate training is to prepare superior students for careers in teaching and research in the field of anatomy. The major areas of employment for anatomists are in medical and paramedical professional schools and research institutes.

The Department of Anatomy offers a program emphasizing wellrounded training in gross anatomy, microscopic anatomy, developmental anatomy and neuroscience. Specialized training is

offered in areas such as histocytochemistry and ultrastructural morphology, including analysis of clinical specimens, mineralized tissue study, and instrumentation. Every effort is made to use the most modern concepts of teaching, stressing the relationships between structure and function.

Graduate Courses

ANM 5411—Anatomy I m: Human microanatomy and embryology. An integrated course of Anatomy starting with the ultrastructural and light microscopic study of cells and continuing through developmental and microscopic anatomy. This course must be taken in conjunction with ANM 5811 Anatomy I g.

ANM 5811—Anatomy I g: A highly integrated course of general anatomical study (including human prosection) which embodies the gross morphology of the body and coordinates it with the clinical, developmental and microscopic aspects of the human body. This course must be taken, in conjunction with ANM 5411 Anatomy I m.

ANM 5612—Anatomy II: Neuroscience—A detailed course of neuroscience, passing from the study of ultrastructural cytology, through the light microscopic, gross and neuroanatomical aspects of the nervous system. This course includes strong emphasis on the functional and clinical aspects of neuroscience.

ANM 5301—Clinical Applications of Electron Microscopy: Specimen preparation, theory and use of the electron microscope for clinical medicine, including specimen analysis and diagnosis of disease.

ANM 5502—Histochemistry: Techniques and applications of histochemical techniques for light and electron microscopy.

ANM 5303—Advanced Anatomical Studies: Advanced studies in surgical anatomy, gross anatomy, histology, embryology, neuroscience, or cell biology.

ANM 5304—Advanced Cytochemistry: Discussions and applications of current cytochemical theory and techniques.

ANM 5305—Medical Cell Biology: An interdepartmental course for graduate students in the biomedical sciences. Emphasis will be placed on the medical aspects of cell structure and function, including analysis of recent concepts and current literature. Techniques and methods of cell biology will also be examined in the laboratory.

ANM 5306—Biodynamics of Bone: Study of the morphology and cell biology of bone and bone changes.

ANM 5307—Surgical Anatomy: A study of the anatomy of the landmarks, approaches, and problems of the surgeon as related to the head and neck, musculoskeletal system, abdomino-pelvic cavity, and thoracic cavity.

ANM 5309—Biology of Reproduction: This course will analyze the various aspects of biological reproduction with an emphasis on human problems. The reproductive process will be taught from union of the gametes to the delivered fetus. Morphology, in relation to functional and pathological states, will be stressed. Social aspects will be considered as they relate to current reproductive problems, i.e., abortion and contraception. The course will draw upon experts in the field from anatomy, medicine, and physiology.

ANM 5310—Microscopy and Microscopic Technique: Prerequisite: BIOL 431, Biological Techniques, or its equivalent. The first half of the course will be concerned with the theory, design, and use of the many various forms of light microscopes. The course will include lectures, demonstrations, and use of these instruments as well as an Abbe diffraction demonstration microscope explaining his theory and principles of image formation. The second half of the course will be concerned with the theory, techniques, and practices of general histological and cytological preparations. The various microtomes, fixatives, embedding materials, and stains will be discussed and a number of them will be used in the laboratory.

ANM 5311—Advanced Musculoskeletal System: Detailed study of the skeleton and muscles with the aid of models and gross dissection. The purpose of this course is to present a detailed view of the skeleton and muscles and their interrelations to produce movement. A detailed study of the joints will be presented, as well as a study of the functions of muscles and their innervations.

ANM 5316—Autonomic Nervous System: Prerequisite: Anatomy II or its equivalent. A study of the autonomic nervous system with major emphasis on the morphological, functional and developmental aspects. Clinical applications are also stressed.

ANM 5318—Structure and Function of the Nervous System I: A detailed study of the neural system. An examination of both gross and fine structure, as well as cell biology of both the peripheral and central portions of the nervous systems will be in-

cluded. The basic structures that are immediately pertinent to the makeup and function of the nervous system (meninges, vasculature, Schwann cells, microglia, neuroglia, ependyma, choroid plexus, neurons, neuropil, as well as special related structures, including pituitary gland, pineal body, other neuroendocrine structures, CSF, and interstitial substances) will be studied. In reviewing these, it is necessary to touch upon the physiology, chemistry and physics, as well as the microanatomy (including ultrastructure) of those elements. Using this cellular approach, the naturally complex functions of this system will be simplified.

ANM 5319—Structure and Function of the Nervous System II: Prerequisite: Structure and Function of the Nervous System I. A variety of methods of investigation used for the functional study of the nervous system will be examined. Techniques and methods of measuring morphological, metabolic and electrical properties of nervous tissue will be discussed, demonstrated and used. These will be utilized to clarify the functional organization of the nervous system. Included will be applications and use of the cathode ray oscilloscope in the study of nerve impulses and nerve pathways (bioelectric study), cytochemistry, for interrelating some of the more important chemical systems with the functioning of the neural complex, as well as light and electron microscopy for the correlation of structure and function. This course will also include current controversies in neural research and will indicate some of the directions in which the neural sciences will move in the next decade.

ANM 631—Master's Thesis: Enrollment required at least twice.

ANM 711—Anatomy Seminar:

ANM 731—Anatomical Research:

ANM 831—Doctor's Dissertation: Enrollment required at least four times.

Biochemistry

Professor Francis J. Behal, Chairman

Professor: Shetlar

Consulting Professor: Nau

Associate Professors: Lloyd, Morrow

Assistant Professors: Garner, Haller, Little,

Pelley, Starnes, Stocco

The Department of Biochemistry of the School of Medicine provides the educational and research programs in biochemistry for (1) professional students in medicine and related health

sciences, (2) biochemistry graduate students and (3) graduate students minoring in biochemistry.

Graduate School Programs: The Department of Biochemistry offers opportunities for study and research leading to the Master of Science and/or Doctor of Philosophy degrees in chemistry with a concentration in either biochemistry or clinical biochemistry. This is a joint program between the School of Medicine and the Graduate School of the Texas Tech University Complex.

Each student in this program must take a Preliminary Examination. This examination will include an assessment of the student's background in physical, organic, and either analytical or inorganic chemistry to ascertain his comprehension of these fields. The nature of the Preliminary Examination will be determined in part by the student's undergraduate curriculum. Satisfactory proficiency in one foreign language and in statistical methods are required for the Ph.D.

The written part of the Qualifying Examination (for admission to candidacy for the Ph.D. degree) consists of an integrated, five-day comprehensive examination after most of the course work has been completed. A thesis based on original biochemical research is required for the master's degree and the Ph.D. degree. Credit for the master's thesis shall be for at least six hours credit, but not more than 9 hours credit. Credit for the doctoral thesis shall constitute not less than one-sixth nor more than one-third of the total work presented for the Ph.D. Completion of the master's degree is not an obligatory step leading to the Ph.D. degree.

The major areas of research in the Department of Biochemistry are:

1. physical biochemistry of enzyme complexes
2. disorders of mucopolysaccharide metabolism and metab-

- olism of complex carbohydrates
3. genetics of somatic cell hybrids
4. carbohydrate components of cell surface antigens
5. mechanism of action of thyroid hormones in differentiating tissues
6. mitochondrial compartmentation of enzyme complex aggregates
7. nutritional studies on the value of new grain varieties as improved sources of essential amino acids
8. studies on pancreatic enzyme secretion changes as early onset markers of pancreatic disease
9. biochemical aspects of wound healing and hypertrophic scar formation
10. biochemical effects of chemicals in the environment
11. interconversion of lipids and structure and function of pancreatic lipase

The clinical biochemistry concentration is structured so as to prepare the student for subsequent certification by the American Board of Clinical Chemistry.

