TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER
SCHOOL OF MEDICINE BULLETIN 1981-1982

ABOUT THE COVER

Cover art pictures the 150-foot tapestry which hangs in Lubbock's Memorial Civic Center. The Center and its tapestry are monuments to those who perished in the tornado which swept through Lubbock on May 11, 1970, and to those who remained to rebuild.

The Windmill, source of life-giving water on the Plains, dominates the 30X90-foot center panel. Cotton crops, rangeland and the city are woven in the rich umbers and siennas of the West Texas landscape by artist Romeo Reyna. Only natural fibers, many hand dyed and spun for the tapestry, were used.

INSIDE COVER

Inside front and back covers is a mural by artist Peter Rogers depicting the influence of water in arid lands. The mural in The Museum of Texas Tech University is done in india ink on gesso.

PAGES 2-3: Amarillo Medical Center

PAGES 4-5: The Lubbock skyline

PAGES 6-7: The Juarez Mountains south of El Paso taken from the Franklin Mountains which form the northern border of the Pass of the North for which the city of El Paso was named.

PAGES 8-9: Neonatal ICU

BULLETIN

This catalog is an official bulletin of Texas Tech University Health Sciences Center School of Medicine containing policies, regulations, procedures, programs, courses, schedules and fees in effect as the publication went to press. The school of medicine reserves the right to make changes at any time to reflect current board policies, administrative regulations and procedures, amendments by state law and fee changes.

Texas Tech University Health Sciences Center (TTUHSC) is open to all persons regardless of race, color, religion, sex or national origin who are otherwise eligible for admission as students. TTUHSC is an Equal Opportunity Employer and no applicant or employee will be discriminated against because of race, color, religion, sex or national origin concerning employment or during the course of employment at this institution.

Since the programs, course schedules, policies, regulations, procedures and fees contained herein are subject to continuous review and evaluation, TTUHSC reserves the right to make changes at any time without notice. This publication is, therefore, intended for information only.

The Bulletin is published by Texas Tech University Health Sciences Center, School of Medicine, Lubbock, Texas 79430.

SEPTEMBER 1981
VOL. 7

INFORMATION AND ADMISSION APPLICATIONS FOR PROGRAMS AT TTUSM ARE AVAILABLE AS FOLLOWS:

THE DOCTOR OF MEDICINE PROGRAM:

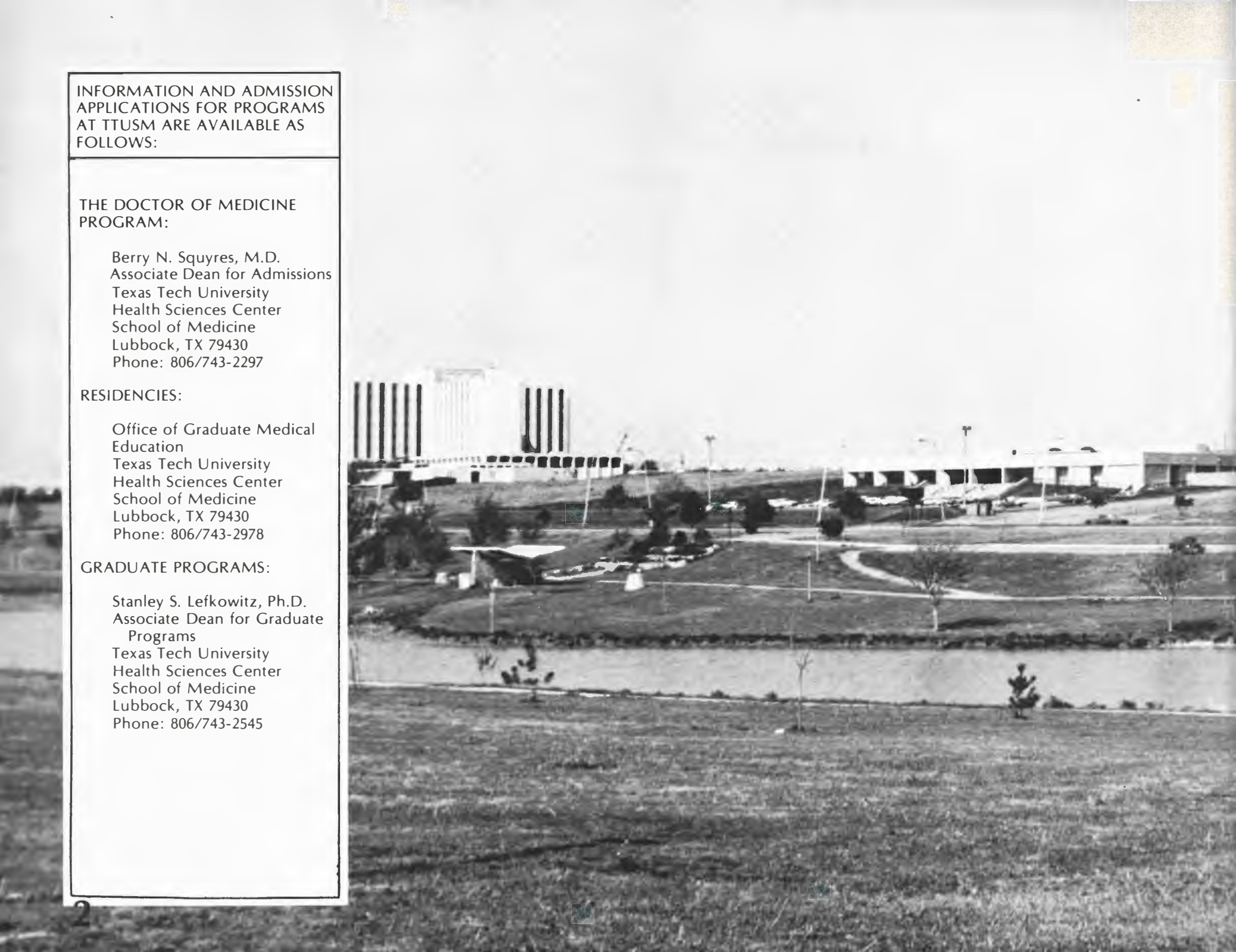
Berry N. Squyres, M.D.
Associate Dean for Admissions
Texas Tech University
Health Sciences Center
School of Medicine
Lubbock, TX 79430
Phone: 806/743-2297

RESIDENCIES:

Office of Graduate Medical Education
Texas Tech University
Health Sciences Center
School of Medicine
Lubbock, TX 79430
Phone: 806/743-2978

GRADUATE PROGRAMS:

Stanley S. Lefkowitz, Ph.D.
Associate Dean for Graduate Programs
Texas Tech University
Health Sciences Center
School of Medicine
Lubbock, TX 79430
Phone: 806/743-2545



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TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER

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Barbara A. Winch, Health Sciences Center Executive Assistant to the President
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Stanley S. Lefkowitz, Ph.D., Associate Dean for Graduate Programs and Acting Research Coordinator
James R. Jones, Associate Dean for Student Affairs
Berry N. Squyres, M.D., Associate Dean for Admissions
Lorenz O. Lutherer, M.D., Ph.D., Assistant Dean for Curriculum
Milvern J. Crozier, Director of Student Financial Aid and Veterans Affairs
Merron J. Teague, Ed.D., Registrar
Lois A. Riordan, Executive Assistant to the Dean

PRESIDENT'S MESSAGE

I welcome this opportunity to introduce Texas Tech University Health Sciences Center to prospective and incoming medical students.

This medical school, strengthened by the cultural resources of a major university, provides high quality medical education with special attention to health care problems in rural areas and with emphasis on primary health care.

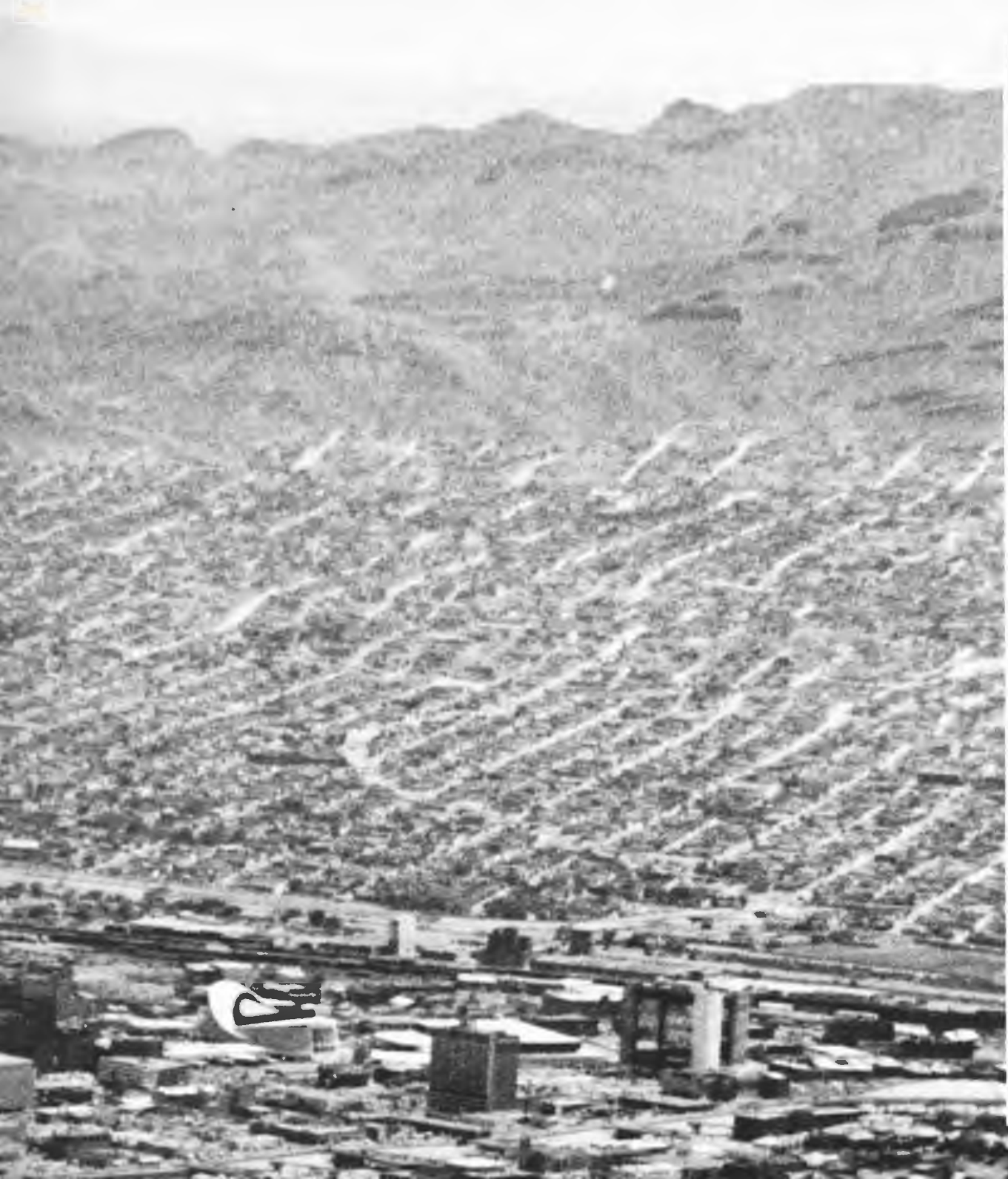
Faculty and administration are committed to providing each physician in training with a composite experience. A broad base in research, technology and in the basic and clinical sciences is requisite to a satisfying and productive professional life devoted to human health care.

Lauro F. Cavazos, Ph.D.
President
Texas Tech University
Texas Tech University
Health Sciences Center

DEAN'S MESSAGE

The objective of the undergraduate curriculum at TTUHSC School of Medicine is to educate students to become physicians and acquire competence in all medical areas. TTUHSC School of Medicine places emphasis on Family Practice and other primary care disciplines. Rotations of students and house staff to teaching and patient care experience in rural areas supplement urban programs.

J. Ted Hartman, M.D.,
Interim Dean
School of Medicine



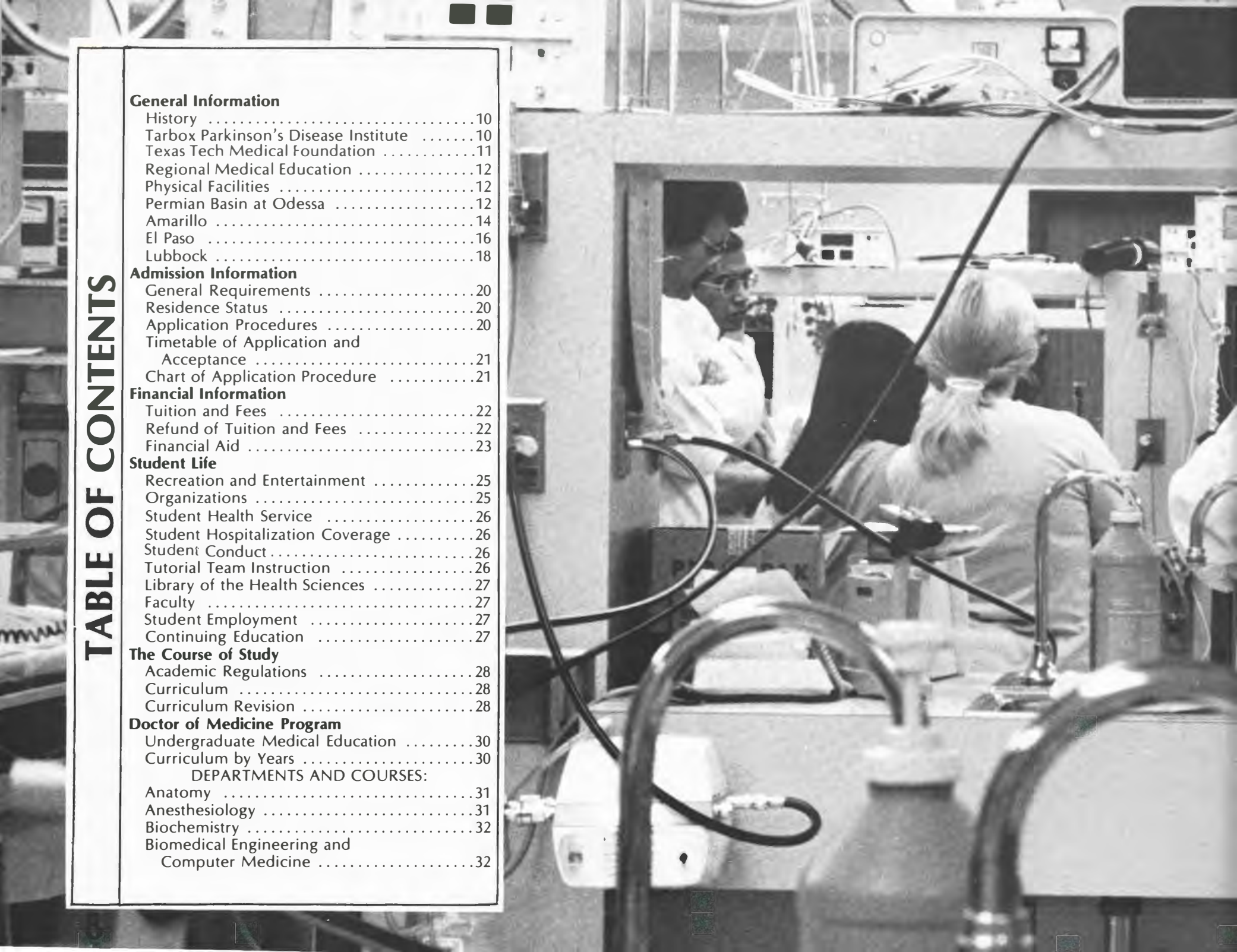
OBJECTIVES

Texas Tech University Health Sciences Center School of Medicine has educational programs in undergraduate medical education, graduate medical education, graduate education in the basic sciences and continuing medical education. The purpose of these programs is to educate professionals for careers in medical science.

The undergraduate medical program is designed to prepare medical students for graduate medical programs. The graduate medical programs prepare physicians in the medical specialties for specific types of health care delivery. Almost all medical specialties are represented. These include the primary care areas of family practice, general internal medicine and general pediatrics.

The continuing medical education program provides an opportunity for the practicing physician to obtain supplemental training as needed or desired. The graduate school program trains professionals for research and teaching in the basic medical sciences.

TABLE OF CONTENTS



HISTORY

Texas Tech University School of Medicine, created by the 61st Texas Legislature in May 1969, was established as a regional school, headquartered on the campus of Texas Tech University at Lubbock.

Objectives of the School of Medicine are to provide quality medical education, to address problems of health care delivery in rural areas and to develop education programs throughout West Texas emphasizing primary health care.

Texas Tech University School of Medicine formally opened in August 1972 with a freshman class of 36 and junior class of 25. Admission of students was accomplished in a record-setting 23 months from initiation of planning to implementation of programs. More common start-up periods range from four to eight years.