Inquiries about the graduate program in biochemistry or clinical biochemistry should be sent to:

Chairman, Department of
Biochemistry
Texas Tech University School of
Medicine
P.O. Box 4569
Lubbock, Texas 79409

Graduate Courses

BCH 5721—Biochemistry: Prerequisite: CHEM 335, 336, or equivalent. A study of human life processes at the molecular level with emphasis on biochemical homeostasis and control mechanisms. This course consists of a series of closely related lectures, laboratories, and clinical correlation sessions. Major focal points will include neurological and endocrine control of metabolism, molecular genetics, function of specialized tissues, and molecular lesions in selected disease entities. Laboratory exercises and clinical correlation sessions will

be major components of this course and are designed around selected case reports from medical literature.

BCH 6320—Clinical Biochemistry: Prerequisite: BCH 5721, CHEM 433, 436, 437, or equivalent. A study of clinical chemistry with emphasis on the interpretation of clinical laboratory data and concepts of laboratory assisted diagnosis of human disease.

BCH 6324—Biochemical Basis for Inherited Disease: Prerequisite: BCH 5721, CHEM 433, 436, 437, or equivalent. Biochemical and molecular basis of genetic disorders, genetic counseling, human population genetics, chromosomal defects, sex determination, and gene mapping in man.

BCH 6321—Biophysical Characterization of Macromolecules: Prerequisite: BCH 5721, CHEM 433, 436, 437 or equivalent. A study of the characterization of macromolecules with major emphasis on the analytical ultracentrifuge and related instrumentation. This course will consist of interwoven lectures and laboratory exercises where students will have an opportunity to become familiar with operation and use of the analytical ultracentrifuge and with the interpretation of data obtained from it.

BCH 6521—Human Intermediary Metabolism and Its Regulation: Prerequisite: BCH 5721, CHEM 433, 436, 437 or equivalent. A detailed consideration of normal and abnormal human intermediary metabolism with major emphasis on modulation and control. The use of patients and patient data will constitute a major portion of the course. Control and regulation mechanisms will be emphasized and will include such key examples as enzyme induction and destruction, the effect of neurotransmitters, the role of the hypothalamus and pituitary, hormonal effects on the relation between subcellular organelles, and the overall homeostasis between tissues.

BCH 6322—Biomedical Radioisotope Technique: Prerequisite: BCH 5721, CHEM 433, 436, 437 or equivalent. Basic radioisotope techniques as used in biomedical research with special emphasis on liquid scintillation counting techniques.

BCH 6325—Advanced Genetics: Prerequisite: A course in genetics. Further development of concepts introduced in introductory course in genetics, molecular biology, gene mapping, extranuclear genetic systems, gene expression, population genetics. This course will attempt to refine and extend concepts introduced in introductory genetics courses, and to integrate a number of advanced considerations. Thus, the nature of the gene and its behavior in recombination,

mation and in populations will be discussed. In addition, a number of areas will be developed as they relate to the course, such as statistics and molecular biology. Finally, eukaryotic gene control and expression will be considered.

BCH 6326—Advanced Human Genetics: Prerequisite: A course in genetics. Detailed consideration of population genetics, cytogenetics, molecular biology and biochemistry as related to human heredity. This course will concern the study of human heredity from the point of view of a number of disciplines: biometry, cytogenetics and molecular biology. It will not involve a detailed discussion of clinical conditions except as they relate to the elucidation of general principles of human heredity. Topics to be covered include gene mapping, genes in population, regulation of genetic activity, quantitative inheritance, molecular biology.

BCH 6127—Seminar in Somatic Cell Genetics: May be repeated. Presentation of current research topics in the genetics and molecular biology of eukaryotic cells, and related areas: oncogenesis, differentiation, aging. Enrollment: by permission. This course is primarily intended for those working in the field of cell culture and somatic cell genetics, but those whose interests lie in peripheral areas may also enroll. The format consists of a two hour meeting once a week in which students will present and discuss a seminar covering a research topic of their interest. Applicable fields include: molecular biology of eukaryotes, gene regulation in higher organisms, aging, immune phenomena, oncology, and developmental biology.

BCH 6328—Biochemistry of the Mitochondrion: Prerequisite: A course in general biochemistry. Subject areas involve structure-function relationships, ion and metabolite transport, enzyme and metabolite compartmentation, and enzyme regulation.

BCH 6329—Advanced Immunochemistry: A study of protein, carbohydrate and complex antigens and the specificity of the immune response to them. Such medically important antigens as blood group, transplantation and tumor antigens are included. Basic principles underlying molecular and cellular aspects of immunity will be analyzed. The course will discuss the uses of immunological techniques in biochemistry and clinical immunology.

BCH 6330—Special Topics in Environmental Biochemistry: Prerequisite: Consent of instructor, however, organic chemistry recommended. May be repeated with change in content, for a total of 6 hours. Reading,

conferences and/or laboratory work on selected chemicals which may exist in ambient air, water or food—separation, identification and physiological effects.

BCH 6331—Special Topics in Toxicological Biochemistry: Prerequisite: Consent of instructor (organic chemistry is recommended). May be repeated with change in content, for a total of 6 hours. A consideration of the uses, abuses and potential biochemical effects of agricultural chemicals. Reading, conferences and/or laboratory work on selected chemicals which may be present in ambient air, water or food—separation, identification, quantitation and biochemical effects.

BCH 6332—Advanced Clinical Biochemistry: Advanced study of the use of chemistry in Laboratory Medicine for the diagnosis of disease and evaluation of therapy. Consideration of the development of new methods in clinical chemistry, utilization of automated equipment, organ profiles, and other current developments in clinical biochemistry.

BCH 6333—Topics in Developmental Biochemistry: An in depth discussion of current knowledge of biochemical mechanisms in embryonic and postembryonic development. Topics to be considered include: biochemistry of cellular differentiation, biochemical mechanisms in growth and morphogenesis, development of specific enzyme systems and endocrine mechanisms in development.

BCH 6335—Topics in Biochemistry: Prerequisite: Consent of Instructor. Specific areas of Biochemistry not normally included in other courses. May be repeated for credit with change in content.

BCH 631—Masters Thesis: Enrollment required at least twice.

BCH 711—Biochemistry Seminar

BCH 731—Biochemical Research

BCH 831—Doctors Dissertation: Enrollment required at least four times.

Biomedical Engineering and Computer Medicine

Associate Professor Blair A. Rowley,
Chairman

Professors: Ayoub, Portnoy

Associate Professors: Jarzembksi

Assistant Professor: Anderson

Study leading to the Master of Engineering (Biomedical option with special permission) and Doctor of Philosophy degrees is offered in cooperation

with the College of Engineering through their interdisciplinary study programs.

The courses listed below currently are offered by the School of Medicine faculty, but are subject to revision as the interdisciplinary program undergoes further development. In addition, study programs utilize courses offered in the various departments of the College of Engineering.

Graduate Courses

BME 5101—Selected Topics in Biomedical Engineering

BME 5201—The material covered may vary from semester to semester

BME 5301—This course may be repeated for credit if different topics are covered for each registration.

BME 5302—Function and Structure of the Human Body for Biomedical Engineers I: This course introduces the basic micro and macro units of the human body. Biomedical Engineering principles, anatomy, and physiology of cells, tissues, skeletal system, muscular system and the nervous system are presented. Emphasis on the gross structure of the body and the nervous system including senses provides a background for continued study in statics and kinematics of the body and nervous system response and control.

BME 5303—Function and Structure of the Human Body for Biomedical Engineers II: Prerequisite: Function and Structure of the Human Body for Biomedical Engineers I. This course presents six major systems of the human body: Cardiovascular Respiration, Regulation of Fluids, Digestion, Endocrines, and Reproduction. Biomedical Engineering principles, Anatomy and Physiology are presented. Methods of testing and modeling body systems along with physiological functions and anatomical structure provide a basis for application of engineering analysis in the study of body functions, instrumentation design, and application of supportive electro-mechanical devices.

BME 5304—Systems Analysis in Biomedicine: This course presents a number of analytical methods which are very useful in advanced study of living systems. No advanced mathematics are required. Using realistic yet simple physiological examples analysis methods are developed in models and analogs, system properties of resistance

and storage, step response, transfer functions, impedance, periodic signals, transient oscillations, resonance, and feedback.

BME 6301—Bioelectric Phenomena: The objective of this course is to introduce graduate students with backgrounds in the physical sciences and engineering to the electrical behavior of nerve and muscle using mathematical techniques to provide a quantitative basis for observed phenomena. The material presented covers electrode theory; membrane structure and phenomena; propagated action potential and electrocardiography.

BME 731—Research (3): Prerequisite: Admission to doctoral study and consent of the instructor. May be repeated for credit.

CMB 5101—Selected Topics in Computer Medicine and Biomathematics

CMB 5201—The material covered may vary from semester to semester

CMB 5301—This course may be repeated for credit if different topics are covered for each registration

CMB 5302—Intermediate Biostatistical Analysis for the Medical Sciences: Prerequisites: An introductory knowledge of calculus or statistics or consent of instructor. The purpose of this course is to provide graduate students in health related areas with a working knowledge of commonly used statistical techniques for analyzing biological data. Emphasis is placed on training the student to recognize the design of the experiment, what reasonable assumptions may be made, and to perform the necessary analysis. The student will be expected to exhibit the ability to analyze appropriate data sets from his own specialty area.

CMB 731—Research (3): Prerequisite: Admission to doctoral study and consent of the instructor. May be repeated for credit.

Health Communications

Professor Donald J. Brenner, Chairman

Professor: Sargent

Associate Professor: Quesada

The Department of Health Communications is cooperating with the Department of Mass Communications, Texas Tech University, in offering a master's degree option in Health Communications. The Department is engaged in research programs inside and outside the School of Medicine. Also,

the Health Communications Lab provides information services for the School of Medicine.

The master's program is professionally oriented and is a 48-semester hour program with an internship in lieu of a master's thesis. It is intended to prepare students for work in health agencies, institutions and media. Concentrations include journalism, information science, media and applications of communication theory and research.

Departmental research includes the communication aspects of health care, the diffusion of health information, the role of the patient-consumer and health information programs based on knowledge-level and attitude data.

Graduate Courses

HCOM 5301—Health Communications Practicum in Health Sciences I. As a basis for understanding and interpreting the work of health professionals and other health scientists, and also as a basis for understanding from the patients' viewpoint, correlated concepts from the physical, biological and health sciences will be presented. Emphasis will be placed upon the appreciation of the total person and his life processes in illness and in health.

HCOM 5302—Health Communications Practicum in Health Sciences II. As a basis for understanding and interpreting the work of health professionals and other health scientists, and also as a basis for understanding from the patients' viewpoint, correlated concepts from the physical, biological and health sciences will be presented. Emphasis will be placed upon the appreciation of the total person and his life processes in illness and in health. Prerequisite: Health Communications Practicum in Health Sciences I (HCOM 5301).

HCOM 5310—Health Communications Seminar I. Introduction to the new discipline of health communication. Application of human communication theory to health care and health service systems. Emphasis is placed upon health care provider-consumer intercommunication, and upon the communicational study of patienthood.

HCOM 5311—Health Communications Seminar II. Introduction to the new discipline of health communication. Application of human communication theory to health care and health service systems. Em-

phasis is placed upon health care provider-consumer intercommunication, and upon the communicational study of patienthood. Prerequisite: Seminar I (HCOM 5310).

HCOM 5312—Medical Writing and Reporting I. Application of reporting and news writing principles and techniques to the health field. Will include active criticism from medical and health professionals, including medical writers.

HCOM 5313—Medical Writing and Reporting II. Application of investigative reporting and newswriting principles and techniques to more complex material in the health field. Lab practice in preparing feature-length materials and series. Criticism from health professionals. Prerequisite: Medical Writing and Reporting I (HCOM 5312).

HCOM 5314—Application of Communication Theory to Health Communications. Application of diffusion theory, persuasion and learning theory, motivation research to the information systems of health and medicine.

HCOM 5315—Health Communications Research. Critical examination and synthesis of past and ongoing research on the health communications process, focusing on mass communication research concerning health and medicine.

HCOM 5316—Introduction to Information Science. Computer-oriented techniques for mechanized non-numeric information processes, with emphasis on medical bibliographic record systems. Automated information systems such as MEDLARS, MEDLINE, TOXICON and others, as well as the design of an information system, will be emphasized.

HCOM 537—Information Storage and Retrieval. This course is designed to introduce the student to information organization and retrieval of natural language data. Computer techniques will be emphasized. Topics typically covered would include: an introduction to automatic information systems, the syntactic operations, the retrieval process, auxiliary information services, and data base retrieval systems. The course will emphasize mathematical and statistical methods of detailed analysis of system performance.

HCOM 5317—Information Retrieval Systems Design. This course is concerned with the design of retrieval systems based upon theories covered in Information Storage and Retrieval (Course II). Topics typically covered are: information dissemination process, information centers, file organization, search strategy, output operations.

Language design, and retrieval evaluation. Prerequisite: Information Storage and Retrieval.

HCOM 5319—Seminar in Current Topics of Information Sciences. This will vary each semester emphasizing either information science topics or other topics in the health communications area.

HCOM 5320—Medical Photography. Advanced applications in medical environment including specialized equipment and procedures. Prerequisite: 6 hours of photography.

HCOM 5322—Medical -Television. Advanced applications in medical television involving the patient and medical personnel, and unique problems involving the health sciences. Prerequisites: a beginning course in television direction.

HCOM 5324—Medical Illustration I. Advanced techniques involving illustration in medical education: evaluation of learning effect. Prerequisite: 12 hours of art and/or illustration.

HCOM 5325—Medical Illustration II. Advanced techniques involving illustration in medical education: evaluation of learning effect. Prerequisite: Medical Illustration I.

HCOM 5326—Visual Techniques Practicum. Introductory course involving media in health sciences education, research, and service programs. Working with the medical faculty and staff and patient and patients in preparing instructional packages and ways to improve them.

HCOM 5327—Advanced Visual Techniques Practicum. Summary and practical course involving media in health sciences education, research, and service programs. Working with the medical faculty and staff and patients in preparing instructional packages and ways to improve them. Prerequisite: At least two of the courses in Medical Photography, Television or Illustration.

HCOM 5115—Individual Problems in Health Communications. Individual research and reporting projects. A student may enroll in this course any number of times up to a maximum of 5 semester hours.

HCOM 5117—Health Terminology. Medical and health terminologies most important to health communicators, presented in the framework of general health and medical concepts. Includes both the specialized professional languages and vernacular of the health professions, the hospital, and other health care systems, and the idiomatic expressions of certain patient populations.

HCOM 560—Health Communications Internship. Students will perform communication functions for eight weeks at Texas Tech University School of Medicine Regional Health Education Centers, under joint supervision of the chairman of the student's advisory committee and a Texas Tech University School of Medicine faculty member at the Center, who will also determine content of the internship in consultation with the student, and evaluate a written and oral report of the experience. Students will normally do the internship at the end of their course work for the degree.