The medical school was the first operational phase of the Texas Tech University Health Sciences Center. The Health Sciences Center concept is designed to facilitate coordination of the medical school's regional programs and development of schools of Nursing, Pharmacy, Allied Health and Veterinary Medicine. These future health professional schools have been approved by the Coordinating Board, Texas College and University System, and their establishment awaits funding by the Legislature.

The school's Ambulatory Teaching Clinic initiated delivery of patient care in 1973. Currently the teaching clinic includes twelve specialties: anesthesiology, dermatology, family practice, internal medicine, medical and surgical neurology, ob/gyn, ophthalmology, orthopaedics, pediatrics, preventive medicine and community health, surgery and psychiatry.

Ground was broken in 1973 for the Health Sciences Center Building, permanent home of the School of Medicine. The building contains nearly 18 acres of floor space. One-third of the building was finished and dedicated in June 1977. When current construction projects are completed, approximately two-thirds of the building's interior will be complete. The building and adjacent county teaching hospital are the first phase of a health sciences campus at Texas Tech.

The Texas Tech Regional Academic Health Center at Amarillo was dedicated in June 1976. The 37,000 square foot facility is within the Amarillo Medical Center on land provided by the Amarillo Area Foundation, Inc.

The first phase of approximately 25,000 square feet for the Regional Academic Health Center in El Paso was dedicated in 1977.

Planning and development efforts are now being initiated for a fourth center to be established in the Permian Basin. Educational programs will involve health resources in Andrews, Big Spring, Midland and Odessa. A building for this center is envisioned at some future date and will be located in Odessa.

The School of Medicine graduated its seventh class in 1981. In addition to the Doctor of Medicine, the school offers Master of Science and Doctor of Philosophy degrees in five basic science fields and residency programs in twelve medical specialties.

TARBOX PARKINSON'S DISEASE INSTITUTE

The Tarbox Parkinson's Disease Institute was established by the Texas Legislature in 1972 for the purpose of furthering research, patient care, and education in Parkinson's Disease and related neurological disorders. The Tarbox Institute is named after Mr. Elmer L. Tarbox, a graduate of Texas Tech University and for many years state representative to the Texas Legislature from the Lubbock area.

The educational activities include the sponsorship of biennial symposia which bring together leading international scientists involved in both basic and clinical research related to the neurological disciplines.

The first, second and third Tarbox Symposia were held in Lubbock in 1976, 1978 and 1980, respectively. The proceedings of the first two symposia were published by Plenum Press in its *Advances in Experimental Medicine and Biology Series*.

The Tarbox Fellowship programs represent the research thrust of the Institute. The programs include the Tarbox Postdoctoral Fellowships, the Tarbox Predoctoral Research Fellowships and the Tarbox Medical Student Research Fellowships.

The Tarbox Lecture series brings distinguished neuroscientists to the campus to discuss their research findings related to the neurological sciences. The annual Tarbox Research Conference permits the Tarbox Fellows to present their recent research activities to the Texas Tech University Health Sciences Center academic community.

The Tarbox Clinic for Parkinson's Disease is conducted on a regular basis at the Texas Tech University School of Medicine. The clinic is concerned with the diagnosis and treatment of persons with known or suspected Parkinson's Disease. The clinic services benefit from the full support of the medical school's diagnostic, inpatient and rehabilitation services. Dr. Paul Meyer, associate professor and chairman of Medical and Surgical Neurology, is medical director of the Tarbox Clinic.

Dr. Alexander D. Kenny, professor and chairman, Department of Pharmacology and Therapeutics, is the director of the Tarbox Parkinson's Disease Institute.

TEXAS TECH MEDICAL FOUNDATION

The Texas Tech Medical Foundation was formed in August 1979, exclusively for charitable, educational 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 Texas Tech University Health Sciences Center. In addition, the Foundation helps provide support for training facilities, research and financial assistance for students.

Officers currently serving the Texas Tech Medical Foundation are: William R. Moss, chairman, Harry J. Jung, vice chairman, Giles McCrary, secretary and James G. Morris, M.D., immediate past chairman.

REGIONAL MEDICAL EDUCATION

Texas Tech University Health Sciences Center 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 within a few square blocks of real estate, many of the Texas Tech Health Sciences Center facilities and faculty are distributed throughout West Texas—an area encompassing approximately 135,000 square miles and 107 counties. The regional medical school concept complements the program of primary care with an emphasis in family practice training at TTUHSC. In a large urban medical center, primary and ambulant care may be only classroom concepts to medical students. At TTUHSC, 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 RAHCs are a part of the region's health education system along with affiliated health care institutions. There currently are three RAHCs in operation: Amarillo, El Paso and at the main campus in Lubbock. Junior-senior medical students may receive part of their training in the clinical environment of an RAHC outside of Lubbock. The RAHCs also conduct continuing education programs for health professionals in their respective areas. A fourth center in the Permian Basin is being planned.

The RAHCs are staffed and operated by the faculty of the School of Medicine, with resident physicians as junior members of the medical staff.

PHYSICAL FACILITIES

Texas Tech Regional Academic Health Centers (RAHC) serve as academic bases for fulfillment of the Medical School's commitment to both medical education and health care service for West Texas.

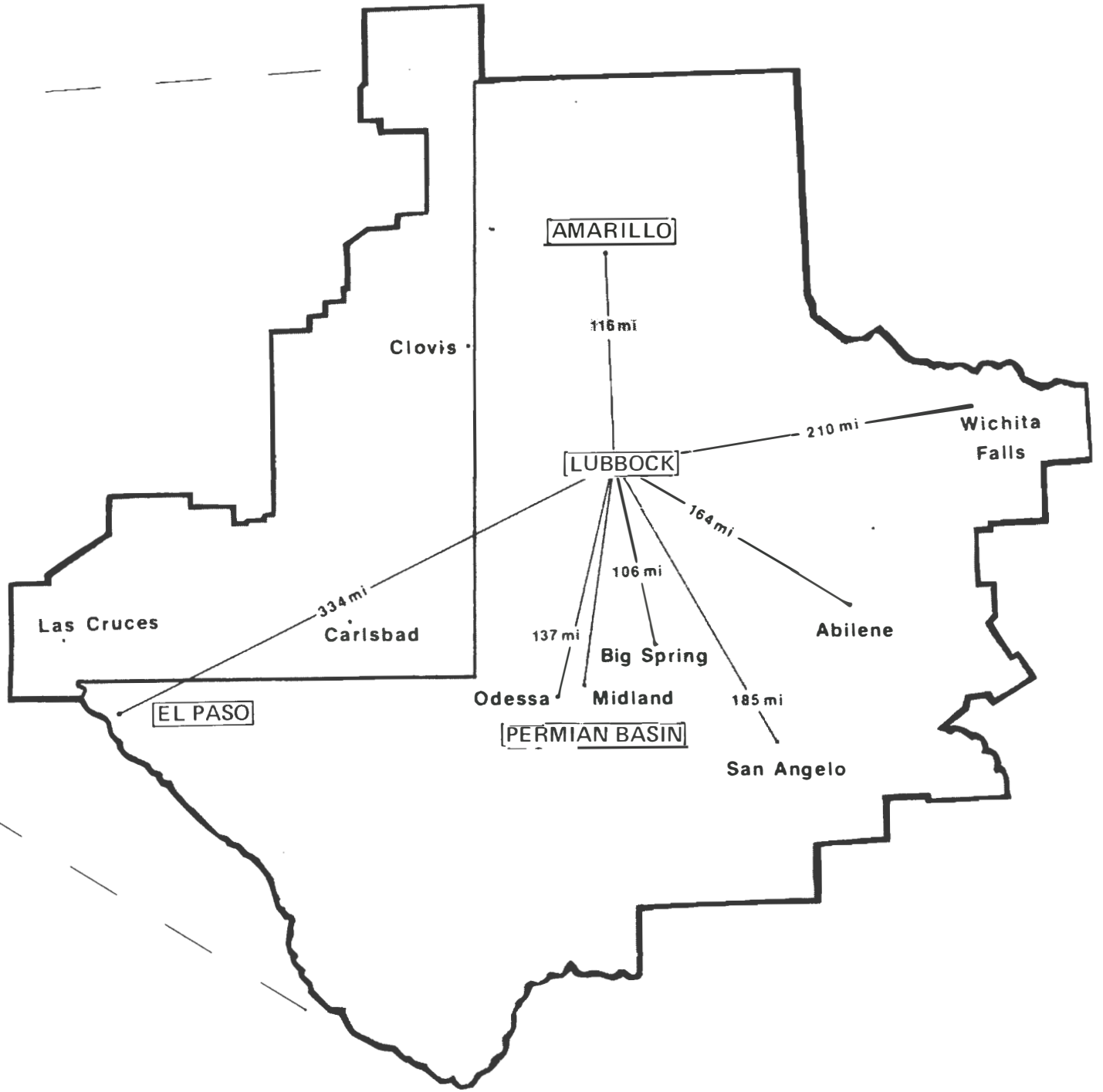
RAHCs in Lubbock, Amarillo and El Paso work in conjunction with affiliated institutions in the regions they serve to provide programs for medical students and resident physicians and continuing medical education opportunities for practicing physicians.

Individual clinical strengths and opportunities at each location are emphasized. Medical students rotate through the three centers at various stages of their medical education to benefit from a full spectrum of experiences.

Permian Basin at Odessa

As student enrollments are increased over the next decade, a fourth center may be required. Presently, planning and development efforts are being established for the center. Programmatic efforts will focus initially on Continuing Medical Education and senior electives. Postgraduate efforts and expanded undergraduate offerings will be developed as appropriate at a later date.

TTUSM SERVICE AREA—The Tech Medical School was created by the 61st Texas Legislature as a regional eduction system to serve 107 counties in West Texas. Regional Academic Health Centers are operational in Amarillo, Lubbock and El Paso. A fourth site has been designated for the Permian Basin at Odessa. The map of Texas illustrates the service area. Enlargement of service area indicates mileage from Lubbock to other cities.


AMARILLO
116 mi
Clovis
LUBBOCK
210 mi
Wichita Falls
164 mi
106 mi
334 mi
Las Cruces
Carlsbad
137 mi
Big Spring
Abilene
EL PASO
Odessa
Midland
185 mi
PERMIAN BASIN
San Angelo

AMARILLO

The Texas Tech Regional Academic Health Center at Amarillo serves as a base for clinical education for junior and senior medical students and resident physicians.

A new 37,000 square foot facility for the RAHC was dedicated in April 1976. The building, located within the Amarillo Medical Center, includes space for teaching, a library and auditorium, research and support services.

A second phase of this facility is being finalized with construction to be completed by December of 1981. The creation of a second floor for this facility will accommodate increased numbers of faculty and staff needed to educate and train junior and senior medical students scheduled for the center.

Clinical experiences are provided through affiliation with High Plains Baptist Hospital, Northwest Texas Hospital, Psychiatric Pavilion, St. Anthony's Hospital, Veterans Administration Hospital and Killgore Children's Psychiatric Center.

The center also is a base for coordination of rural and urban preceptorships in clinics and private practices throughout the Panhandle region.

Emphasis at the Amarillo center is on primary care, particularly family practice, with support provided by other clinical departments.

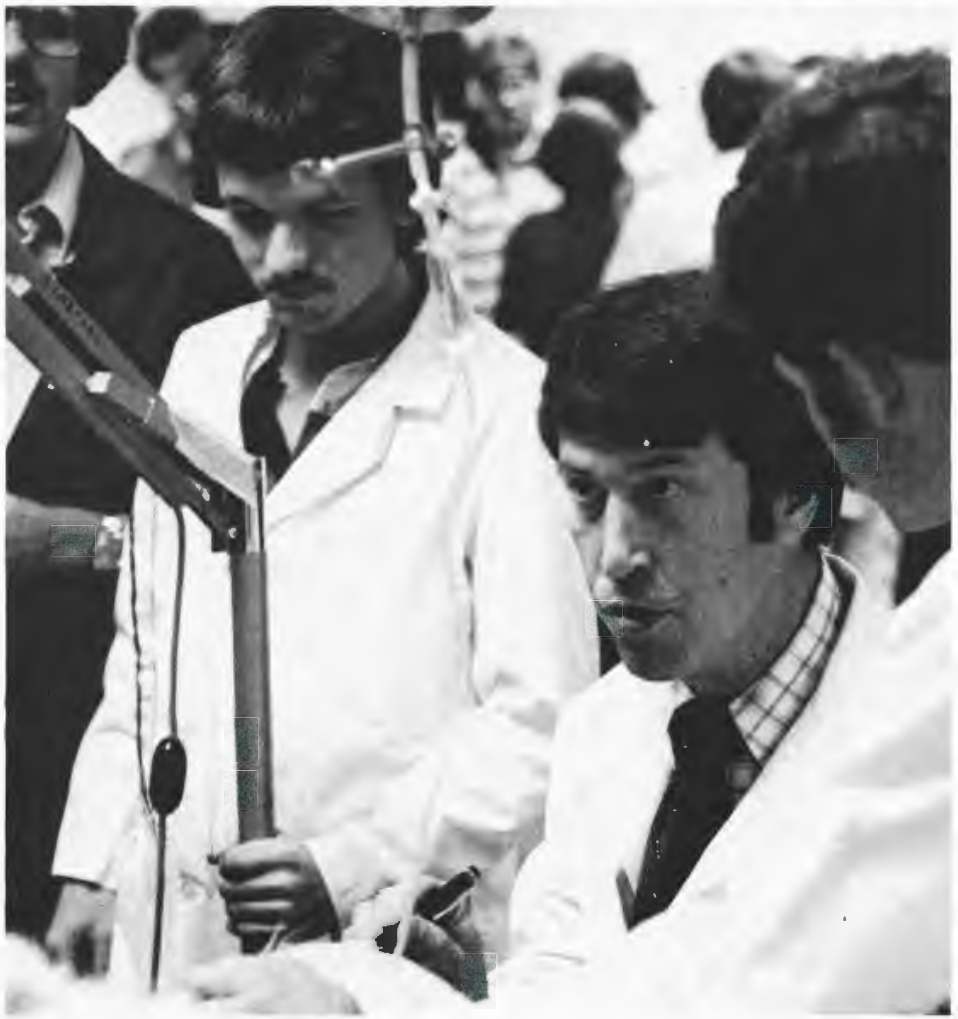
EL PASO

The first phase of the building housing the Regional Academic Health Center at El Paso was dedicated in 1977. The facility includes academic space for clinical departments, auditorium, classroom and support space. Two additional building programs have been completed, bringing the El Paso RAHC building to a total of 66,658 square feet of usable space.

Junior students based in El Paso train in the clinical areas of surgery, obstetrics and gynecology, psychiatry, internal medicine and pediatrics. Family practice, while not the primary thrust in El Paso, supports other clinical training programs. Some senior students and resident physicians in most clinical specialties are based in El Paso. The location of resident physician programs in El Paso is essential to the training of junior medical students in that center.

The center provides clinical experiences through affiliation with R. E. Thomason General Hospital, the primary teaching hospital, augmented through affiliation with William Beaumont Army Medical Center and community hospitals and clinical facilities.

Urban and rural preceptorship programs for students in the El Paso region are coordinated through this RAHC.



LUBBOCK

The Regional Academic Health Center at Lubbock is incorporated in the home base facilities of the School of Medicine. All freshman and sophomore students are based there. Junior clerkships include surgery, obstetrics/gynecology, psychiatry, internal medicine and pediatrics. Senior electives are available in most departments. Residency programs currently located in Lubbock are obstetrics/gynecology, pediatrics, family practice, orthopaedic surgery, ophthalmology, surgery, dermatology, preventive medicine, anesthesiology and internal medicine.

The primary teaching hospital for the Lubbock RAHC is Lubbock General Hospital, operated by the Lubbock County Hospital District. Preceptorship programs, model clinic program and outreach efforts in the Lubbock region are coordinated through the center.

Affiliated institutions in Lubbock include the City-County Maternity Clinic, St. Mary of the Plains Hospital, West Texas Hospital and Veteran's Administration Outpatient Clinic. Additional affiliations include Central Plains Comprehensive Community Mental Health/Mental Retardation Center (Plainview) and Central Plains Regional Hospital (Plainview), Permian General Hospital (Andrews) and the Veterans Administration Hospital (Big Spring).

GENERAL REQUIREMENTS

Admission to the Texas Tech University Health Sciences Center School of Medicine is not a right acquired by exceeding the minimum entrance requirements, but is a privilege granted to those especially qualified applicants for the purpose of providing the public with highly trained physicians dedicated to first class health care delivery. The Admissions Council has the responsibility of evaluating a large number of applicants for the qualities which will best ensure the attainment of this goal. The academic record and the Medical College Admission Text (MCAT) provide an estimate of intellectual ability and attainment. The less tangible personal qualities are judged from the written comments, letters of recommendation, biographical data, and personal interviews.

The requirements for admission to Texas Tech University Health Sciences Center School of Medicine include at least 90 credit hours of college level study in an accredited insitution; however, since the traditionally high standard of medical practice requires a broad concept of human relations, maturity of judgment and a constantly increasing amount of scientific knowledge, the receipt of the baccalaureate degree is strongly recommended. The undergraduate student planning a career in medicine is advised to complete the minimum required courses prior to his senior year so that his college transcript reflects a more accurate ability in the sciences when evaluated by the Admissions Council. Because of the curriculum flexibility, there are no preferred undergraduate majors. Equal consideration is given to non-science majors provided they demonstrate an aptitude for handling scientific material. As broad a base in the humanities and the social sciences as can be achieved is desirable.

Required pre-medical courses are:

Courses	Semesters
General Chemistry (with lab)	2
Organic Chemistry (with lab)	2
General Biology (with lab)	2
Physics (with lab)	2

In addition, a reasonable working knowledge of conversational Spanish is recommended. Students lacking Spanish language training will be encouraged to achieve first year college Spanish proficiency prior to the required Medical Spanish course given in the second year. Calculus also is highly recommended but not required. All required pre-medical courses must be completed prior to matriculation.

The MCAT is required for all applicants to the entering class. The MCAT will be valid for only a two year period of time and thereafter must be retaken. It is strongly recommended that the MCAT be taken in the spring of the year in which the application to medical school is submitted; however, the fall test will still allow time for the applicant to be considered for the upcoming class. 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.

RESIDENCE STATUS

Texas Tech University Health Sciences Center School of Medicine follows the rules and regulations for determining resident status as published by the Coordinating Board, Texas College and University System. Attendance at a college or university in Texas by itself does not satisfy the bona fide residence requirements. A copy of the *Rules and Regulations for Determinating Residence Status* may be obtained by writing to the Texas Coordinating Board, Texas College and University System, L.B.J. Building, P.O. Box 12788, Austin, Texas 78711.

APPLICATION PROCEDURES

Texas Tech University Health Sciences Center School of Medicine is a participant in the centralized application service provided by the Association of American Medical Colleges (AAMC). Applicants need to complete one standardized 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.

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 Admissions at Texas Tech University University Health Sciences Center.

AMCAS applications may be obtained from the Association of American Medical College Application Service, Suite 301, 1776 Massachusetts Ave., N.W., Washington, D.C. 20036, or from the Office of Admissions at this school. The completed forms are returned directly to the AAMC by the applicant. Early application is advisable, but may not be initiated before **June 15**. The deadline for receipt of applications at Texas Tech University School of Medicine is **November 1.**

Immediately upon receipt of the AMCAS application, a supplementary packet will be sent from the Admissions Office of this school requesting additional information. The packet should be completed as soon as possible and returned, along with an application fee of $10, to the

Office of Admissions
Texas Tech University
Health Sciences Center
School of Medicine
Lubbock, Texas 79430

Applicants are carefully evaluated by the Admissions council with regard to their potential for pursuing a curriculum leading to the Doctor of Medicine degree. Academic achievement, MCAT scores and a personal interview constitute the major factors for applicant evaluation before a final decision is made. There is no discrimination because of race, creed, sex or national origin.

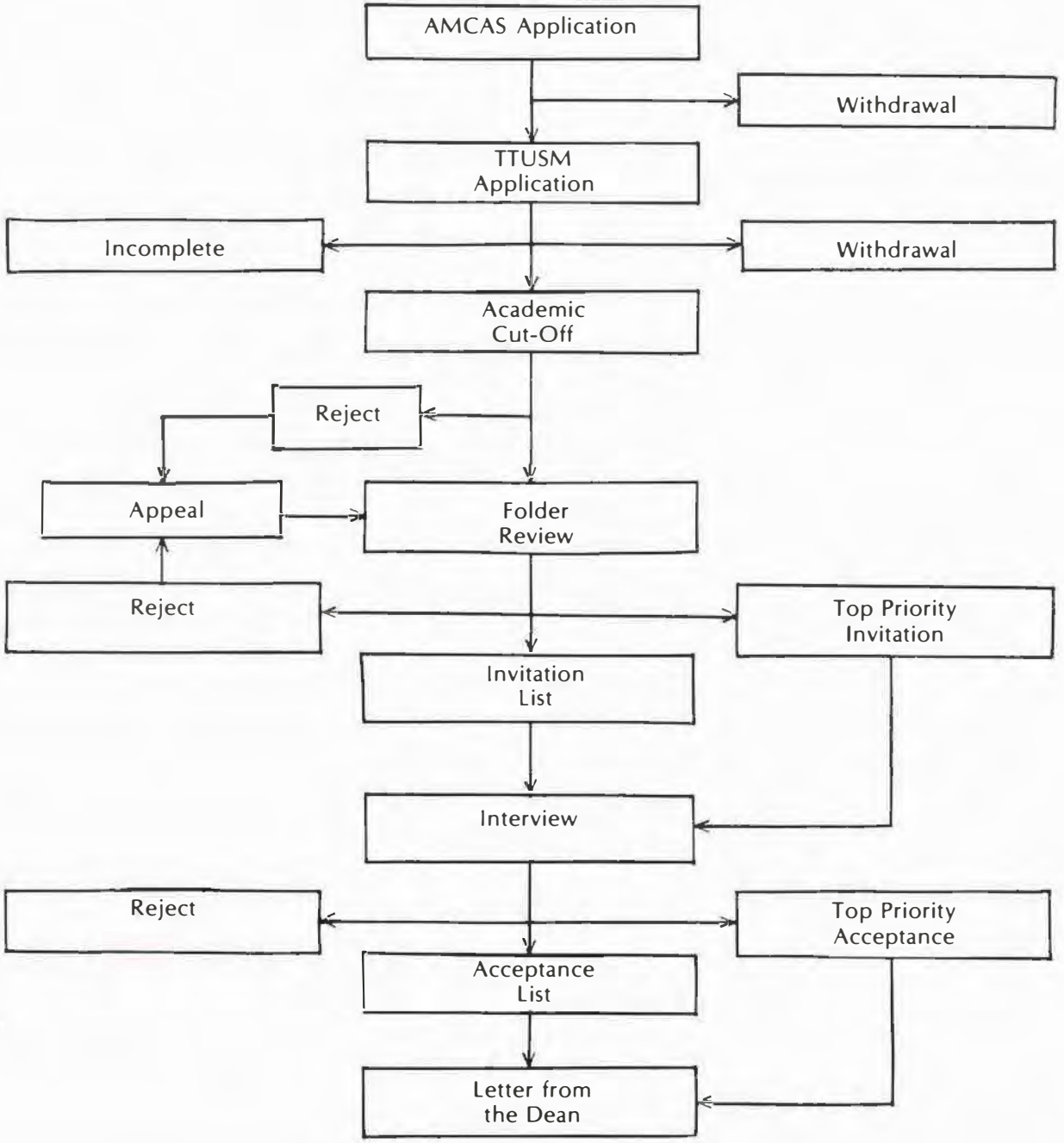
APPLICATION AND ACCEPTANCE TIMETABLE

Filing of formal application by applicant with AMCAS
- Earliest date: June 15
- Latest date: November 1
- Earliest Decision deadline date: August 1
- Application fee: $10 due with supplementary application forms to TTUHSC

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
- Maximum time: 2 weeks
- Deposit fee to hold place in class (applies to tuition): $100 due upon acceptance

APPLICATION PROCEDURE



TUITION AND FEES

All fees are subject to change without prior publication.

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

Approximate Cost for 9-Month School Year*

	Resident	Non-resident
Tuition	$300.00	$900.00
Laboratory Fee	32.00	32.00
Student Use Fee	100.00	100.00
Student Services	104.00	104.00
University Center	20.00	20.00
Microscope Use	75.00	75.00
Property Deposit	7.00	7.00
Liability Insurance	25.00	25.00
	$663.00	$1263.00

For further information contact:
The Registrar
Texas Tech University
School of Medicine
Lubbock TX 79430

Tuition and Fees*

Tuition and fees for each academic year are due and payable in full at the time of registration and a student is not enrolled until his fees are paid in full.

Texas Resident $300.00
Non-resident $900.00

Laboratory Fee*

Laboratory fees $32.00

Student Use Fee*

A Student Use Fee of $100.00 a year is required by state law to be paid by all students at the time of registration.

Student Service*

Each student is required to pay a Student Services Fee of $104 at the time of registration.

Student Health Service*

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

University Center*

A University Center Fee of $20.00 a year is required of all students.

Microscope Fee

The Texas Tech University School of Medicine makes available microscopes on a rental basis. A single $75.00 rental fee payable at the time of registration for first-year students covers the use of the microscope during the first two academic years.

Liability Insurance

$25.00 per year.

Property Deposit

Each student enrolled must make a general property deposit of $7.00. This deposit is subject to charges for property loss, damages, breakages, or violation of rules in the library or laboratories.

Student Hospitalization Coverage

Cost of the plan to a single medical student is $59.40 per year. Other plans and policies are available through the Office of Student Affairs.

Housing

Texas Tech University School of Medicine does not furnish living quarters for its students. Housing is an individual matter and each student must make his own arrangements.

Texas Tech University maintains 20 residence halls which accommodate approximately 7,300 students for board and room. Medical students are eligible for University housing if they desire it, and assignments will be made according to student preference if space is available. For further information, students interested in University housing should contact the

Texas Tech Housing Office
P.O. Box 4629
Texas Tech University
Lubbock, Texas 79409

In addition, there are numerous off-campus apartments and housing facilities available near the campus. Estimated living costs for room and board range upward from $175 per month.

Campus Parking

Limited parking facilities are available on the medical school grounds. Any student wishing to park on the campus will be required to obtain a permit and pay a Parking and Registration Fee of $18.00 per year.

*Based on fee structure for 1980-1981. Fees for 1981-1982 are subject to change based on actions of the Legislature and Board of Regents.

REFUND OF TUITION AND FEES

The medical student who officially withdraws from the Texas Tech University Health Sciences Center School of Medicine during the course of an academic year will be entitled to a refund of tuition and fees in proportion to the length of time between the first class day of each semester and the date of official withdrawal in accordance with the schedule below, subject to this policy.

Forms for withdrawal will be available from the Office of the Registrar, Texas Tech University Health Sciences Center School of Medicine.

Withdrawal

Prior to the first class day	100 percent
During the first five class days	80 percent
During the second five class days	70 percent
During the third five class days	50 percent
During the fourth five class days	25 percent
After the fourth five class days	None

FINANCIAL AID

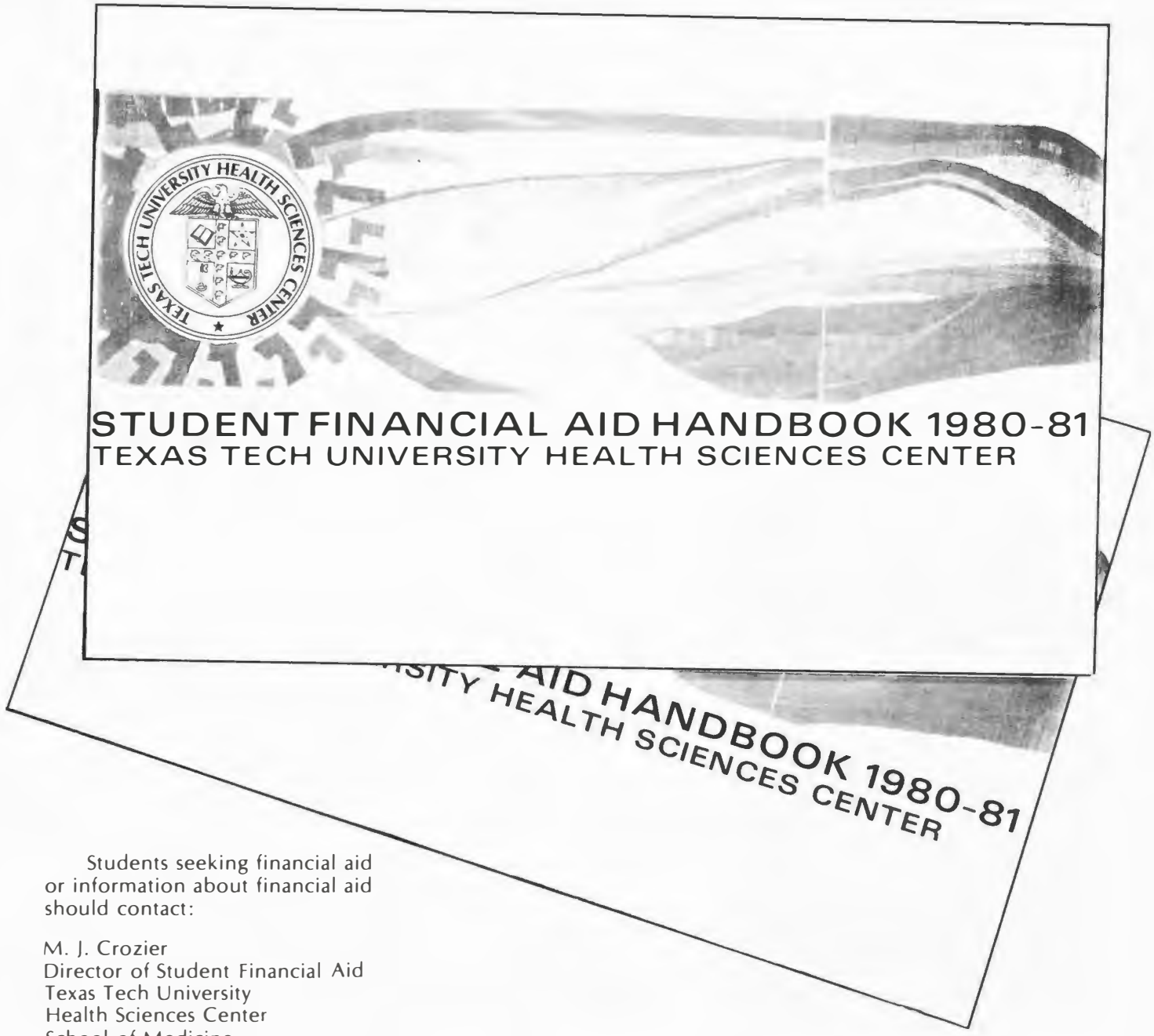
The objective of the Financial Aid staff at Texas Tech University Health Sciences Center School of Medicine is to provide financial assistance to students who, without such assistance, would not be able to pursue a medical education.

There are several types of financial aid, including loans, scholarships, and grants, which are offered to students on the basis of financial need and other qualifications as specified by state and federal agencies as well as private donors.

Financial need is defined as the difference between the anticipated costs of attending TTUHSC and the amount of money available to the student from all sources. A need analysis is required of applicants for most financial aid programs. TTUHSC uses the need analysis system published by the Graduate and Professional Student Financial Aid Service (GAPSFAS).