Microbiology

Professor John M. McKenna, Chairman
Associate Professor; Lefkowitz
Assistant Professors: Baskett, Evans, Fralick, Jones

The Department of Microbiology in the School of Medicine offers educational and research programs in Microbiology for (1) professional undergraduate students in the medical curriculum and related health sciences, (2) graduate students majoring in Microbiology and (3) other students requiring instruction in Microbiology.

Graduate School Program: The Department of Microbiology offers programs leading to the Master of Science and/or Doctor of Philosophy degrees in Microbiology. These are joint programs between Texas Tech University School of Medicine and the Graduate School of Texas Tech University Complex. The basic degree requirements of the Graduate School of Texas Tech University Complex determines in large respect the policy of this department.

I. For admission to the department, the following subjects are considered prerequisites, but a limited number of them may be taken as a graduate student.

A. Biology

At least one year of Botany and/or Zoology plus at least one advanced course.

- B. Chemistry
Inorganic, qualitative, and quantitative, and organic chemistry.
- C. Physics
A one year course with laboratory
- D. Mathematics
One year including college algebra, analytical geometry and/or trigonometry.
- E. An acceptable score on the general aptitude section from the graduate record examination.

The Department of Microbiology has no general requirement for a foreign language for either the Master of Science or the Ph.D. degree. However, it may be necessary for a student to demonstrate a proficiency in a foreign language(s) in certain programs.

Incoming students are urged to seek a faculty advisor within the first semester after enrolling in the department. This should be done in consultation with the department chairman, and thus will facilitate the formation of student's committees as he progresses through the program of study.

II. The Master's Program.

Before being recommended for admission to a master's degree program, the student may be required to take an examination which includes the subject matter usually required of undergraduates.

The master's degree will ordinarily require a minimum of 30 hours of graduate study. This does not include time required to complete any unfinished prerequisites or delays encountered on thesis problems. The graduate program requires that original research and a thesis be completed. Credit for the master's

thesis shall be at least six credit hours, but not more than nine credit hours.

III. Doctor of Philosophy Degree.

The Doctor of Philosophy Degree indicates an ability to teach and train others in the field of specialization. A period of lecture and laboratory preparation in teaching is usually required of all candidates. In addition, the quality of research demanded at the Ph.D. level is such that mastery of basic principles and techniques in Microbiology must be clearly demonstrated by the dissertation.

The Ph.D. Degree is awarded on the basis of scientific maturity and not solely on the basis of completion of the prescribed course of study. It is, therefore, unreasonable to assume that the Ph.D. Degree can be earned in less than three calendar years beyond the Bachelor's Degree.

Credit for the Doctoral Dissertation shall constitute not less than 1/6 nor more than 1/3 of total work presented for the Ph.D. Degree. The completion of the master's degree is not a prerequisite step leading to the Ph.D. Degree.

IV. Major areas of research interest in the Department of Microbiology.

- A. Viral Oncology
- B. Tumor Immunology
- C. Microbial Ecology
- D. Microbial Genetics
- E. Infectious Diseases
- F. Molecular Biology
- G. Radiation Microbiology
- H. Clinical Microbiology

Inquiries about the graduate program in Microbiology should be sent to the Chairman, Department of Microbiology, Texas Tech University, School of Medicine, Lubbock, Texas 79409.

Graduate Courses

MIB 5731—Medical Microbiology. A study of the role and place of bacteria, fungi and viruses in human infectious disease processes, with emphasis on the interplay of the host and parasite relationships. Heavy emphasis will be placed on the biochemical, biological, and medical aspects of immune mechanisms and disease processes together with a study of immune deficiencies and diseases of the immunologic mechanism.

MIB 6347—Microbial Ecology. Prerequisite: At least an introductory course in Microbiology, or permission from the instructor. The aim of this course is to provide an understanding of the place of microorganisms in nature and in human society. Bacteria, fungi, protozoa, and algae will be considered with regard to their structure, function and role in a variety of ecosystems. The influence of physical, chemical and biological factors on microorganisms and microbial contributions to the environment will be described. Among the major themes of the course are the following: interactions between microbial population; interactions of microbial populations with plants and animals; microbial ecology of aquatic and terrestrial environments.

MIB 6321—Tumor Immunology. Prerequisite: Introductory courses in Microbiology, Biochemistry, Pathology, and Immunology; or, permission of the instructor. The objectives of this course will be to correlate the various immunological, biochemical, and pathological parameters of tumor growth, both in animal model systems and man. Emphasis will be placed on investigation of current concepts of tumor immunity, transplantation and auto-immunity; immunological tolerance, surveillance, and enhancement; as well as viral induced immunosuppression and inherited immunodeficiency states.

MIB 6322—Viral Oncology. Prerequisites: Introductory courses in Microbiology, Immunology and Virology or consent of instructor. This course is designed to introduce the concept of a viral etiology of cancer. It will be developed through an examination of the effects of oncogenic viruses on intact animals as well as isolated cells in vitro. Emphasis will be placed on the immunological relationships and host response to viruses using many of the known animal models. The implications of a possible viral etiology of human cancer will be explored.

MIB 6323—Topics in Bacterial Genetics. Prerequisites: General Microbiology, Microbial Genetics or equivalent, and consent of

instructor. Lectures, demonstrations and review of literature on inheritance in bacteria and their viruses with emphasis on aspects relevant to infectious diseases.

MIB 6324—The Molecular Biology of Microorganisms. Lectures and discussions illustrating how modern techniques of genetics and biochemistry are being used to elucidate the structure and function of DNA, RNA, and Protein in prokaryotic cells. Courses in biochemistry and microbial genetics suggested, but not required.

MIB 711—Microbiology Seminar. May be repeated. Presentation of present research current topics by faculty and students in all areas of Microbiology.

MIB 712—Literature Reviews Seminar. Review of literature on special topics either assigned by instructor and/or selected by students. May be repeated.

MIB 631—Master's Thesis: Enrollment required at least twice.

MIB 731—Research. Prerequisite: Consent of instructor. May be repeated for credit.

MIB 831—Doctoral Dissertation. Enrollment required at least four times. Other courses available for the programs in microbiology are listed in the Graduate School Catalog.

Pharmacology

Professor Alexander D. Kenny, Chairman
Associate Professor: Messiha
Assistant Professor: Lombardini

Majors and Minors for the Master's Degree and the Doctor's Degree

The faculty of the Department of Pharmacology and Therapeutics offers studies in the mechanism of action, rational design, and scientific merit of drugs (chemicals) which are utilized as therapeutic agents or have such potential. Pharmacology and Therapeutics is the scientific discipline that is ultimately concerned with the development of effective treatment of disease processes. The framework of modern pharmacology scans an extraordinarily wide range of problems and employs equally diversified approaches to the solution of these problems.

The department welcomes students with a bachelor's or master's degree in one of the science curricula. While

there are no specific undergraduate requirements, a candidate for the advanced degree in Pharmacology and Therapeutics must possess adequate competence in one of the basic sciences such as biology, microbiology, biochemistry, or chemistry, depending upon the aspect of Pharmacology in which the candidate's interests may lie. The candidate will be expected to satisfactorily complete the core courses offered by the department. In addition, the student's faculty advisor will make recommendations concerning graduate courses in other departments.

Graduate Courses

PHM 6513—Pharmacology. A study of pharmacology with emphasis on mechanisms of drug action, drug interactions and therapeutics.

PHM 6218—Advanced Principles of Drug Action. An advanced, seminar-type course dealing with the intimate mechanisms and dynamics of action of drugs on biological systems.