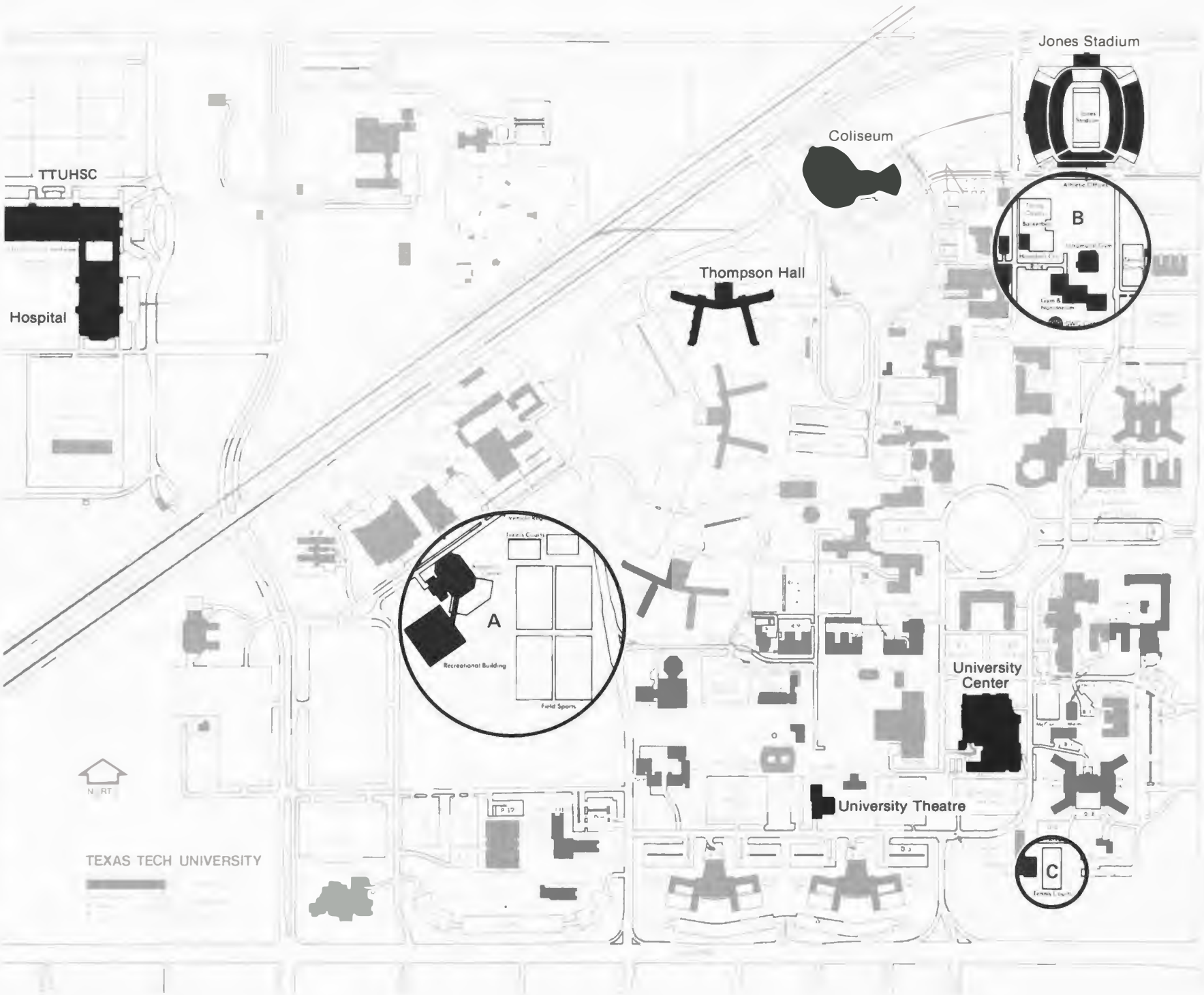
Although qualifications for each financial aid fund might differ, and aid at TTUHSC comes from many sources, no student or prospective student shall be excluded from participation in or be denied the benefits of any financial aid program on the basis of race, color, national origin, religion, or sex.

A Student Financial Aid Handbook, which describes the various financial aid programs in detail, is available upon request.



Students seeking financial aid or information about financial aid should contact:

M. J. Crozier
Director of Student Financial Aid
Texas Tech University
Health Sciences Center
School of Medicine
Lubbock, TX 79430


Jones Stadium
Coliseum
TTUHSC
Hospital
Thompson Hall
B
A
Recreational Building
Field Sports
University Center
University Theatre
C
NORTH
TEXAS TECH UNIVERSITY

RECREATION AND ENTERTAINMENT

In Lubbock, TTUHSC is on the campus of Texas Tech University, affording students easy access to campus recreational and entertainment facilities at student rates. The music and drama departments maintain a calendar of events in addition to Lubbock's cultural arts programming.

In addition to varsity and intramural sports, Tech maintains facilities for individual recreation. On-campus athletic facilities include an indoor swimming pool, lighted tennis courts, gymnasium facilities and area for field sports. Through the Department of Recreational Sports, rental equipment is available for camping and boating.

Municipal facilities for sports and civic cultural arts programming are available in Amarillo, El Paso and Odessa.

ORGANIZATIONS

The student body of Texas Tech University School of Medicine currently holds memberships in the American Medical Student Association, the Student National Medical Association, the Texas Academy of Family Practice, the Organization of Student Representatives and the American Medical Women's Association. Also, medical students serve on state committees in conjunction with the Texas Medical Association —Student Business Section.

LEGEND

Recreational facilities for student use, clockwise from top left:

A 1 Year-round Swimming Pool
2 Tennis Courts
3 Field Sports
4 Student Recreation Center

B 1 Tennis Courts
2 Field Sports
3 Men's Gym and Natatorium
4 Handball Courts
5 Basketball Courts

C 1 Tennis Courts

Reservations recommended for tennis and handball courts.

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, 2nd Floor, South Wing of Thompson Hall, provides ambulatory medical care 8 a.m.-7 p.m., Monday through Friday, Treatment is confined to the clinic; student health service physicians do not make routine dormitory or house calls. Transportation for the transfer of on-campus students who are ill is available through the University Police Service.

From 7 p.m.-8 a.m. Monday through Friday and on weekends, medical care is available through the Emergency Room of Lubbock General Hospital, or an emergency room of the student's choice. The student will be responsible for paying all emergency room charges; however, upon receipt of proof of payment for emergency room services during the above stated periods, the Health Service will refund $25 to the student.

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.

Students 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 Lubbock General Hospital or the hospital of their choice.

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 who will give special care for students who need it and 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.

STUDENT HOSPITALIZATION COVERAGE

At the time of registration each student will complete a health insurance enrollment card indicating the extent of his/her coverage and the name of the carrier and policy number. All medical students enrolled in Texas Tech University School of Medicine are expected to carry health insurance, either the plan offered through the Texas Tech School of Medicine, or a similar policy providing equivalent coverage.

For additional information or specific questions concerning health insurance coverage, students should contact the Office of Student Affairs.

STUDENT CONDUCT

Responsible citizenship among students enrolled in Texas Tech University Health Sciences Center School of Medicine includes honesty and integrity in class work, regard for the rights of others, respect for local, state and national laws and for campus regulations. Specific regulations concerning the rights and responsibilities of students at the School of Medicine are contained in the Code of Student Conduct and Discipline. Each student is expected to become thoroughly familiar with these regulations.

TUTORIAL TEAM INSTRUCTION

An important element in the School of Medicine is the Tutorial Team Instruction program. Tutorial Teams consist of the faculty mentors and about 12 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 into three broad categories: (1) academic and personal counseling; (2) educational experiences not provided by the curriculum; and (3) opportunities for social and leisure time activities.

The mentors not only function as members of the group but also serve as a student advocate as needed, assist with student academic advisement and provide 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. The Tutorial Team is recognized as a formal channel of communication from students to the various offices of the Dean.

LIBRARY OF THE HEALTH SCIENCES

The Library of the Health Sciences at Texas Tech University School of Medicine was developed in a record time span of 11 months, and presently contains more than 100,000 bound volumes. More than 1,600 periodicals published both domestically and in foreign countries are received and bound regularly.

Associated libraries in the Amarillo and El Paso Regional Academic Health Centers of the medical school also are being developed, and anticipated collections of about 40,000 volumes in each location are growing daily.

Besides offering its bound volumes and periodicals as a valuable reference collection, the Library houses a Learning Resource Center comprised of audio-visual materials, films, tapes and other non-book media to aid in the learning experience. Teaching devices such as a medical injectable teaching arm and a heart-sound simulator are available for use.

Computerized searching services with access to more than 50 data bases on a variety of subjects ranging from medicine and engineering to education, agriculture, and many others are available. These data bases come from sources nationwide, especially the National Library of Medicine, Bethesda, Md. A few of the data bases available include MEDLINE, TOXLINE, AGRICOLA, Birth Defects, NTIS and others.

Study carrels and other study facilities are provided within the Library for students, faculty, and residents.

Medical students also have access to the Texas Tech University Library, which contains more than 1.5 million items including U.S. Government documents and substantial holdings in the sciences.

FACULTY

The full-time faculty of the School of Medicine currently numbers 200. In addition, 617 West Texas area health care professionals and scientists have been appointed to the clinical faculty of the School of Medicine. As the school's educational programs grow and as the Regional Academic Health Centers continue to develop, both the full-time faculty and the clinical faculty will grow with them.

STUDENT EMPLOYMENT

It is recommended that, if possible, students arrange their financial affairs so that employment during the academic session will not be necessary. However, if financial need arises, students may undertake limited employment; usually no more than 10 hours per week are advisable. Any student undertaking employment during the academic session is required to notify the Associate Dean for Student Affairs.

CONTINUING MEDICAL EDUCATION

The goal of Continuing Medical Education (CME) at Texas Tech University Health Sciences Center (TTUHSC) is to improve health care by providing quality educational programs for all members of the health-care delivery team. Programs are designed to update and inform the individual in various aspects of basic medical education as well as the developments within his particular field of interest.

A number of specialty societies and academies are requiring continuing education credits for recertification. Several states also require continuing education credits for relicensing. The Liaison Committee on Continuing Medical Education (LCCME) has accredited the TTUHSC Office of Continuing Medical Education, enabling the office to sponsor conference programs for Physician's Recognition Award (PRA) credit.

CME works with faculty sponsors in planning and implementing medical conferences. Any faculty member with an idea for a conference contacts the CME office and the process begins.

The task objectives of the Office of Continuing Medical Education of TTUHSC are: (a) to implement a method for determining realistic continuing medical education needs and then match appropriate educational program formats to these needs; (b) to provide medical meetings and conferences that will augment and modify an adequate initial education and make possible the acquisition of such new skills and knowledge to maintain competence; (c) to work with the faculty of TTUHSC and outside organizations to design, implement and evaluate continuing medical education conferences and workshops; (d) to provide suggestions to faculty as to how the educational programs can be most effectively done according to the principles of educational psychology; (e) to provide continuing medical education through visiting experts, conferences and utilization of the most up-to-date technology available for transporting programs to remote areas; (f) to evaluate the effectiveness of the educational effort, thus ascertaining how and where modification could be made in the process; and (g) to relate information on upcoming medical education conferences and meetings to the physician community in West Texas and Eastern New Mexico.

In summary, Continuing Medical Education develops programs for faculty and practicing physicians to increase, improve or maintain medical knowledge and skill.

If you have any questions about Continuing Medical Education, you may contact Jose R. Beceiro, M.D., associate dean for Continuing Medical Education.

ACADEMIC REGULATIONS

A grade is assigned for all courses in which a student is regularly enrolled during any semester. Only through regular enrollment can a grade be earned. A passing grade may be earned only if the student is enrolled for the duration of the course and a grade, once given, may not be changed without the approval of the department chairman.

All credits are expressed in semester hours. An overall cumulative weighted grade average of 75 will be required for graduation. The grade of "I" (incomplete) is given only when a student's work is satisfactory in quality but due to reasons beyond his/her control, has not been completed. The grade "I" (incomplete) should also be used when a student is going to be re-tested or otherwise re-evaluated in a course. This is not given in lieu of a failing grade. Grades of "I" received as a result of illness will be dealt with on an individual basis. The instructor assigning the grade will stipulate in writing, at the time the grade is given, the conditions under which the "I" may be removed. Students who receive the grade "I" will have a maximum of two semesters in which to complete work for the course and remove this grade, or it should be changed to a failing grade at the end of the second semester following receipt of the "I".

The grade of "WP" is given for a course officially dropped provided the student's work is passing at the time the course is dropped. The grade of "WF" is given when the student's work is not passing at the time the course is dropped.

The lowest passing numerical grade for any course is 70. The lowest acceptable weighted average for promotion and/or graduation is 75. If a course is repeated, the second grade shall be used for purposes of promotion. Both grades shall be used for calculation of the cumulative weighted grade average. All grades shall remain on a permanent transcript.

Work completed at another school may be transferred with the approval of the academic dean and the appropriate department chairman. Grades for transferred work will be recorded as "CR" (credit) and will not be considered for calculating the weighted grade average. Transfer of credits toward the Doctor of Medicine degree is never automatic but rather shall be made at the discretion of the dean upon recommendation of the appropriate advisory faculty bodies. The grade "CR" (credit) should also be used for students enrolled in extra-credit electives during any semester or the summer.

All credits are expressed in semester hours. The second and third digits of the course number represent the credit hours. Passing grades: numerical grades that are 70-100, "S" (satisfactory). Failing grades: numerical grades below 70, "U" (unsatisfactory). Other grades: "CR" (credit), "WP" (withdrawal passing), "WF" (withdrawal failing), "I" (incomplete), "X" (course audited). Grades with NO point values: "S", "U", "CR", "WP", "WF", "I", "X".

The weighted average for a semester is determined by dividing the total number of **quality points*** acquired during the semester by the total number of semester hours of all courses in which the student was registered in that semester, exclusive of courses in which a grade of "WP" or "S" is received. In the same manner, the cumulative weighted grade average is obtained by dividing the total number of quality points earned in all courses taken at this school by the total number of semester hours of all courses for which the student has registered at this school, but excluding hours for which the grade of "WP" or "S" is received. The hours of courses receiving grades of "WF" and "U" are included in calculating weighted averages.

A student may repeat courses for credit with the prior approval of the academic dean. When a course is repeated, only the grade made in the last registration is used in calculating the weighted grade average for meeting promotion requirements. Repeated registrations are counted in the total overall weighted grade average.

* **Quality points** for a course are the product of the number of course credits and the numerical grade received by the student.

CURRICULUM

The curriculum consists of four years (143 weeks) of study in the basic and clinical sciences leading to the Doctor of Medicine degree.

While the first two years of the curriculum are principally devoted to basic sciences and the latter two to clinical sciences, some clinical material is introduced during the first two years and the opportunity is provided for further pursuit of basic science material during the last two years. Elective opportunities are provided during the first, third and fourth years. A great deal of flexibility exists in the third and fourth year curriculum allowing the student to plan his required and elective experiences so as to best meet his/her educational objectives.

CURRICULUM REVISION

In the interest of maintaining the best possible educational program, the curriculum undergoes continuous review with revision as necessary. Therefore, the curriculum is subject to change at any time by Texas Tech University Health Sciences Center School of Medicine.

UNDERGRADUATE MEDICAL EDUCATION

The broad goal of Texas Tech University School of Medicine is to prepare physicians for all areas of medical endeavor. Recognizing the specific needs of the nation, a specific goal is to foster interest among its trainees in patient care, and especially in primary care. Furthermore, considering the special health care needs of West Texas, another specific goal is to interest many of its trainees in rural health care delivery.

The undergraduate medical curriculum has two goals. The short-term goal is to prepare medical students for any area of graduate medical education. The long-term goal is to prepare medical students for practice after graduate medical education. In order to attain these goals, the undergraduate medical curriculum: (1) provides a broad but intense introduction to medical knowledge, (2) seeks to develop scientific problem-solving skills in medical students, (3) begins to develop the ability of medical students to assume sole responsibility for their own education, and (4) encourages an interest in the primary care specialties, but not to the exclusion of the secondary and tertiary care specialties.

ELECTIVE COURSES

A variety of elective courses is offered within each academic department of the medical school. Descriptions of clinical electives may be obtained through the Office of the Assistant Dean for Curriculum. Application forms for clinical electives are available in the Office of the Registrar.

CURRICULUM BY YEARS

FIRST YEAR

TERM I (17 weeks)
- Anatomy
  - Gross Anatomy
  - Histology
  - Embryology
- Biochemistry
- Emergency Medical Care
- Electives
- Introduction to Cell Biology
- Biostatistics

TERM II (16 weeks)
- Biochemistry
- Physiology
- Neurosciences
- Electives

SECOND YEAR

TERM III (16 weeks)
- Pathology
- Microbiology
- Introductory Psychiatry
- Introduction to Medicine
- Introduction to Radiology
- Preventive Medicine and Community Health
- Forensic Medicine

TERM IV (14 weeks)
- Pathology
- Pharmacology
- Introduction to Medicine
- Medical Spanish
- Psychiatric Interviewing
- Parasitology

TERM V (4 weeks)
- Dermatology
- Ophthalmology
- Otolaryngology
- Medical Spanish
- Advanced Life Support

THIRD AND FOURTH YEARS

(76 weeks)

Internal Medicine Clerkship	12 weeks	Psychiatry Clerkship	8 weeks
Surgery Clerkship	12 weeks	Obstetrics & Gynecology Clerkship	8 weeks
General Surgery 7 weeks		Family Practice Clerkship	4 weeks
Anesthesiology 1 week		Family Practice Preceptorship	4 weeks
Subspecialties 4 weeks		Electives	20 weeks
Pediatrics Clerkship	8 weeks		

Students are given flexibility in arranging their schedule during this period within certain limitations. Three clerkships, including Family Practice, must be completed by the end of the first 48 weeks. Electives can be taken at any time, provided that the student has met the prerequisite requirements established by the department offering that elective.

The curriculum is under a continuous review process and therefore subject to periodic change.

ANATOMY

Associate Professor Roger R. Markwald, Ph.D., Acting Chairman
Professors: Berlin, Cavazos, Seliger
Associate Professors: Coates, Dalley, Markwald, Richards, Rylander, Yee
Assistant Professors: Hutson, Karkos, Lox

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.

To accomplish this, the Department of Anatomy has restructured its courses and teaching methods to fit the needs of today's physician. The course material is trimmed down to what directly applies to the training and practice of a physician. New teaching methods using audiovisual aids, special notes written by the instructors, lecture lattices and demonstrations increase the efficiency of laboratory time.

Thus, by careful incorporation of modern teaching methods, modern instruments, improved faculty contact and careful screening of course material, today's medical student can be taught the necessary material in a more meaningful manner despite the reduced amount of time.

Required Courses

MAN 50210—Human Development. The study of human development beginning at fertilization and continuing through embryogenesis, the formation of mature organ systems, the fetal period and culminating with events leading to birth. Normal development is integrated with discussions of various congenital malformations. Students have a unique opportunity for firsthand observation of fetal material during a special laboratory session. This course must be taken in conjunction with MAN 50411 and 50509.

MAN 50311—Human Histology and Cell Biology. An integrated course of Anatomy starting with the ultrastructural and light microscopic study of cells and continuing through the basic tissues and their organization into the various organs of the body. This course must be taken in conjunction with MAN 50509 and 50210.

MAN 50609—Human Gross Anatomy. 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 50411 and 50210.

Roger R. Markwald, Ph.D.

ANESTHESIOLOGY

Professor Gabor B. Racz, M.D., Chairman
Professor and Associate Chairman: Edward T. Thomas, M.D.
Professors: Cockings, Lawson
Associate Professor and Director, Research Labs: Gintautas
Assistant Professors: Dick, Havasi, Kraynack, Sabonghy
El Paso—Professor and Associate Chairman: G. Dal Santo, M.D.
Associate Professor: Chandra
Assistant Professor: Freeman
Amarillo—Elective available with clinical faculty. Arrangements to be made with Dr. Racz.

Gabor B. Racz, M.D.

The Department of Anesthesiology offers a unique opportunity for the medical student to apply knowledge of the basic sciences in a patient setting.

The primary goal is to expose future physicians to current methods of life support, enabling students to approach with confidence the management of the airway of the unconscious patient as well as support of the respiratory and cardiovascular system. Electives and preceptorships are afforded where, under direct supervision, the students will have an opportunity to gain firsthand experience in the art and science of anesthesiology in a spectrum of patients undergoing anesthesia for surgery. Instruction will be given in the management of respiratory problems, acid-base and fluid balance and the use of mechanical ventilators.

The department is involved in the preclinical, basic science teaching in which clinical expertise is used to express the applicability of such knowledge.

Basic and clinical research projects will be available to interested students.

BIOCHEMISTRY

Professor Kenneth L. Barker, Ph.D., Chairman
Professor: Everse
Associate Professors: Garner, Morrow, Pelley, Perez, Stocco
Assistant Professor: Little

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) graduate students majoring or minoring in biochemistry; and (3) medical residents and housestaff.

The Department of Biochemistry provides a required comprehensive course in medical biochemistry for first year medical students.

The course emphasizes the underlying principles of molecular structure, control mechanisms, energy conservation and macromolecular interactions. In addition to the traditional topics of standard biochemistry courses, there is emphasis on human genetics as an extension of molecular biology. Clinical aspects of biochemistry are expanded upon through the course in order to provide a broader interface between the more academic subjects of biochemistry and everyday clinical practice.

REQUIRED COURSE

MBC 51025—Medical Biochemistry. A study of life processes at the molecular level with emphasis on the biochemistry of man in health and disease.

Kenneth L. Barker, Ph.D.

Blair A. Rowley, Ph.D.

BIOMEDICAL ENGINEERING AND COMPUTER MEDICINE

Associate Professor Blair A. Rowley, Ph.D., Chairman
Professors: Ayoub, Portnoy, Ramsey
Associate Professor: Jarzembski
Assistant Professor: Bhansali

The Department of Biomedical Engineering and Computer Medicine is concerned with education, research and development in medicine and the allied health fields. Interdisciplinary methods, which enable the department to draw on specialists covering a wide range of expertise, are used. Educational efforts are directed toward teaching the health professional how to use technology effectively.

The department offers a special interdisciplinary master's degree study program, administered by the Texas Tech University Graduate School, by which a medical student may earn a master's degree while attending medical school. The department also offers special electives for medical students.

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

In research, the department is developing concepts and applications of technology in the problems of health care delivery. In addition, programs in bioelectric phenomena, instrumentation and rehabilitation and other areas of bioengineering, clinical engineering and medical engineering are available.

Efforts also are directed toward the appropriate use of computers in the medical setting and the development of biomathematical expertise in medical research. In particular, the application of computer technology to medically remote populations is an ongoing program. Additional research is directed in the area of computer usage in biostatistical theory.

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.

Required Course

BME 50150—Biostatistics. This course introduces the basic biostatistical concepts frequently encountered by the student researcher or medical practitioner. It includes an introduction into the use of descriptive statistics, statistical tests, confidence intervals and other frequently encountered distributions. Examples are taken primarily from the basic and clinical sciences, emphasizing applications encountered by the medical student.

DERMATOLOGY

Associate Professor Barbara H. Way, M.D., Chairman
Professor: Shetlar
Assistant Professor: Cole

The Department of Dermatology provides educational and research programs in Dermatology for (1) undergraduate medical students; (2) residents; (3) and other students requiring instruction in Dermatology. In addition to the required sophomore course, the department offers elective preceptorship training to medical students and residents. The instructional program includes training in general dermatology, pediatric dermatology, dermatopathology, venereology and dermatologic research.

Required Course

MDM 60101—Introduction to Dermatology. This course is designed to acquaint the sophomore student with the etiology, epidemiology, pathophysiology, clinical characteristics and prognosis of selected disorders of the skin. In addition, the student will be instructed in dermatologic diagnostic techniques and be given the opportunity to examine patients with specific skin diseases.

Barbara H. Way, M.D.

Berry N. Squyres, M.D.

FAMILY PRACTICE

Professor Berry N. Squyres, M.D., Chairman
Professor: Gordon
Associate Professors: Chinn, C. Johnson, Peddicord, Shields
Assistant Professors: Brown, Gaddis, Kilham, Mathers, Patzkowsky, Walthall, Wiant
Associate Clinical Professors: Carr, Fagan, Hope, G. Johnson, L. Johnson, Knox, Rehm
Assistant Clinical Professors: Autrey, Hegi, Magee, Nall, Sneed
Adjunct Associate Professor: Welsh

The Department of Family Practice is primarily concerned with provision of training in ambulatory care which involves evaluating and managing unselected patients with unselected illnesses. Included is comprehensive medical care with particular emphasis on the family unit. Stressed is the physician's continuing responsibility for health care delivery, not limited by patient's age, sex or disease entity. Building upon a core of knowledge derived from other disciplines—drawing most heavily on internal medicine, pediatrics, obstetrics and gynecology, surgery, and psychiatry—there is established a cohesive unit, combining the behavioral sciences with the biological and clinical sciences. The core of knowledge encompassed by the discipline of family practice prepares the physician for a unique role in patient management, problem solving, counseling and coordinating the total health care delivery for his patients.

The research of the department is conducted in clinical settings and is designed to develop and evaluate more effective methods of health care delivery. The department's laboratories include ambulatory care centers, physicians' offices, emergency rooms, nursing homes and various types of health care clinics, both urban and rural.

Required Courses

MFP 50101—Emergency Medical Care: Techniques of emergency care are taught in the freshman year with a multiple disciplinary approach using appropriate teaching personnel from various departments of the medical school as well as experienced teachers from the community. Methods used are didactic lecture, audio visual demonstrations, simulated procedures, and, when possible, emergency room observation.

MFP 70601/80601—Family Practice Clerkship: Required during the third/fourth year. Core clerkship emphasizing the breadth of family practice as it includes appropriate utilization of skills in internal medicine, surgery, obstetrics and gynecology, pediatrics and psychiatry. Family-oriented health care, both in the office and hospital, are combined with seminars concerned with clinical skills, family dynamics and social-cultural relationships. The team approach to health care is emphasized along with community and psychological medicine.

MFP 70602/80602—Family Practice Preceptorship. Required during the third/fourth year; is not scheduled prior to completion of required clerkships in family practice, internal medicine and pediatrics. Students are assigned to a variety of practices within the Regional Academic Health Center areas (urban or rural) 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. This preceptorship is for a period of four weeks.

INTERNAL MEDICINE

Professor A. W. Holmes, Jr., M.D., Chairman
Professor: Bartholomew
Associate Professors: Allison, Beceiro, Cooper, Ekery, Grooms, Higgins, Lawrence, Mills, Myers, Nichols, Nicklaus, Periman, Polly, Secrest, Shields, Stanbaugh
Assistant Professors: Abedin, Aung, Lam, Lee, Lutherer, Menendez, Murray, Reed, Sanger, Sherwood, Uddin, Voda, Young

The prime objective of the Department of Internal Medicine is to develop in students the intellectual and physical mechanisms for the careful evaluation of the patient and the use of fundamental principles of the basic sciences in the rational study of the patient and his or her disease. This major aim translates into a series of instructional objectives which include:

1. teaching of the careful elicitation of a history
2. teaching of a thorough and orderly physical examination
3. teaching of techniques of clinical problem solving through
   a. didactic discussions of disease processes emphasizing fundamental mechanisms and natural history of the disease
   b. bedside discussion of patients and their problems and the means by which to help solve those problems.

Clinical teaching occurs in both inpatient and outpatient settings. Student activities are directed by salaried and volunteer members of the faculty and the activities of students are integrated as part of the patient care team. Organized didactic sessions are programmed as necessary to ensure that a given body of knowledge is transmitted.

Required Courses

MIM 60433—Introduction to Medicine. Through a combination of didactic presentations and preceptorial clinical sessions the student will be introduced to the techniques utilized in obtaining a history, performing a physical examination, and organizing a medical record.
MIM 71217—Junior Clerkship: Internal Medicine. This twelve week course serves as an introduction to the broad field of internal medicine. Students will be expected to develop the ability to study a patient in an organized way utilizing historical and physical data to generate logical diagnostic possibilities which can then be tested by appropriate tests or procedures. While it is desirable for the student to learn some principles of therapy, emphasis is placed upon rational and accurate diagnosis.

Albert W. Holmes, M.D.

Paul G. Meyer, M.D.,

MEDICAL AND SURGICAL NEUROLOGY

Associate professor Paul G. Meyer, M.D., Chairman
Assistant Professor: Strahlendorf
Clinical Professors: Calkins (El Paso), Dunn, Gordon, Jr.
Associate Clinical Professors: Evans, Finney (Amarillo), Garland, Heitzman (El Paso), Nelson (El Paso) O'Neal (El Paso) Price (Amarillo), White (El Paso), Zolfoghary (El Paso)
Assistant Clinical Professors: Chuang, Kauffman (El Paso), Leo, Morgan, Rimmer (Amarillo), Ryan (Amarillo), Sedler
Clinical Instructor: Lee

Medical and Surgical Neurology encompasses the areas of neurology and neurosurgery as well as subspecialties in neuroradiology and neuro-ophthalmology.

The department conducts a six-week correlative course for freshman medical students in cooperation with the departments of Anatomy and Physiology. Faculty members also participate in the sophomore level physical diagnosis coursework and the Junior Medical and Surgical Clerkship.

Elective clerkships are offered in the senior year with members of the faculty both at Regional Academic Health Centers and with clinical faculty in their private practices.

The Tarbox Clinic for Parkinson's Disease in Lubbock is a primary interest of the department.

Required Course

MID 50801—Integrated Neuroscience. A detailed study of the nervous system with an examination of both gross and fine structure and function from the subcellular through the behavioral levels.

MICROBIOLOGY

Professor David J. Hentges, Ph.D.
Chairman
Professors: Lefkowitz, McKenna
Associate Professors: Baskett, Fralick, Joys
Assistant Professors: Diedrich, Gooch
Adjunct Associate Professor: Heim
Adjunct Assistant Professor: Hayes

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 in Medical Microbiology for second year medical students. The course is divided into lectures, laboratory demonstrations, and clinical correlation conferences. The clinical correlation conferences, given 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. Recent advances in understanding infectious diseases are presented from the 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.

Required Course

MMB 60631—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.

David J. Hentges, Ph.D.

OBSTETRICS AND GYNECOLOGY

Professor Wayne Heine, M.D.,
Chairman
Professors: Giles, Perry (Amarillo), Scragg (El Paso), Reeves (El Paso), Yannone
Assistant Professors: Carrillo (Amarillo), Dolen, Kuntz, Lox, Phillips, Salazar (El Paso), Spinnato, Sullivan (El Paso), Yamboa (Amarillo)

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, the conduct of delivery and 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, ctyology, oncology and pathology.

Required Course

MOB 71247—Obstetrics-Gynecology: A study of the treatment of female patients by the primary care practitioner. Obstetrics-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.

Wayne Heine, M.D.

James Price, M.D., Ph.D.

OPHTHALMOLOGY AND VISUAL SCIENCES

Professor: James Price, M.D., Ph.D., Chairman

Professors: Buesseler, Tyner

Associate Professor: Holly

Assistant Professor Jesse J. Halpern, M.D., Associate Chairman (El Paso)

Assistant Professor: Lamberts

Our educational objective in the lecture series is to provide each medical student with a core knowledge that is necessary to physicians who will practice in a wide range of medical disciplines. Seven problem areas are used to structure the series and enhancement lectures are included. The seven problem areas are: visual acuity, ophthalmoscopy, glaucoma, red eye, injuries, amblyopia/strabismus, and neuro-ophthalmology. An extensive audio-visual program is available as a required part of the student's work. Clinical instruction on ocular examination is given during the physical diagnosis rotation.

Electives are available. These include a clinical rotation and the possibility of a research period. Information about these electives can be obtained by contacting the department chairman.

A fully accredited residency program exists and accepts three residents each year at the PGY-2 level. Students interested in our program are encouraged to take elective rotations in Lubbock.

ORTHOPAEDIC SURGERY

Professor J. Ted Hartman, M.D., Chairman

Associate Professor: Yost

Assistant Professors: Janssen, Robertson

The primary goals of the department are to teach medical students, train physicians in the specialty 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.

An approved residency program in Orthopaedic Surgery is conducted by the faculty members of this department.

J. Ted Hartman, M.D.

PATHOLOGY

Professor Harry F. Sproat, M.D., Chairman

Professors: Bell, Cordon, Jr., Lockwood, Messina

Associate Professors: Adams, Alexander, Badinger, Hutchinson, Larsen, MacNair, Morales, Pence, Raffery, Rector

Assistant Professors: Beach, Beaman, Doyle, Drow, Gunasegaram, Tran

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 is 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 five divisions: Anatomical Pathology; Clinical Pathology; Forensic Pathology; Comparative Pathology; and Toxicology.

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

Required Courses

MPA 6[illegible]—Pathology I: General Pathology and Introduction to Clinical Pathology. A study of the major categories of general disease processes with an introduction to basic laboratory procedures in which the students are required to exhibit a satisfactory degree of proficiency.

MPA [illegible]—Introduction to Forensic Medicine. Overview of regulations governing medical licensure and practice, informed consent, malpractice, medicolegal autopsies, medical records, workmen's compensation, prescription writing, drug control, [illegible] commitment, doctor-patient relationships.

MPA 6[illegible]—Parasitology: Pathobiology. A study of the protozoan, helminth and arthropod parasites of man, vectors and animal reservoirs of human disease, and venomous and poisonous animals.

MPA 6[illegible]—Pathology II: Organ System Pathology. A study of specific disease states by organ systems. During both semesters, 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. Use of laboratory procedures in differential diagnosis is further demonstrated and correlated with systems being studied.

Harry F. Sproat, M.D.

PEDIATRICS

Professor Edgar O. Ledbetter, M.D., Chairman
Professors: Sieber, South
Associate Professors: Byrne, Gururaj, Habersang, Heim, Varma
Assistant Professors: Contreras, Handal, Jesurun, Kwan, Logvinoff, Naqvi, Park, Shum, Sridaromont, Wilson
Adjunct Assistant Professor: Mirkovic
Instructors: Garcia, Kim, Levin

The course of study in the Department of Pediatrics provides each student with a closely supervised learning experience in the care of infants and children, both sick and well. Primary emphasis is placed on the practical application of basic science knowledge to the solution of clinical problems. Students observe and participate in diagnostic and patient care activities concerned with premature and term newborn infants, growth and developmental processes, immunology, infectious diseases, hematology, pulmonology, adolescent medicine, developmental disabilities, endocrinology, allergy, cardiology, psychiatry, communicable diseases and problems of a nutritional or metabolic nature. There is emphasis on preventive as well as therapeutic medicine.

Electives for senior students are available in immunology, hematology, developmental disabilities, endocrinology, cardiology, infectious diseases and general pediatrics (at Lubbock); cardiology, hematology, infectious diseases, pulmonology and general pediatrics (at El Paso); and general pediatrics (at Amarillo).

An elective course, introduction to well-baby care, is available to freshman students at Lubbock. This provides an introduction to the care of infants as well as a broad overview of preventive pediatrics.

Required Course

MPD 71237—Pediatrics: A comprehensive overview of the physician's role in the care of the well and sick child.