PHM 6219—Clinical Pharmacology and Toxicology. In-depth discussions with focus on current major issues in clinical pharmacology by the critical study of actual clinical problems. The rational clinical use and toxicity of drugs will be clearly illustrated by this vehicle.

PHM 6321—Drug Metabolism and biochemical Pharmacology. Enzyme kinetics and receptor occupancy theory. Metabolism of foreign compounds in both experimental animals and man with emphasis on basic metabolic pathways, mechanism of drug actions, and pharmacodynamics.

PHM 6322—Advances in Psychopharmacology. Pharmacology of hallucinogens, CNS stimulant, and depressants; their mode of action and structure activity relationship. Pharmacological basis of psychopharmacotherapy with emphasis on extrapyramidal disorders and affective states. Extrapyramidal action of psychoactive drugs and their adverse effects.

PHM 631—Master's Thesis. Enrollment required at least twice.

PHM 711—Pharmacology Seminar.

PHM 731—Pharmacological Research.

PHM 831—Doctor's Dissertation. Enrollment required at least four times.

Physiology

Professor Charles D. Barnes, Chairman

Consulting Professor: Nau

Associate Professors: Crass, Hughes,

Kopetzky

Assistant Professors: Davies, Holloway,

Lutherer

The Department of Physiology in the School of Medicine offers educational and research programs for students working for professional degrees in medicine, related health sciences areas and advanced degrees in Physiology.

Graduate School Program: The Department of Physiology offers a graduate program leading to the Master of Science degree and the Doctor of Philosophy degree. Training in physiology is provided in the following fields of study: cardiovascular physiology is provided in the following fields of study: cardiovascular physiology including autonomic receptors, hemodynamics, and metabolism; respiratory physiology; body fluid physiology; endocrine physiology. Research work is progressing in the department along each of these areas. The program is designed to train persons who will teach and conduct research in medical institutions.

Graduate Courses

PHY 5822—Physiology. A study of human physiology with major emphasis on body-controlling systems and their interrelations. Pathophysiological mechanisms are also stressed.

PHY 6321—Cardiodynamics. Prerequisite: Medicine clerkship. A consideration of cardiac physiology and pathophysiology and its clinical application.

PHY 6322—Fetal and Neonatal Physiology. Emphasis on physiological mechanisms unique to life in *in utero*, at birth, and during the first thirty days after birth.

PHY 6323—Renal Physiology. Discussion and correlation of recent advances in the normal and pathophysiological mechanisms of the kidney.

PHY 6324—Endocrinology of Pregnancy. Topics related to the role of endocrine glands in the support of the fetus, the maternal-fetal exchange, the development

of endocrine function in the fetus, and the changes occurring at birth.

PHY 6325—Physiology of Neuroeffector Systems. A consideration of adrenergic, cholinergic, histaminic, and serotonin receptor systems and physiological applications.

PHY 6326—Applied Environmental Physiology. Physiological mechanisms involved in heat prostration, dehydration fever, cold exposure, and hypoxia.

PHY 6327—Pathophysiology of Hypertension. A study of current concepts of etiological mechanisms of hypertension.

PHY 6328—Advanced Endocrinology. Various endocrinopathies will be discussed in terms of recent advances in the areas of assay of endocrine gland function, control of hormone secretion, actions of hormones, mechanisms of action, and the interrelationships between hormones.

PHY 6329—Pulmonary Circulation in Health and Disease. The hemodynamics of the pulmonary circulation and the factors which control it will be presented, supplemented by an analysis of selected clinical cases. Lectures and student presentations of original papers.

PHY 6331—Physiology of Muscle in Health and Disease. The subject matter of this course should be of interest to graduate students in physiology and biochemistry, as well as to medical students and house officers. Important aspects of muscle function will be covered. Selected topics are: chemistry of contractile proteins, current aspects of excitation-contraction coupling and the role of calcium, mechanical-energetic relationships in cardiac and skeletal muscle, regulation of glucose transport and glycolysis, transport and metabolism of fatty acids and amino acids, and protein synthesis. In addition, the course will cover current information relating to the biochemistry of ischemic heart disease and hypertrophy, as well as to abnormalities of skeletal muscle metabolism.

PHY 6332—Topics in Physiology. To be arranged. One month.

PHY 631—Master's Thesis. Enrollment required at least twice.

PHY 711—Physiology Seminar.

PHY 731—Physiological Research.

PHY 831—Doctor's Dissertation. Enrollment required at least four times.

Preventive Medicine and Community Health

Professor Robert H. Kokernot, Chairman

Associate Professor: Way

Assistant Professors: Hayes

The Department of Preventive Medicine and Community Health offers a core of elective courses in epidemiology and preventive medicine. These courses are open to graduate students in a variety of health, biomedical and health and social behavior fields. Prerequisites: Permission of the instructor.

Elective Courses

PMM 6211—Principles of Epidemiology. This course is concerned largely with epidemiologic methodology. Some of the ways in which properly conducted observations of the distribution and dynamic behavior of disease in the population can contribute to an understanding of etiologic factors, modes of transmission, and pathogenesis of disease are illustrated.

PMM 6212—Advanced Epidemiology. This course is designed to present and illustrate some of the methods used in epidemiologic research. Topics presented include screening surveys and community-centered field research programs; sampling; questionnaire and interview design, use of health surveys; longitudinal studies; and conduct of prophylactic experiments in human populations.

PMM 6213—Clinical Preventive Medicine. The implementation of systems which permit interaction between physicians, allied health personnel, and patients with the primary purpose being the prevention or early detection of disease and health maintenance.

PMM 6214—International Health. A comparative study of health needs among nations and broader geographic areas and the development of international systems for the delivery of health services to meet these needs.

PMM 6215—Problems in Epidemiology. A course for students who wish to make an intensive study of some special problem in epidemiology.

PMM 6216—Epidemiology Seminar. Presentation of research in progress or recently completed by staff, students and visiting lecturers.

FULL-TIME FACULTY

- ALEXANDER, Carter M.**, Associate Professor of Pathology; M.D., Columbia University College of Physicians and Surgeons, 1942.
- ALVA, Jose D.**, Associate Professor and Associate Chairman of Pediatrics; M.D., Universidad Autonoma de Guadalajara, Mexico, 1963.
- ANDERSON, Dwane E.**, Assistant Professor of Biomedical Engineering and Computer Medicine; Ph.D., Southern Methodist University, 1968.
- BARNES, Charles D.**, Professor and Chairman of Physiology; Ph.D., State University of Iowa, 1962.
- BARTHOLOMEW, Bruce A.**, Professor of Medicine; M.D., University of Michigan Medical Center, 1958.
- BASKETT, Russell C.**, Assistant Professor of Microbiology; Assistant Dean for Student Affairs; Ph.D., University of Missouri, 1971.
- BASKETT, Sarah J.**, Assistant Professor of Psychiatry; M.D., Indiana University of Medicine, 1965.
- BEARD, Bruce H.**, Professor and Associate Chairman of Psychiatry; M.D., University of Texas Medical Branch at Galveston, 1944.
- BECEIRO, Jose R.**, Assistant Professor of Medicine; M.D., University of Santiago, Spain, 1964.
- BEHAL, Francis J.**, Professor and Chairman of Biochemistry; Coordinator of Research; Ph.D., University of Texas at Austin, 1958.
- BISHOP, R. Gary**, Assistant Professor of Health Communications; Medical Illustrator, Educational Media; M.S., Medical College of Georgia, 1968.
- BLACKWOOD, William D.**, Associate Professor of Medicine; M.D., University of Texas Medical Branch at Galveston, 1955.
- BLANKENSHIP, Willard J.**, Professor of Pediatrics; M.D., Vanderbilt University School of Medicine, 1959.
- BOLENDER, David L.**, Assistant Professor of Anatomy; Ph.D., West Virginia University, 1974.
- BRENNER, Donald J.**, Professor and Chairman of Health Communications; Ph.D., University of Missouri, 1965.
- BUDDINGH, Fred**, Associate Professor of Pathology; D.V.M., Colorado State University, 1951; Ph.D., University of California at Davis, 1969.
- BUESSELER, John A.**, University Professor; Professor of Ophthalmology; M.D., University of Wisconsin School of Medicine, 1944; M.S., University of Missouri, 1965.
- CAMERON, James M., Jr.**, Instructor in Biomedical Engineering and Computer Medicine; M.S., Louisiana Tech University, 1973.
- CASADY, Robert L.**, Assistant Professor of Anatomy; Ph.D., University of California at Los Angeles, 1972.