Edgar O. Ledbetter, M.D.,

PHARMACOLOGY AND THERAPEUTICS

Professor Alexander D. Kenny, Ph.D., Chairman
Professors: Pang, Pirch, Potter
Associate Professors: Carroll, Lombardini
Assistant Professors: Lyness, Tenner

Pharmacology is the biomedical science concerned with the interactions of chemicals with living systems and their constituent parts. The emphasis in the Doctor of Medicine Program is on the study of chemicals in their role as therapeutic agents used in the prevention, alleviation, treatment, or diagnosis of human disease, and as toxic agents producing undesirable effects. The laboratory component focuses on autonomic-cardiovascular pharmacology. Clinical relevance is stressed both in the lecture material and in a complementary series of clinical conferences.

Required Course

MPH 60713—Medical Pharmacology. A study of chemicals in their role as therapeutic agents used in the prevention, alleviation, treatment, or diagnosis of human disease, and as toxic agents producing undesirable effects.

Alexander D. Kenny, Ph.D.

PHYSIOLOGY

Professor Charles D. Barnes, Ph.D., Chairman
Professors: Hughes, Kopetzky
Associate Professors: Crass, Davies, Lutherer, McGrath, Orem
Assistant Professors: Janssen, Nathan, H. Strahlendorf, J. Strahlendorf,

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

Required Courses

MPY 50922—Medical Physiology. A study of human physiology with major emphasis on body controlling systems and their interrelations. Pathophysiological mechanisms also are stressed.
MID 50801—Integrated Neuroscience. A detailed study of the nervous system with an examination of both gross and fine structure and function from the subcellular through the behavioral levels.

Charles D. Barnes, Ph.D.,

Blair A. Rowley, Ph.D.

PREVENTIVE MEDICINE AND COMMUNITY HEALTH

Associate Professor Blair A. Rowley, Ph.D., Interim Chairman
Professor: Tyner
Associate Professors: Hayes, Way

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.

The teaching objectives of this department are to introduce principles and methods of general preventive medicine and to show their applicability to other medical specialities. The service objectives involve participation in public health and neighborhood clinics as well as other health related community activities. Research activities are focused on models for health care delivery.

Required Course

MPM 60210—Preventive Medicine and Community Health. This course introduces principles and methods of general preventive medicine as it involves both the individual and his community.

PSYCHIATRY

Professor Don E. Flinn, M.D. Chairman
Professor: Tyner
Associate Professors: Baskett, Erickson, W. Farr, Johnson, McKnight, Weddige, Yung
Assistant Professors: Aguirre, Arredondo, Bazzell, Briones, S. Farr, Munyon, Perez, Prokop

The major purpose of this 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 behavorial 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. Cooperative teaching programs, using specialists from other departments, as well as specialists from Texas Tech University insure a broadly based choice of elective courses for the student during his final year.

Required Courses

MPS 60452—Introduction of Psychiatry: This course includes an overview of normal emotional growth and development as well as an introduction to clinical psychopathology. Teaching methods include lecture, videotape presentation, seminar and actual patient demonstration. The course serves as a didactic base for the Psychiatric Interview Course and the Junior-level Psychiatric Clerkship.

MPS 60273—The Psychiatric Interview as Process and Diagnostic Technique. The emphasis in this introductory course is the psychiatric interview and its value as an information gathering and therapeutic technique. A faculty member supervises each student interview of a patient. A discussion follows which focuses primarily on the conduct of the interview and the psychopathological implications derived.

MPS 71257—Junior-Senior 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 outpatient facilities. An integral part of the clerkship is the student's presentation at a case conference of a diagnostic formulation and treatment plan for a psychiatric patient. A seminar series presentation at a case conference of a diagnostic formulation and treatment plan augments supervised clinical experience.

A wide variety of electives are available during the I, III and IV years.

Don E. Flinn, M.D.

Jay P. Sackler, M.D.

RADIOLOGY

Professor Jay P. Sackler, M.D., Chairman
Professor: Mark
Associate Professor: Uhrig
Assistant Professors: Blackwell, Gainer, Hirsch, Leo, Posteraro, Strang

The Department of Radiology employs such modalities as x-radiation, computed tomography, radioactive isotopes and ultrasound for the diagnosis and treatment of disease.

The department is actively engaged in undergraduate and postgraduate radiological education. Radiology faculty presentations are a regular part of the courses in anatomy, pathology and physical diagnosis. A 16 hour required course is given in the second year.

A one month elective is offered to the undergraduate medical students in their clinical years after the basic clinical rotation is completed. As a prerequisite, at least one rotation must have been taken in either internal medicine or surgery. The elective student will observe and participate in all phases of departmental activity including conferences and teaching file review.

The Department of Radiology includes the following major specialty areas:

1. General diagnostic radiology: diagnosis through interpretation of x-ray images.
2. Computed tomography: cross-sectional imaging by means of x-ray scanning and computer reconstruction.
3. Neuroradiology: diagnosis of neurological disease with radiological techniques.
4. Angiography: diagnosis of cardiac and vascular abnormalities by opacification of heart and vessels.
5. Pediatric radiology: general diagnostic radiology as it is applied to the specific and unique aspects of the care of infants and children.
6. Nuclear medicine: the medical use of radionuclides for diagnostic imaging, functional studies, laboratory procedures and treatment.
7. Diagnostic ultrasound: an imaging modality which relies on reflected, inaudible sound waves to provide diagnostic information.
8. Radiation oncology: treatment of malignant neoplasms with a variety of ionizing agents, often in conjunction with chemotherapy and surgery.
9. Radiobiology and radiation physics: part of the basic scientific background for the radiologist and those professionals who are concerned with protection of the public against ionizing radiation.

SURGERY

Professor Gerald L. Woolam, M.D., Interim Chairman

Full Time

Professor Mario Feola, M.D., Associate Chairman (Amarillo)
Professor Edward Saltzstein, M.D., Associate Chairman (El Paso)
Professor: Francis J. Behal, Ph.D., (Biochemistry)
Professors: Hardaway, Lockwood, Savlov
Professor: (Adjunct) Eisner (El Paso)
Associate Professors: Austermann (El Paso), Baker, Farquhar
Assistant Professors: Judson, Peacock (El Paso)
Instructors: Bobbitt, Canchola, Chavez, Lutherer, Ray (El Paso)

Part Time

Clinical Professors: El Domeiri, Rodriquez, Salem, Woolam
Associate Clinical Professors: Hewitt, Koch, Rowley, Spaulding (Big Spring), Thering (El Paso), Wegleitner (El Paso)
Assistant Clinical Professors: Arant, Kaufman (El Paso), Mangold, K. Rao, T. Rao (Big Spring), Renault, Sand (Big Spring)

Instruction programs are designed to acquaint the student with the clinical discipline of surgery and to introduce him to the principles and techniques used in management of surgical disease and injury.

The introduction to surgery provided in the junior clerkship reinforces an understanding of the pathophysiology of surgical disease, the techniques of arriving at judgmental decisions in management, pre- and post-operative care and emergency care. The student learns as a participating member of the surgical team. Teaching sessions include ward rounds, a lectue series, daily reviews of patients with a faculty member and attending conferences.

Senior clerkships are provided in all surgical specialties as elective preceptoral assignments to West Texas and other surgical centers.

The graduate, who demonstrates outstanding competence as a junior and senior clerk, receives the Robert J. Salem Award for Excellence in Surgery.

Divisions within the department include:

Cardiovascular Surgery—The division provides a series of lectures on the fundamentals of cardiovascular disease and management during the junior clerkship and a senior elective with the clerk functioning as a preceptor learning techniques of diagnosis and surgical management of congenital and acquired disease.

Emergency Medicine—This division provides instruction in patient management in a modern emergency center to junior and senior clerks in all medical and surgical disciplines.

Oncology—This division provides a senior elective which includes experience participating in the management of the cancer patient using a multimodal, multidisciplinary approach to the treatment of the disease.

Oral Surgery—This division provides education and patient care services on call.

Otorhinolaryngology—This division provides instruction to freshmen, sophomores and juniors and a senior elective in the methodology of examination and use of otorhinolaryngological diagnostic instruments and management of disease and trauma.

Pediatric Surgery—This division provides a series of lectures to junior surgical clerks, residents and faculty on the management of surgical diseases of infants, children and adolescents and offers a senior elective.

Plastic and Reconstructive Surgery—This division presents principles of plastic and reconstructive surgery at the freshman and junior levels and offers senior elective experiences as preceptorships with faculty or at other medical centers associated with TTUHSC.

Proctology—This division provides junior lectures and a senior elective on a preceptorial basis.

Surgical Research Laboratories This division facilitates basic and applied research by surgical faculty and offers research electives to senior medical students and residents. The lab assists in solving patient care problems arising on the surgical wards and seeks new and improved methods of patient management.

Thoracic Surgery—This division provides instruction in the broad management of surgical diseases of the lungs, pleura, mediatinum and chest wall and offers a senior elective including care responsibilities in a preceptorial setting.

Trauma and Burns—This division is concerned with the physiologic and metabolic response of the body to severe injury. Offerings include a senior elective on resuscitation, evaluation, triage and initial management of injured patients and the supportive management of severely traumatised patients during the most acute phase of care. Service includes emergency department rotations, conferences and rounds of the trauma service unit.

Urology—This division offers lectures during the freshman and junior years and a senior elective including instruction in diagnostic steps, management of common urological disorders and basic pathological and abnormal physiological changes.

Required Courses

MGS 60101—Introduction to Otorhinolaryngology. This course is a series of lectures given in conjunction with Medicine 60433 (Introduction to Medicine). The student is taught the proper techniques and instruments for examination of the ear, nose and hypopharynx. Common diseases are discussed in terms of changes noted in normal examinations.

MGS 71227—General Surgery. An introduction to the pathophysiology of surgical diseases and the principles and techniques used in their diagnosis and management. Course includes participation in pre- and post-operative patient care, operating room and clinic experience as a member of a team of the surgical faculty.

Gerald L. Woolam, M.D.

RESIDENCIES AND FELLOWSHIPS

The School of Medicine of Texas Tech University Health Sciences Center (TTUHSC) is a regional medical school with clinical campuses at Amarillo, El Paso and Lubbock. A fourth Academic Health Center is planned for Odessa, Midland and Big Spring. Emphasis is placed on primary care programs supported by appropriate specialty and subspecialty residencies and fellowships. The primary teaching hospitals are the Thomason General Hospital (El Paso), Lubbock General Hospital (Lubbock) and Northwest Texas Hospital (Amarillo). There are two Dean's Committee V.A. Centers at Amarillo and Big Spring. In addition, TTUHSC has affiliations with over forty other community facilities in West Texas. There currently are ten approved programs at Lubbock with three free standing residencies at Amarillo and eight at El Paso, including a flexible residency. All these programs are approved by the Accreditation Council on Graduate Medical Education of the American Medical Association and the respective specialty review committees. The largest program is operated by the Department of Family Practice which has over sixty residents in training at the three centers. Two Lubbock programs rotate residents to Amarillo (Surgery and Obstetrics and Gynecology).

Approved residency programs at TTUHSC include:

Anesthesiology	(EP, L)
Dermatology	(L)
Family Practice	(A, EP, L)
Flexible	(EP)
Internal Medicine	(A, EP, L)
Obstetrics and Gynecology	(EP, L)
Ophthalmology	(L)
Orthopaedic Surgery	(EP, L)
Pediatrics	(EP, L)
Preventive Medicine	(L)
Psychiatry	(A, EP)
Surgery	(EP, L)

A—Amarillo
EP—El Paso
L—Lubbock

GENERAL REQUIREMENTS FOR APPOINTMENTS

All applicants are required to be graduates of a medical school accredited by the Council on Medical Education of the American Medical Association or from a medical school listed in the World Directory of Medical Schools published by the World Health Organization. Graduates of foreign medical schools must be certified by the Educational Council for Foreign Medical Graduates or have a full and unrestricted license to practice medicine in a state or territory, or complete a "Fifth Pathway" in accord with requirements as outlined by the Liaison Committee on Graduate Medical Education of the AMA. (See Director of Residency Training Programs, American Medical Association, Chicago, Ill., 1980-81). While residents are not required to hold an unrestricted medical license, they are urged to obtain one within the first two years if they intend to complete a residency program at Texas Tech University Health Sciences Center. However, housestaff who do not hold such a Texas License must apply for an Institutional Permit and register annually with the Texas State Board of Medical Examiners. This may be done through the Office of Graduate Medical Education at the time of beginning service and thereafter on or before the expiration date.

APPOINTMENT INFORMATION FOR RESIDENCIES AND FELLOWSHIPS

Applications for appointments and information requests should be directed to:

Lubbock:
Director of Residency Program
Department in which the candidate has an interest
Texas Tech University Health Sciences Center
Lubbock, TX 79430

Amarillo:
Director of Residency Program
Department in which the candidate has an interest
Texas Tech Regional Academic Health Center at Amarillo
1400 Wallace Boulevard
Amarillo, TX 79106

El Paso:
Director of Residency Program
Department in which the candidate has an interest
Texas Tech Regional Adacemic Health Center at El Paso
4800 Alberta Avenue
El Paso, TX 79905

or:
Office of Graduate Medical Education
Texas Tech University Health Sciences Center
Lubbock, TX 79430

GENERAL INFORMATION

Development of a strong program of graduate education in the basic medical and related health sciences is one of the responsibilities and goals of the Texas Tech University Health Sciences Center. This decision is based on the realization that present day medicine is dependent upon the academic framework and intellectual discipline of the chemical, biological, behavioral and medical sciences.

Graduate programs leading to the Master of Science and Doctor of Philosophy degrees are offered in the basic medical sciences: Anatomy, Medical Biochemistry, Medical Microbiology, Pharmacology and Therapeutics, and Physiology. Interdisciplinary M.S. and Ph.D. programs with concentration in Biomedical Engineering are offered through the cooperation of the department of Biomedical Engineering and the College of Engineering at Texas Tech University. Individual departmental descriptions can be found within this bulletin.

The Master of Science and Doctor of Philosophy degrees emphasize research. The degrees will be conferred in recognition of the soundness of scholarship in the specific field of knowledge. Evidence of such attainment will be provided through comprehensive written and oral examinations and through the presentation of an acceptable thesis or dissertation based upon independent research.

The basic admission requirements include a Bachelor's Degree or the equivalent from an accredited college or university.

Erythrocytes photographed through electron microscope

An average of B and a score of 1100 on the combined verbal and quantitative portions on the Graduate Record Exam is highly desirable.

Instructions and materials for making application for admission to any of the programs at Texas Tech University Health Sciences Center are available from:

Dr. Stanley S. Lefkowitz
Associate Dean for Graduate Programs
Texas Tech University
Health Sciences Center
Lubbock, Texas 79430

The Texas Tech University Health Sciences Center reserves the right to cancel any scheduled course, as well as to withdraw any program from the list of graduate offerings, if the best interests of the institution require such action.

ANATOMY

Associate Professor: Roger R. Markwald, Ph.D., Acting Chairman
Professors: Cavazos, Seliger
Associate Professors: Coates, Dalley, Yee
Assistant Professors: Hutson, Karkos, Lox

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 well-rounded 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.

Most graduate courses offered by the Department of Anatomy build on the knowledge a student has obtained by taking ANM 5610, 5611 and 5712. Thus, for each course indicated by an asterisk * below, the prerequisite is one or more of the above three courses or equivalent. Students wishing to register for any anatomy courses must have written permission from the chairman or director of graduate studies of the department.

Graduate Courses

***ANM 5113, *5213**—Selected Topics in Anatomy. Material may vary from semester to semester. May be repeated for credit if different topics are covered for each registration.

ANM 5122—The Fine Structure of the Nervous System. A seminar course covering major topics of the ultrastructural organization of the central and peripheral nervous system, including neurons and their processes, glia and synapses.

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

***ANM 5305**—Medical Cell Biology. An interdepartmental course for graduate students in the biomedical sciences. Emphasis is 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. 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 will be stressed.

***ANM 5312**—Analysis of Development. A comprehensive study of the mechanisms involved during embryogenesis including differentiation, cell motility, epithelial-mesenchymal interactions, etc. Relevant literature is reviewed through faculty and student presentations. A laboratory provides practical experience in identifying embryonic structures and utilization of current methods for studying development.

***ANM 5313**—Selected Topics in Anatomy. Material may vary from semester to semester. May be repeated for credit if different topics are covered for each registration.

***ANM 5317**—Neuroendocrinology (3:3:1). Lectures and discussions on selected topics of current interest concerning the regulatory mechanisms and interrelationships of the neural and endocrine systems. The role of the hypothalamus as it relates to and controls the other endocrine organs will be stressed.

***ANM 5318**—Structure and Function of the Nervous System. A detailed study of the neural system with an examination of both gross and fine structure, as well as cell biology of both the peripheral and central portions of the nervous system.