- HINN, John A., Jr.**, Associate Professor of Family Practice; M.D., University of Texas Medical Branch at Galveston, 1953.
- CRASS, Maurice F., III**, Associate Professor of Physiology; Ph.D., Vanderbilt University School of Medicine, 1965.
- CVLVAHOUSE, Bruce M.**, Associate Professor of Family Practice; M.D., University of Tennessee, 1951.
- DALLEY, Bernell**, Assistant Professor of Anatomy; Ph.D., University of Nebraska, 1974.
- DAVIES, Donald G.**, Assistant Professor of Physiology; Ph.D., Johns Hopkins University, 1970.
- DRISCOLL, Nabihah Y.**, Assistant Professor of Pediatrics; M.D., University of Texas Medical Branch at Galveston, 1969.
- DUNNAGAN, William A.**, Professor and Chairman of Radiology; M.D., University of Maryland, 1951.
- DYSON, James E.**, Associate Professor of Microbiology; Associate Professor of Health Communications; Assistant Dean for Education; Ph.D., University of Michigan, 1955.
- ERICKSON, Harold M., Jr.**, Associate Professor of Psychiatry; M.D., University of Oregon Medical School, 1964.
- FINNOCCHIO, Dom V.**, Associate Professor of Psychiatry; Ph.D., University of Pittsburgh, 1954.
- FLEMENBAUM, Abraham**, Associate Professor of Psychiatry; M.D., University del Valle Medical School, Cali, Colombia, 1964.
- FRALICK, Joe A.**, Assistant Professor of Microbiology; Ph.D., University of Tennessee, 1970.
- FRYE, William W.**, University Professor; Ph.D., Iowa State College, 1931; M.D., Vanderbilt University School of Medicine, 1939.
- GARNER, Charles W.**, Assistant Professor of Biochemistry; Ph.D., University of Texas at Austin, 1969.
- GAULT, Walter R.**, Assistant Professor of Physical Medicine and Rehabilitation; M.S.P.H., University of Missouri, 1967.
- GILMER, Emily A.**, Instructor in Health Communications; Reference Librarian, Health Sciences Information Center; M.A., University of Missouri, 1972.
- GLENNON, Joseph A.**, Professor of Medicine; M.D., State University of New York (Downstate) Medical School, 1957.
- GOGGIN, James E.**, Assistant Professor of Psychiatry; Ph.D., Yeshiva University, 1971.
- GRIMM, Darryl**, Instructor in Physical Medicine and Rehabilitation; M.A., Central Michigan University, 1971.
- GRUBER, Felix J.**, Associate Professor of Preventive Medicine and Community Health; M.D., University Central de Venezuela, Caracas, Venezuela, 1961; Dr. P.H., University of North Carolina School of Public Health, 1971.

- H Aidinyak, A.L.**, Associate Professor of Family Practice and of Psychiatry; M.D., University of Toronto Medical School, 1954.
- Haller, Walfred**, Assistant Professor of Biochemistry; Assistant Professor of Obstetrics and Gynecology; Ph.D., Rice University, 1970.
- Harrison, Margaret**, Assistant Professor of Pediatrics; M.D., University of Arkansas School of Medicine, 1963.
- Hartman, Harold F.**, Associate Professor of Family Practice; M.D., Temple University School of Medicine, 1951.
- Hartman, J. Ted**, Professor and Chairman of Orthopaedic Surgery; M.D., Northwestern University School of Medicine, 1952.
- Hayes, Jack**, Assistant Professor of Preventive Medicine and Community Health; Ph.D., University of Texas School of Public Health, Houston, 1973.
- Henry, Charles E.**, Instructor in Health Communications; Coordinator of Health Careers Development; Ed.D., Texas Tech University, 1974.
- Hillman, J. Richard**, Associate Professor of Anatomy; Ph.D., Colorado State University, 1969.
- Holloway, L. Shannon, Jr.**, Assistant Professor of Physiology; Ph.D., University of Florida School of Medicine, 1971.
- Holmes, A.W., Jr.**, Professor and Chairman of Medicine; M.D., Western Reserve University, 1956.
- Hughes, Maysie J.**, Associate Professor of Physiology; Ph.D., University of Tennessee, 1963.
- Jackson, Francis C.**, Professor and Chairman of Surgery; M.D., University of Virginia, 1943.
- Jarzembski, William B.**, Associate Professor of Biomedical Engineering and Computer Medicine; Ph.D., Marquette University, 1971.
- Jones, Randall T.**, Assistant Professor of Microbiology; Ph.D., University of Tennessee, 1969.
- Judkins, Timothy C.**, Assistant Professor of Health Communications; Associate Librarian, Health Sciences Information Center; M.A., University of Missouri, 1971.
- Kenny, Alexander D.**, Professor and Chairman of Pharmacology and Therapeutics; Ph.D., St. Thomas Institute for Advanced Studies, 1950.
- Kokernot, Robert H.**, Professor and Chairman of Preventive Medicine and Community Health; D.V.M., Texas A & M University, 1946; M.D., Baylor University School of Medicine, 1950; Dr. P.H., Johns Hopkins University, 1952.
- Kopetzky, Michael T.**, Associate Professor of Physiology; M.D., Charles University Medical School, Prague, Czechoslovakia, 1952.
- Larson, James W.**, Professor and Chairman of Psychiatry; M.D., University of Minnesota School of Medicine, 1958.

- LEFKOWITZ, Stanley S.**, Associate Professor of Microbiology; Associate Dean of the Graduate School, for Health Sciences; Ph.D., University of Maryland, 1961.
- LITTLE, Gwynne H.**, Assistant Professor of Biochemistry; Ph.D., Medical College of Georgia, 1970.
- LLOYD, Kenneth O.**, Associate Professor of Biochemistry; Ph.D., University of Wales, United Kingdom, 1960.
- LOCKWOOD, Richard A.**, Professor of Surgery; Vice President for the Health Sciences Centers; M.D., Johns Hopkins University, 1947.
- LOMBARDINI, John B.**, Assistant Professor of Pharmacology and Therapeutics; Ph.D., University of California Medical Center at San Francisco, 1968.
- LÜTHERER, Lorenz O.**, Assistant Professor of Physiology; Ph.D., University of Florida, 1969.
- McCARTY, Ricky H.**, Instructor in Health Communications; Director of the Health Communications Lab; M.A., University of Missouri, 1972.
- McKENNA, John M.**, Professor and Chairman of Microbiology; Ph.D., Lehigh University, 1959.
- Mac NAIR, Donald S.**, Associate Professor of Pathology; Director of Clinical Pathology; M.D., New York University, 1953.
- MARKWALD, Roger R.**, Associate Professor of Anatomy; Ph.D., Colorado State University, 1969.
- MAST, Clarence S.**, Associate Professor and Associate Chairman of Obstetrics and Gynecology; Associate Dean of the Regional Academic Health Center at Amarillo; M.D., Johns Hopkins University School of Medicine, 1942.
- MATHEWSON, John J.**, Associate Professor of Family Practice; M.D., University of Illinois, 1952.
- MAURER, William F.**, Assistant Professor of Pediatrics; M.D., Ohio State University College of Medicine, 1966.
- MENCHACA, John A.**, Assistant Professor of Pediatrics; M.D., University of Texas Medical Branch at Galveston, 1967.
- MERRILL, Robert E.**, Professor and Chairman of Pediatrics; M.D., Vanderbilt University School of Medicine, 1949.
- MESSIHA, Fathy S.**, Associate Professor of Pharmacology and Therapeutics; Ph.D., University of Berne, Switzerland, 1965.
- MISENHIMER, H. Robert**, Professor and Associate Chairman of Obstetrics and Gynecology; M.D., George Washington University School of Medicine, 1956.
- MORROW, Kenneth J., Jr.**, Associate Professor of Biochemistry; Ph.D., University of Washington, 1964.
- NAU, Carl A.**, Professor of Clinical Toxicology; M.D., University of Chicago Rush Medical College, 1933.

- NICHOLAS, Thomas A.**, Professor and Chairman of Family Practice; M.D., University of Colorado School of Medicine, 1950.
- ORR, Judith A.**, Assistant Professor of Health Communications; Cataloger, Health Sciences Information Center; M.L.S., North Texas State University, 1970.
- PARAGAS, Pablo D.**, Assistant Professor of Medicine; M.D., University of Philippines, Quezon City, Philippines, 1963.
- PATRICK, Carolyn M.**, Assistant Professor of Health Communications; Associate Librarian, Health Sciences Information Center; M.L.S., University of Texas Graduate School of Library Science, 1966.
- PATZKOWSKY, Lawrence W.**, Assistant Professor of Family Practice; M.D., Oklahoma University School of Medicine, 1950.
- PEDDICORD, Orene W.**, Associate Professor of Psychiatry; M.D., University of Texas Southwestern Medical School at Dallas, 1949.
- PELLEY, John W.**, Assistant Professor of Biochemistry; Assistant Dean for Admissions; Ph.D., University of North Carolina, 1969.
- PENCE, Danny B.**, Assistant Professor of Pathology; Ph.D., Louisiana State University Medical Center, 1970.
- PENNINGTON, Hugh**, Associate Professor of Family Practice; M.D., University of Arkansas School of Medicine, 1949.
- PRATT, Mary V.H.**, Associate Professor of Ophthalmology; M.D., University of Wisconsin Medical School, 1961.
- PRICE, James T.**, Professor and Chairman of Ophthalmology; M.D., Jefferson Medical College, 1963; Ph.D., University of California at Berkeley, 1971.
- QUESADA, Gustavo M.**, Associate Professor of Health Communications; Ph.D., Michigan State University, 1970.
- RICHARDS, Samuel D.**, Associate Professor of Physical Medicine and Rehabilitation; Assistant Vice President for the Health Sciences Centers; Ph.D., Southern Illinois University, 1966.
- ROBERTS, Lou A.**, Instructor in Physiology; Ph.D., University of California at Los Angeles, 1967.
- RODRIGUEZ, Ariel**, Professor of Surgery; Associate Dean of the Regional Academic Health Center at El Paso; M.D., St. Louis University School of Medicine, 1954.
- ROWLEY, Blair A.**, Associate Professor and Chairman of Biomedical Engineering and Computer Medicine; Ph.D., University of Missouri, 1970.
- SARGENT, Charles W.**, Professor of Health Communications; Director of Educational Resources; Ph.D., University of New Mexico, 1964.
- SAXTON, Norval L.**, Associate Professor of Family Practice; M.D., State University of Iowa, 1961.

- SCEARCE, Charles P.**, Instructor in Physical Medicine and Rehabilitation; Chief Physical Therapist; B.S., University of Missouri, 1971.
- SCHNEIDER, Jack M.**, Professor and Chairman of Obstetrics and Gynecology; M.D., University of Michigan Medical School, 1960.
- SCHULTZ, Lorraine E.**, Professor of Pathology; M.D., University of Wisconsin School of Medicine, 1944.
- SEKINE, Isao**, Assistant Professor of Pediatrics; M.D., Tokyo Medical and Dental University School of Medicine, 1966.
- SELIGER, William G.**, Professor and Chairman of Anatomy; D.D.S., Northwestern University, 1946; Ph.D., University of Wisconsin, 1964.
- SHETLAR, Marvin R.**, Professor of Biochemistry; Ph.D., Ohio State University, 1946.
- SPROAT, Harry F.**, Professor and Chairman of Pathology; Professor of Anatomy; M.D., New York Medical College, 1946.
- SQUYRES, Berry N.**, Associate Professor of Family Practice; M.D., University of Texas Medical Branch at Galveston, 1950.
- SRIDAROMONT, Somkid**, Assistant Professor of Pediatrics; M.D., Chiangmai University, Chiangmai, Thailand, 1967.
- STANBAUGH, Glen H., Jr.**, Assistant Professor of Medicine; M.D., University of Texas Medical Branch at Galveston, 1967.
- STARNEs, Willis L.**, Assistant Professor of Biochemistry; Ph.D., University of Texas at Austin, 1971.
- STEINHORST, G. Cort**, Instructor in Biomedical Engineering and Computer Medicine; M.S., University of Southwestern Louisiana, 1973.
- STERRETT, Patrick R.**, Assistant Professor of Anatomy; Ph.D., University of Kansas Medical Center, 1973.
- STOCCO, Douglas N.**, Assistant Professor of Biochemistry; Ph.D., University of Toronto, Canada, 1972.
- TRONER, Stephen P.**, Assistant Professor of Psychiatry; Ph.D., University of Iowa, 1971.
- TYNER, George S.**, Professor of Ophthalmology; Professor of Psychiatry; Professor of Preventive Medicine and Community Health; Dean of the School of Medicine; M.D., University of Nebraska School of Medicine, 1942.
- VARMA, Kamlesh**, Assistant Professor of Obstetrics and Gynecology; M.D., King George's Medical College, Lucknow, India, 1960.
- VARMA, Surendra**, Assistant Professor of Pediatrics; M.D., King George's Medical College, Lucknow, India, 1962.
- WAINSCOTT, Paul E.**, Professor and Associate Chairman of Family Practice; M.D., Marquette University School of Medicine, 1964.

- WAY, Anthony B.**, Associate Professor of Preventive Medicine and Community Health; M.D., University of Pennsylvania School of Medicine, 1967; Ph.D., University of Wisconsin, 1972.
- WAY, Barbara H.**, Assistant Professor and Acting Chairman of Dermatology; M.D., University of Pennsylvania School of Medicine, 1968.
- WEDDIGE, Richard L.**, Assistant Professor of Psychiatry; M.D., University of Texas Medical Branch at Galveston, 1965.
- WELLS, Thomas J.**, Assistant Professor of Pediatrics; M.D., Medical College of Virginia, 1966.
- WILBUR, Donald L.**, Assistant Professor of Anatomy; Ph.D., Medical University of South Carolina, 1974.
- WILLIAMS, Philip T., Jr.**, Associate Professor of Obstetrics and Gynecology; M.D., University of Texas Medical Branch at Galveston, 1944.
- WITTING, William C.**, Associate Professor of Obstetrics and Gynecology; M.D., University of Pennsylvania School of Medicine, 1963.
- WOLCOTT, Lester E.**, Professor and Chairman of Physical Medicine and Rehabilitation; M.D., University of Buffalo School of Medicine, 1951.
- YAIRI, Janie I.**, Instructor in Physical Medicine and Rehabilitation; M.A., University of Iowa, 1970.
- YATES, Loren K.**, Assistant Professor of Family Practice; M.D., University of Oklahoma Medical School, 1957.
- YEE, John A.**, Assistant Professor of Anatomy; Ph.D., University of Utah, 1974.