***ANM 5321**—Advanced Gross Anatomy. An in-depth gross anatomical study devoted to one of the following areas of emphasis: topographical anatomy, head and neck, thorax and abdomen, pelvis and perineum, extremities and back, depending upon the student's needs. The course may be repeated for credit if another area of emphasis is selected.

ANM 5333—Microanatomy of Human Tissues and Organs. A detailed course in microscopic anatomy designed primarily for the non-anatomy graduate student, advanced undergraduate student in biological sciences, and the allied health student who desires additional training in microscopic anatomy.

***ANM 5410**—Introduction to Research Methods in Anatomy. Introduction to research methods available within the department. Practical experience in microscopy (light and electron microscopy) and tissue preparation is gained through student projects. A journal club stresses analysis of experimental technique and design.

***ANM 5501**—Histochemistry and Cytochemistry. An introductory course emphasizing light and ultracytochemical methods (substrate film, digestion, extraction, blocking and enzyme marking) for elucidating the chemical composition of cell structure. The chemical basis of staining results related to topics in cell biology, including mitochondrial structure and function, active transport and secretory mechanisms, membrane flow and differentiation, and the physiological importance of the cell coat.

ANM 5610—Cell Biology, Histology and Embryology. Human microanatomy and embryology. An integrated course of anatomy starting with the ultrastructural and light microscopic study of cells and through developmental and microscopic anatomy. This course must be taken in conjunction with ANM 5611.

ANM 5611—Gross Anatomy. A highly integrated introductory course of 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 5610.

***ANM 5613**—Advanced Histology. An in-depth study of ultrastructural, cell biological and histopathologic aspects of tissues and organs. In addition to traditional areas, attention is focused on connective tissue macromolecules, ossification, nerve intracellular transport and the structural function correlates of the endocrine, renal and reproductive systems.

***ANM 5712**—Correlative Neuroanatomy. A detailed course of neuroscience, passing from the study of ultrastructural cytology, through the light microscopic, gross and neuroanatomical aspects of the nervous system. Strong emphasis on the functional and clinical aspects of neuroscience.

HSC 5810—Integrated Neuroscience. A detailed study of the nervous system with an examination of both gross and fine structure and function from the subcellular through the behavioral levels.

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 Kenneth L. Barker, Ph.D., Chairman
Professor: Everse
Associate Professors: Garner, Morrow, Pelley, Perez, Stocco
Assistant Professor: Little

Graduate Student Program: The Department of Biochemistry offers opportunities for study and research leading to the Master of Science and/or Doctor of Philosophy degrees in Medical Biochemistry.

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 requirements for the Ph.D. degree.

The Qualifying Examination (for admission to candidacy for the Ph.D. degree) consists of two parts; the first part is administered at the end of the first year, and the second part is given after most of the coursework 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 nine 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.

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

1. disorders of mucopolysaccharide metabolism and metabolism of complex carbohydrates
2. genetics of somatic cell hybrids
3. chemical and kinetic mechanisms of enzyme action
4. developmental aspects of bile pigment metabolism
5. mechanisms of hormone action in development
6. biochemical aspects of wound healing and hypertrophic scar formation
7. use of immobilized enzymes in chemotherapy
8. interconversion of lipids and structure of pancreatic lipase
9. development of new techniques for clinical analysis
10. comparison of mitochondria in normal and neoplastic tissue
11. effects of various gonadotropins on testis cells in culture

Inquiries about the graduate program in Biochemistry should be sent to:

Coordinator of Graduate Studies
Department of Biochemistry
Texas Tech University
Health Sciences Center
Lubbock, Texas 79430

Graduate Courses

BCH 5721—Biochemistry. Prerequisite: CHEM 335, 336 or equivalent. 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 and laboratories.

BCH 611—Biochemistry Conference (1:1:0). Informal conferences between faculty and students considering topics of current interest in biochemistry not normally included in other courses. Literature search, evaluation, organization, writing and oral presentation by the student are emphasized. Different topics each semester. May be repeated for credit.

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

BCH 6121—History of Biochemistry Highlights in the advancement of biochemical knowledge will be discussed.

BCH 6127—Seminar in Cell Biology. Prerequisite: Permission of instructor. May be repeated. Presentation of current research topics in the genetics and molecular biology of eucaryotic cells, and related areas: onocogenesis, differentiation, ageing.

BCH 6135, 6235, 6335, 6535—Topics in Biochemistry. Prerequisite: consent of instructor. Lectures in specific areas of biochemistry not normally included in other courses. May be repeated for credit with change of content.

BHC 6220—Biochemistry of Cancer Cells. A discussion of the metabolism of neoplastic cells.

BCH 6221—Structure and Function of Eucaryotic Membranes. A study of the molecular structure of cell membrances and of their function in cell metabolism.

BCH 6222—Biochemistry of Hormone Action. A detailed discussion of the mechanism of action of hormones in mammalian species.

BCH 6320—Clinical Biochemistry (3:3:0). 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 6321—Biophysical Characterization of Macromolecules. Prerequisite: BCH 5721, CHEM 433, 436, 437 or equivalent and consent of instructor. A study of the major techniques used in the biochemical laboratory for the biophysical characterization of macromolecules.

BCH 6322—Biomedical Radioisotope Techniques. 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 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 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.

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.

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

BCH 6329—Advanced Immunochemistry. A study of protein, carbohydrate and complex antigens and the specificity of the immune response to them.

BCH 6333—Topics in Developmental Biochemistry. In-depth study of biochemical mechanisms in embryonic and post-embryonic development including biochemistry of cellular differentiation, biochemical mechanisms in growth and morphogenesis, development of specific enzyme systems, and endocrine mechanisms in development.

BCH 6336—Neurochemistry. A study of the biochemistry and regulation of metabolic processes characteristic of neural tissues, the biosynthesis and metabolism of neurotransmitters, the biochemical basis of certain neurological disease states in man, and the structure and mechanism of function of neurohormones, in normal and pathological states.

BCH 6337—Mechanisms of Enzyme Action. Prerequisite: BCH 5721 or equivalent. A study

of the principles of catalysis and their applications in enzyme-catalyzed reactions. Topics are selected specifically to meet the needs of students in medical biochemistry.

BCH 6521—Human Intermediary Metabolism and its Regulation. Prerequisite: BCH 5721, CHEM 433, 436, 437 or equivalent. Consideration of normal and abnormal human intermediary metabolism with major emphasis on biosynthetic and catabolic pathways and on modulation and control.

BCH 731—Biochemical Research.

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

BCH 839—Postdoctoral Research. Independent study by postdoctoral fellows under the direction of the graduate faculty of the Department of Biochemistry. May be repeated for credit.

BIOMEDICAL ENGINEERING AND COMPUTER MEDICINE

Associate Professor Blair A. Rowley, Ph.D., Chairman
Professors: Ayoub, Portnoy, Ramsey
Associate Professor: Jarzembski
Assistant Professor: Bhansali

The Department of Biomedical Engineering and Computer Medicine offers graduate courses of study in cooperation with the College of Engineering of Texas Tech University. Graduate study is offered in bioengineering (engineering methods applied to the solution of problems in the life sciences), clinical engineering (improvement of health care delivery in the clinic and hospital through the application of engineering sciences), and medical engineering (traditional engineering methods as applied to the development and manufacture of medical instruments and devices).

The courses below are currently offered by the faculty in the school of medicine but are subject to change to meet the requirements of this dynamic, growing field of study. An individualized program of study is developed for each student to meet his or her needs and interests. Courses are selected from current offerings and special topics in this department, various departments in the College of Engineering, and the basic science departments of the School of Medicine.

Although not listed as a formal course, the clinical internship is an important part of education and training in the clinical engineering program. Individual internship programs are tailored to the student within the Texas Tech University Health Sciences Center, local cooperating hospital, or area Veterans Administration hospitals and clinics.

Graduate Courses

BME 5101, 5201, 5301—Selected Topics in Biomedical Engineering. Material may vary from semester to semester. May be repeated for credit if different topics are covered for each registration. Typical topics are concepts of biomedical engineering, transport phenomena and living systems and engineering in health care delivery systems.

BME 5103—Biomedical Engineering Methods Laboratory for Life Science Experimentation. Prerequisite: consent of instructor. A course to introduce the biomedical engineering student to the special problems of measurement, control, reliability and accuracy in the life science laboratory.

BME 5304—Systems Analysis in Biomedicine. 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 5306—Health Care Delivery Systems. Prerequisite: consent of instructor. Specific requirements of health care delivery systems in the physician's office, clinic, hospital medical center, and emergency care are covered. Includes analysis of intensive care, automated data collection and analysis, data base use in diagnosis, multiphasic screening, laboratory systems, use of computers, communication, and systems concepts.

BME 5307—Biological Data Collection and Analysis. A study of the concepts of data collection and analysis. Topics to be covered include noise description and reduction; data input methods including transduction theory, signal description, conditioning and transmission; and real time methods for recovering the desired information. Also covered will be hardware-software methods for inferring significance from the resulting data.

BME 5309—Modeling of Living Systems. An introduction to the theory and application of modeling techniques to living systems. Current methods of mathematical modeling including model formulation and solution will be discussed. Methods of testing, normalizing, and verifying mathematical models using experiments will be presented. Students will be required to complete a project using mathematical modeling to analyze a physiological system.

BME 5310—Hospital Engineering Systems. A study of the engineering systems that are required for the efficient functioning of a modern health care delivery system, including analysis of the interrelationships that exist between such systems. Included are electric power systems, mechanical systems, communication and data processing systems, patient monitoring systems, and physical plant.

BME 5400—Concepts of Biomedical Engineering. Prerequisite: consent of instructor. An introduction to the basic concepts of biomedical engineering, including bioengineering, clinical engineering and medical engineering. The following subjects are treated: research, product development, legal implications, documentation, introduction to analysis of living systems and clinical instruments in common use.

BME 6301—Bioelectric Phenomena. 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. Electrode theory, membrane structure and phenomena, propagated action potential, and electrocardiography.

BME 6302—Hospital Engineering Management. Prerequisite: BME 5310 or consent of instructor. A continuation of BME 5310 with emphasis on clinical engineering economics, cost controls, maintenance management, medical center organizational strategies, management of technical personnel and management of controls appropriate to the medical center.

BME 731—Research. Prerequisite: admission to doctoral study and consent of instructor. May be repeated for credit.

CMB 5101, 5201, 5301—Selected Topics in Computer Medicine and Biomathematics. Material may vary from semester to semester. May be repeated for credit if different topics are covered for each registration.

CMB 5302—Intermediate Biostatistical Analysis for the Medical Sciences. Prerequisite: an introductory knowledge of calculus or statistics or consent of instructor. To provide graduate students in health-

related areas with a working knowledge of commonly used statistical techniques for analyzing biological data. Emphasis on training the student to recognize the design of the experiment, what reasonable assumptions may be made, and to perform the necessary analysis.

CMB 5303—Programming for the Medical Sciences. An introduction to medical applications of computer programming. Comparison between levels and structures of programming languages, choosing a language based on job and hardware characteristics, programming the microcomputer, and the use of packaged software in the clinical and basic sciences are covered.

CMB 731—Research.

Charles W. Sargent, Ph.D.

HEALTH COMMUNICATIONS

Professor Charles W. Sargent, Ph.D., Chairman

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 560—Health Communications Internship. Students will perform communications functions in health agencies for eight weeks under joint supervision of the chairman of the student's advisory committee and an on-site supervisor.

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

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

MICROBIOLOGY

Professor: David J. Hentges, Ph.D., Chairman
Professors: Lefkowitz, McKenna
Associate Professors: Baskett, Fralick, Joys
Assistant Professors: Diedrich, Gooch
Adjunct Assistant Professor: Hayes

The faculty of the Department of Microbiology offers broadly based programs leading to Master of Science and Doctor of Philosophy degrees in Medical Microbiology. Major areas of research interest in the Department include: 1, viral immunology; 2, tumor immunology; 3, microbial genetics; 4, infectious diseases; 5, molecular biology; 6, radiation microbiology; and 7, immunochemistry

A Master's Degree ordinarily requires two years to complete. During the period of study, the student takes 30 hours of course work, develops a research project under the supervision of a faculty advisor, and writes a thesis based on the outcome of the research.

Students interested in obtaining a Ph.D. degree first take a preliminary examination and, after completing course work, a qualifying examination. The program of study is determined by the student's advisor and appointed advisory committee. A Ph.D. dissertation, based on the results of original research, is written and defended by the student. The department does not require proficiency in a foreign language as a condition to obtaining a doctoral degree. Completion of a Master's degree is not a prerequisite for entrance into the doctoral program.

Inquiries about the Graduate Program in Microbiology should be sent to:

Director of Graduate Studies
Department of Microbiology
Texas Tech University Health Sciences Center
Lubbock, Texas 79430

Graduate Courses

MIB 5181, 5281, 5381—Special topics in Microbiology.

MIB 5380—Medical Mycology. Prerequisite: two semesters of microbiology or consent of instructor. Course is concerned with medically important fungi and the mycoses caused by these organisms. Laboratory sessions will emphasize identification methods.

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

MIB 6321—Tumor Immunology. Prerequisites: introductory courses in microbiology, biochemistry, pathology and immunology or permission of instructor. The objectives of this course will be to collate the various immunological, biochemical and pathological parameters of tumor growth, both in animal model systems and in man. Emphasis will be placed on investigations of current concepts of tumor immunity, transplation and auto-immunity; immunological tolerance, surveillance and enhancement; and 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 procaryotic cells. Courses in biochemistry and microbial genetics suggested, but not required.

MIB 6325—Biology of Animal Viruses. Lectures and laboratory work illustrating viral infection and replication within the affected cell and interaction at the cellular level between virus and host.

MIB 6326—Medical Virology. A study by lectures and discussions of the pathogenesis of viral diseases of man. The course treats viral infections at the level of the metazoan organisms, with chemotherapy and/or prophylaxis where indicated.

MIB 6327—Molecular Biology of Procaryotic Membranes. Prerequisite: permission of instructor. The molecular organization of procaryotic membranes with emphasis on the correlation between structure and function of biological membranes.

MIB 6328—Radiation Biology. Prerequisite: permission of instructor. This course will deal with the effects of ionizing radiation on biological systems at the molecular, cellular, organ, and whole body level of organization. Introductory material on radiation chemistry and physics will be included.

MIB 6329—Structural Concepts in Immunology. Prerequisite: consent of instructor. A course designed to consider the chemical nature of molecules involved in the immune reaction and the relationship between their structure and function.

MIB 6330—Cellular Mechanisms of the Immune Response. Prerequisite: general immunology, pathogenic microbiology or consent of instructor. Topics will cover the broad spectrum of present day knowledge of immunobiology. Contents of the course will explore ontogeny of the immune response, characterization of lymphocyte populations, induction and regulation of immunity and genetics of the immune response.

MIB 6331—Current Concepts of Genetic Engineering. Prerequisite: consent of instructor. Study will include recently developed techniques which allow cloning of eucaryotic genes in bacteria and their influence on biological research. An understanding of the principles involved and possibilities for students planning to pursue careers in biological research.

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 populations; interactions of microbial populations with plants and animals; microbial ecology of aquatic and terrestial environments.

MIB 6631—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 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 731—Research. Prerequisite: consent of instructor. May be repeated.

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, Ph.D., Chairman
Professor James H. Pirch, Ph.D., Director, Graduate Studies
Professors: Pang, Potter
Associate Professors: Carroll, Lombardini
Assistant Professors: Lyness, Tenner

The Pharmacology Graduate Program offers studies leading to the Master of Science and Doctor of Philosophy degrees. A minimum of three years of study beyond the bachelor's degree is required for the Ph.D. degree, but experience indicates that it usually takes at least four years and sometimes longer. The student must maintain a B average in pharmacology courses and a B average in all other courses taken for graduate credit. During the period of study the student will complete the required graduate course work, take a preliminary examination, demonstrate a proficiency in biostatistics, take a qualifying examination, complete a Ph.D. dissertation based on original research, and take a final examination in the dissertation field. A minimum of two years of study beyond the bachelor's degree is required for the M.S. degree. During the period of study the student will complete the required course work (thirty hours minimum, including thesis research), complete an M.S. thesis based on original work, and take a final comprehensive examination in pharmacology.

The major areas of research in the Department of Pharmacology and Therapeutics are: endocrine, autonomic, cardiovascular, renal, biochemical and comparative pharmacology; drug metabolism; neuropharmacology; and psychopharmacology. More specific areas include: pancreatic endocrine function; calcium homeostasis and regulation of vitamin D endocrine system: evolutionary aspects of osmoregulation in lower vertebrates; alcoholism; Parkinson's disease; pharmacology of brain electrical potentials; pharmacology of cardiac receptors; and taurine function and metabolism.

Inquiries about the Pharmacology Graduate Program should be sent to:

Director of Graduate Studies
Pharmacology and Therapeutics
Texas Tech University
Health Sciences Center
Lubbock, Texas 79430

phone: 806/743-2425.