ADJUNCT FACULTY

- ARREDONDO, Rodolfo M.**, Adjunct Instructor in Psychiatry; M.Ed., Texas Tech University, 1972.
- AUSTERMAN, Warrington**, Adjunct Associate Professor of Surgery; M.D., Albany Medical School, 1944.
- BALASUBRAMANIAM, Ulhas**, Adjunct Assistant Professor of Family Practice; M.B.B.S. (M.D.), Christian Medical College, Madras University, India.
- BILBRO, Griff W.**, Adjunct Associate Professor of Radiology; M.D., Tulane University School of Medicine, 1941.
- CHAUNCEY, M. Kathy**, Adjunct Instructor in Family Practice; M.S., Texas Tech University, 1972.
- DEHN, Ernst A.**, Adjunct Professor of Orthopaedic Surgery and Clinical Director; M.D., University of Vienna, Vienna, Austria, 1929.
- DENNISON, Alfred D.**, Adjunct Associate Professor of Medicine; M.D., Cornell University Medical College, 1939.
- EISNER, David**, Adjunct Associate Professor and Associate Chairman of Surgery; M.D., Western Reserve University, 1937.
- EKERY, Dorothy D.**, Adjunct Associate Professor of Medicine; M.D., New York University School of Medicine, 1963.
- GAINER, Barbara**, Adjunct Associate Professor of Radiology; M.D., University of Texas Southwestern Medical School at Dallas, 1968.
- GALT, Donna B.**, Adjunct Instructor in Pathology; B.S., Kansas State University, 1951.
- GEOWAYS, Hugh H.**, Adjunct Assistant Professor of Pathology; Ph.D., University of Kansas, 1971.
- GERSTON, Kenneth F.**, Adjunct Assistant Professor of Pathology; M.D., State University of New York (Downstate) Medical Center, 1968.
- HANDAL, Gilberto A.**, Adjunct Assistant Professor of Pediatrics; M.D., University of Chile School of Medicine, 1966.
- HEINRICH, Paul E.**, Adjunct Assistant Professor of Physical Medicine and Rehabilitation; M.S.W., University of Missouri, 1967.
- IWEN, George**, Adjunct Associate Professor of Surgery; M.D., University of Wisconsin, 1947.
- JONES, J. Knox, Jr.**, Adjunct Professor of Pathology; Ph.D., University of Kansas, 1962.
- KLOVER, Ruth V.**, Adjunct Instructor in Family Practice; M.S., University of Missouri, 1971.
- LORALES, Carlos**, Adjunct Associate Professor of Pathology; M.D., Facultad de Medicina Universidad del Valle, Bogota, Colombia, 1963.

OCHOA, Mario, Adjunct Associate Professor of Obstetrics and Gynecology; M.D., Universidad Autonoma de Guadalajara, Mexico, 1956.

QUINTERO, Federico J., Adjunct Instructor in Surgery; M.D., University of Havana School of Medicine, 1960.

ROUSH, Dona J., Adjunct Instructor in Health Communications; Assistant Reference Librarian, Health Sciences Information Center; M.L.S., University of Oklahoma, 1971.

RYLANDER, Michael K., Adjunct Associate Professor of Anatomy; Ph.D., Tulane University, 1965.

SCOTT, John H., Adjunct Associate Professor of Family Practice; M.D., Jefferson Medical College, 1944.

STILLINGS, Craig T., Adjunct Instructor in Health Communications; Serials Librarian, Health Sciences Information Center; M.L.S., University of Oklahoma, 1975.

THOMAS, Elizabeth, Adjunct Instructor in Health Communications; Media Librarian, Health Sciences Information Center; M.L.S., University of Kentucky, 1972.

TJIO, Hock Tong, Adjunct Professor of Pediatrics; M.D., School of Medicine in Malang, Malang, Indonesia, 1969.

CLINICAL FACULTY

ANESTHESIOLOGY

ARTHUR, Jack C., M.D., Assistant Clinical Professor
BARBER, Ivan J., Jr., M.D., Assistant Clinical Professor
BRYANT, Thomas F., Jr., M.D., Associate Clinical Professor
COOPER, Betty M., M.D., Assistant Clinical Professor
EASLEY, Thomas Daniel, M.D., Associate Clinical Professor
GARRETT, Richard E., M.D., Associate Clinical Professor
HUTCHINSON, Val A., Jr., M.D., Associate Clinical Professor
MOYES, James R., M.D., Assistant Clinical Professor
NORTON, Richard G., M.D., Associate Clinical Professor
SESSOMS, William D., M.D., Associate Clinical Professor
TJIA, Stephanus R., M.D., Assistant Clinical Professor
VARDY, Richard L., M.D., Associate Clinical Professor

DERMATOLOGY

BARNES, Cory M., M.D., Associate Clinical Professor
BUTLER, Henry K., M.D., Associate Clinical Professor
COLE, Richard D., M.D., Associate Clinical Professor
EAST, William R., M.D., Associate Clinical Professor
GARRETT, Henry D., M.D., Associate Clinical Professor
JOHNSON, H. Fred, M.D., Associate Clinical Professor
LAUR, William E., M.D., Associate Clinical Professor
POSEY, Randal E., M.D., Associate Clinical Professor
SIMPSON, Michael H., M.D., Associate Clinical Professor
WILKINSON, John C., M.D., Associate Clinical Professor

FAMILY PRACTICE

ALBERT, Frank D., M.D., Assistant Clinical Professor
ARCHER, John R., M.D., Associate Clinical Professor
BLACKBURN, John D., M.D., Associate Clinical Professor
BRANCH, Thomas C., M.D., Associate Clinical Professor
BURKHOLDER, James N., M.D., Associate Clinical Professor
CHATTON, Thomas B., M.D., Assistant Clinical Professor
DILLAHA, Carl A., M.D., Assistant Clinical Professor
FREEMAN, Barton E., M.D., Associate Clinical Professor
FREEMAN, Ray W., M.D., Associate Clinical Professor
GILLETT, John F., M.D., Associate Clinical Professor
GORDON, Juan, M.D., Assistant Clinical Professor
HESS, Wallace T., M.D., Associate Clinical Professor
HILL, Gerald L., M.D., Associate Clinical Professor
HUNDLEY, John C., M.D., Associate Clinical Professor
HUTCHESON, Zenas W., Jr., M.D., Associate Clinical Professor
JOHNSON, Lowell, M.D., Associate Clinical Professor
LACY, Ronald R., M.D., Assistant Clinical Professor
LAYCOCK, Royce, M.D., Associate Clinical Professor

LAYCOCK, Raymond W., M.D., Assistant Clinical Professor
LIPSEY, Billy C., M.D., Assistant Clinical Professor
MATTHEWS, James R., M.D., Associate Clinical Professor
MATHEWSON, John J., M.D., Associate Clinical Professor
McCRARY, John H., M.D., Assistant Clinical Professor
PAGE, Carl F., M.D., Associate Clinical Professor
REYNOLDS, Charles A., M.D., Assistant Clinical Professor
ROBBINS, James L., M.D., Associate Clinical Professor
SMITH, George W., M.D., Associate Clinical Professor
STEWART, Everett P., M.D., Assistant Clinical Professor
TUBBS, Harry A., M.D., Associate Clinical Professor

MEDICINE

ALLISON, Walter M., M.D., Associate Clinical Professor
ARCHER, Richard K., M.D., Associate Clinical Professor
ARRINGTON, Joe O., Jr., M.D., Associate Clinical Professor
and Chief of Cardiology
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