Graduate Courses

PHM 5101, 5201—Topics in Pharmacology. Prerequisite: consent of instructor. Specific areas of pharmacology not normally included in other courses. May be repeated for credit with change in content.

PHM 5130—Clinical Pharmacology. Prerequisite: PHM 5613. Participation in clinical rounds in a medical or surgical specialty in order to observe the therapeutic regimens being used in the treatment of specific diseases.

PHM 5132—Teaching of Pharmacology. Prerequisite: PHM 5613. Faculty-supervised teaching experience for advanced graduate students. Includes instruction in laboratories for medical and other Health Sciences Center students as well as lecturing in pharmacology courses designed for students with majors outside the department. May be repeated for pass-fail credit.

PHM 5228—Special Topics in Chemotherapy. Prerequisite: PHM 5613. Basic and current concepts concerning mechanisms of action, pharmacokinetics, and therapeutic efficacies of antimicrobial and antineoplastic agents.

PHM 5229—Comparative Pharmacology. A study of drug action in nonhuman animals with special attention given to vertebrate and invertebrate animal models in pharmacological research. Discussion of

plants and animals as sources of drugs and toxins.

PHM 5233—Advanced Topics in Neuropharmacology. Prerequisite: consent of instructor. A structural in-depth study of specific topics in neuropharmacology. Topics to be studied will vary each semester. The course will consist of lectures, discussions and oral presentations of original papers by the class. May be repeated for pass-fail credit with change in contents.

PHM 5301—Topics in Pharmacology. Prerequisite: consent of instructor. Specific areas of pharmacology not normally included in other courses. May be repeated for credit with change in content.

PHM 5323—Pharmacodynamics. Prerequisite: BCH 5721, PHY 5822, PHM 5613 or equivalent. Emphasizes the sites at which and the mechanisms by which drugs produce their biological effects.

PHM 5324—Pharmacokinetics. Prerequisite: PHM 5613 or equivalent. An advanced study of the principles and factors governing the access of a drug to its site of action. Such factors include the absorption, distribution, metabolism, and excretion as well as the influences of species, age, disease, and the interaction of other drugs.

PHM 5326—Pharmacology of the Autonomic Nervous System. Prerequisite: BCH 5721 PHY 5822, PHM 5613 or equivalent. A conceptual study of drugs which alter the function of the autonomic nervous system. Emphasis will be on mechanisms by which drugs affect transmitter synthesis, release, uptake, and metabolism as well as receptor function.

PHM 5327—Neuropsychopharmacology. Prerequisite: PHM 5613. A study of current biochemical, physiological and behavioral evidence regarding mechanisms of action of the major classes of drugs which affect the central nervous system.

PHM 5330—Pharmacology in Sports Medicine. Prerequisite: consent of instructor. Study of chemical substances used in sports with the deliberate intention of altering performance. Particular emphasis will be placed on stimulants, anabolic steroids, analgesics, anti-inflammatory agents and anti-anxiety agents.

PHM 5334—Environmental and Industrial Toxicology. Prerequisite: consent of instructor. A study of chemicals (food additives, pesticides, solvents, heavy metals, air pollutants) their biological effects, detection and antidotes. Emphasis will be on the effects of industrial chemicals and their hazard to man, domestic animals and other living members of the environment.

PHM 5425—Techniques in Pharmacological Research. Prerequisite: BCH 5721, PHY 5822, or equivalent. A lecture and laboratory course designed to provide an introduction to and hands—on experience with standard experimental techniques used in pharmacological research.

PHM 5613—Pharmacology. A study of pharmacology with emphasis on mechanisms of drug action, drug interactions, and therapeutics.

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

PHM 711—Pharmacology Seminar

PHM 731—Pharmacology Research

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

PHYSIOLOGY

Professor Charles D. Barnes, Ph.D., Chairman

Professors: Hughes, Kopetzky

Associate Professors: Crass, Davies, Lutherer, McGrath, Orem

Assistant Professors: Janssen; Nathan; Strahlendorf, H.; Strahlendorf, J.

The Department of Physiology in the Health Sciences Center 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, including autonomic receptors, hemodynamics and metabolism; respiratory physiology; body fluid physiology; endocrine physiology; neurophysiology; and biophysics. Research is progressing in the department within each of these areas. The program is designed to train persons who will teach and conduct research in medical institutions. Students must have permission of the instructor to register for any of the following courses.

Graduate Courses

PHY 5402—General Physiology. A general course in mammalian physiology designed to teach the basic principles of physiology. The subject matter will include cellular physiology, neuro, cardiovascular, respiratory, renal, water and electrolytes, gastrointestinal and endocrine as an introduction to physiology of the organ systems, with emphasis on the human.

PHY 5803—Physiology. A study of human physiology with major emphasis on body-controlling systems and their interrelations. Pathophysiological mechanisms are also stressed.

HSC 5810—Integrated Neurosciences. A detailed study of the nervous system with an examination of both gross and fine structure and function from the subcellular through the behavioral levels.

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

PHY 6301—Introduction to Physiological Research. This course is designed to initiate beginning graduate students in research approaches and techniques. A student may register for a maximum of three semesters in three different research laboratories. The kind of research problems and methodology will be determined by the research currently being conducted in the laboratory to which the student is assigned. The student will be expected to spend nine hours a week learning the use of instrumentation, surgical procedures and analytical evaluation of data. The student will receive 3 hours of pass-fail credit for each semester.

PHY 6304—Advanced Physiology. A detailed consideration of physiological systems. To be taken concurrently with 5803.

PHY 6305—Topics in Physiology.

PHY 6311—Neurophysiology. Physiology of nerve cells and their processes with emphasis on excitability, conduction and synaptic transmission. Major portion of course devoted to physiology of neuronal systems, including mechanisms of sensory and motor system function, neurobiological rhythms, integration and role of the central nervous system.

PHY 6312—Experimental Neuroscience. A study of the current techniques used in the neuroscience research laboratory.

PHY 6313—Advanced Neurophysiology. An in-depth study of the nervous system from the molecular to the behavioral level, with special emphasis on eletrophysiology and reflexes.

PHY 6314—Membrane Biophysics. Current topics and techniques in the physiology of excitable membranes. Discussion of Hodgkin-Huxley papers and more recent theoretical approaches to excitation and conduction in nerve, skeletal muscle and cardiac muscle. Introduction to current biophysical techniques such as the voltage clamp, membrane noise analysis, lipid bilayers and optical flourescence.

PHY 6315—Physiology of Neuroeffector Systems. A consideration of adrenergic, cholinergic, histaminic, and serotonin receptor systems and physiological applications.

PHY 6316—Topics on the Neurophysiology of sleep. Possible topics include the neural basis of states of consciousness; neuronal activity during sleep with the emphasis on the results of single neuron recordings during sleep-wakefulness; and motor activity during sleep.

Phy 6317—The Synaptic Organization of the Brain. Prerequisite
PHY 6311 or equivalent. A detailed consideration of the structure-function relations of synapses in different portions of the mammalian brain where functional can be combined with neurochemical and biophysical findings to the understanding of a function pattern.
PHY 6321—Cardiodynamics. A consideration of cardiac physiology and pathophysiology and their clinical applications.
PHY 6322—Physiological Chemistry of the Heart and Blood Vessels in Health and Disease. Readings and laboratory experiments directed toward understanding metabolic function and regulation of the heart and blood vessels in health and disease.
PHY 6331—Respiratory Physiology. An in-depth course concerning all aspects of respiratory physiology with the exception of the regulation of respiration. Areas to be covered include mechanics of respiration, gas exchange, CSF acid-base balance, blood acid-base balance, and oxygen and carbon dioxide transport. The comparative aspects of respiratory physiology will also be addressed.
PHY 6332—Regulation of Respiration. An in-depth course concerning the chemical and neural regulation of respiration. Areas to be studied can include regulation of breathing during sleep, altitude acclimatization and regulation of breathing during exercise.
PHY 6341—Renal Physiology. Discussion and correlation of recent advances in the normal and pathophysiological mechanisms of the kidney.
PHY 6351—Advanced Gastrointestinal Physiology. Readings and classical experiments related to the secretory and contractile functions of the gastrointestinal tract.
PHY 6361—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 among hormones.
PHY 6362—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 711—Physiology Seminar.
PHY 712—Readings in Physiology. Review of the research literature on special topics either assigned by instructor or selected by students. May be repeated for credit.
PHY 731—Physiological Research.
PHY 831—Doctor's Dissertation. Enrollment required at least four times.

PREVENTIVE MEDICINE AND COMMUNITY HEALTH

Associate Professor Blair A. Rowley, Ph.D., Interim Chairman
Professor: Tyner
Associate Professors: Hayes, Way

The Department of Preventive Medicine and Community Health offers a core of 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.

Graduate Courses

PVM 632—Medical Entomology.
PVM 633—Principles of Epidemiology. The course considers the variety, behavior and distribution of both infectious and noninfectious diseases in populations. It will show how an understanding of the etiology, transmission and pathogenesis of disease can lead to methods of disease prevention. Emphasis will be placed on the principles and methods of epidemiologic investigation.
PVM 634—Topics in Community Health. This course will consider various topics in epidemiology, preventive medicine and community health not normally included in other courses. May be repeated for credit with change in content.

COURSES IN HEALTH ORGANIZATION MANAGEMENT

University Professor John A. Buesseler M.D., M.S.

HOM 5309—Health Organization Management. Prerequisite: consent of instructor. Designed to provide an overview of the health care system, its managerial, social, behavioral and economic aspects from a macroscopic viewpoint.
HOM 5309—Contemporary Issues in Health Organization Management. Prerequisite: consent of instructor. Designed to analyze and evaluate selected contemporary problems, issues and trends in organized health care delivery primarily at the micro level.
HOM 5310—Individual Research in Health Organization Management. Prerequisite: consent of instructor. Directed research or investigation in which the student focuses on a problem area in health care organizations under individual supervision of the professor.

FULL-TIME FACULTY

ABEDIN, Zainul, Assistant Professor of Internal Medicine; M.D., The Post-Graduate Institute of Medical Education and Research, Chandigarh, Punjab, India, 1970.

AGUIRRE, Salvador R., Assistant Professor of Psychiatry; M.D., Autonomous University of Chihuahua, 1971.

ALEXANDER, Carter M., Associate Professor of Pathology; M.D., Columbia University College of Physicians and Surgeons, 1942.

ARREDONDO, Rodolfo, M., Assistant Professor of Psychiatry; Ed.D., Texas Tech University, 1976.

ASHBY, Wendall B., Assistant Professor of Obstetrics & Gynecology; M.D., University of Texas Medical Branch at Galveston, 1974.

AUSTERMAN, Warrington, Associate Professor of Surgery; M.D., Albany Medical School, 1944.

BAGG, Raymond J., Professor of Orthopaedic Surgery; M.D., New York Medical College, 1958.

BAKER, C. Richard F., Jr., Associate Professor of Surgery, M.D., Johns Hopkins University School of Medicine, 1961

BARKER, Kenneth L., Professor and Chairman of Biochemistry; Ph.D., Ohio State University, 1964.

BARNES, Charles D., Professor and Chairman of Physiology; Ph.D., State University of Iowa, 1962.

BARTHOLOMEW, Bruce A., Professor of Internal Medicine; M.D., University of Michigan Medical Center, 1958.

BASKETT, Russell C., Associate Professor of Microbiology; Associate Dean; Ph.D., University of Missouri, 1971.

BASKETT, Sarah J., Associate Professor of Psychiatry; M.D., Indiana University School of Medicine, 1965.

BAZZELL, William E., Assistant Professor of Psychiatry; M.D., University of Oklahoma, 1975.

BEACH, Diane K.. Assistant Professor of Pathology; M.D., University of Texas Health Science Center at Austin, 1972.

BECEIRO, Jose R., Associate Professor of Internal Medicine; Associate Dean for Continuing Medical Education; M.D., Faculty of Medicine, University of Santiago, Spain, 1964.

BEHAL, Francis J., Professor of Biochemistry and Surgery; Ph.D., University of Texas at Austin, 1958.

BHANSALI, Praful V., Assistant Professor of Biomedical Engineering and Computer Medicine; Ph.D., University of Wisconsin, 1980.

BLACKWELL, David Eric, Assistant Professor of Radiology; M.D., Bowman Gray School of Medicine, 1973.

BOBBITT, Rodney D., Instructor of Surgery; M.D., University of Texas at Galveston, 1964.

BOMAN, Darius A., Assistant Professor of Pathology; M.D., Seth G.S. Medical School and University of Bombay, 1973.

BRIONES, David F., Assistant Professor of Psychiatry; M.D., University of Texas Medical Branch at Galveston, 1971.

BROWN, Craig D., Assistant Professor of Family Practice; M.D., University of Texas Medical Branch at Galveston, 1971.

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.

BYRNE, Basil, Associate Professor of Pediatrics; M.D., Indiana University School of Medicine, 1940.

CANCHOLA, Samuel V., Instructor of Surgery; M.D., University of Nuevo Leon, 1976.

CARRILLO, Arturo G., Assistant Professor of Obstetrics and Gynecology; M.D., University of Chihuahua, 1972.

CARROLL, Paul T., Associate Professor of Pharmacology and Therapeutics; Ph.D., University of Maryland, 1973.

CAVAZOS, Lauro F., Professor of Anatomy; President of Texas Tech University Health Sciences Center; Ph.D., Iowa State University, 1954.

CHANDRA, Phool, Associate Professor of Anesthesiology; M.D., University of Lucknow, India, 1953.

CHAVEZ, Victor S., Instructor of Surgery/Emergency Services; M.D., University of New Mexico, 1977.

CHINN, John H., Jr., Associate Professor of Family Practice, M.D., University of Texas Medical Branch at Galveston, 1953.

COATES, Penelope W., Associate Professor of Anatomy; Ph.D., University of Texas Southwestern Medical School at Dallas, 1969.

COCKINGS, Eaon, Professor of Anesthesiology; M.D., University of Manchester College of Medicine, England, 1955.

COLE, Richard D., Assistant Professor of Dermatology; M.D., Vanderbilt University School of Medicine, 1952.

CONTRERAS, Edwing A., Assistant Professor of Pediatrics; M.D., San Marcos University Medical School, Lima, Peru, 1970.

COOPER, M. Wayne, Associate Professor of Internal Medicine; M.D., University of Texas Medical Branch at Galveston, 1969.

CRASS, Maurice F., III, Professor of Physiology; Ph.D., Vanderbilt University School of Medicine, 1965.

DAHL, Elmer V., Professor of Pathology; M.D., University of Southern California, 1953.

DALLEY, Bernell, Associate Professor of Anatomy; Ph.D., University of Nebraska, 1974.

DAVIES, Donald G., Associate Professor of Physiology; Ph.D., Johns Hopkins University, 1970.

DICK, Milton F., Assistant Professor of Anesthesiology; M.D., Loma Linda University School of Medicine, 1972.

DIEDRICH, Dana L., Assistant Professor of Microbiology; Ph.D., Pennsylvania State University, 1974.

DOLEN, S. Ender, Assistant Professor of Obstetrics and Gynecology; M.D., Ankara University School of Medicine, Ankara, Turkey, 1969.

DOYLE, Michael F., Assistant Professor of Pathology; M.D., University College, Dublin, Ireland, 1970.

DROW, Doris L., Assistant Professor of Pathology; Ph.D., University of Wisconsin, 1978.

ERICKSON, Harold M., Jr., Associate Professor of Psychiatry; M.D.,

University of Oregon Medical School, 1964.

EVERSE, Johannes, Professor of Biochemistry; Ph.D., University of California at San Diego, 1973.

FARQUHAR, John S., Associate Professor of Surgery; M.D., Indiana University School of Medicine, 1959.

FARR, Stephen P., Assistant Professor of Psychiatry; Ph.D., University of Louisville, 1978.

FARR, Walter F., Jr., Associate Professor of Psychiatry; M.D., Medical College of Georgia, 1965.

FEOLA, Mario, Professor of Surgery; M.D., Faculty of Medicine and Surgery, University of Naples, Italy, 1950.

FLINN, Don E., Professor and Chairman of Psychiatry; M.D., Harvard Medical School, 1946.

FRALICK, Joe A., Associate Professor of Microbiology; Ph.D., University of Tennessee, 1970.

FREEMAN, Judith A., Assistant Professor of Anesthesiology; M.D., University of Birmingham, Birmingham, England, 1970.

GADDIS, William, Assistant Professor of Family Practice; M.D., Baylor College of Medicine, 1942.

GAINER, Barbara J., Assistant Professor of Radiology; M.D., University of Texas Southwestern Medical School at Dallas, 1966.

GARCIA, Rafael R., Instructor of Pediatrics; M.D., University of California at San Francisco, 1975.

GARNER, Charles W., Associate Professor of Biochemistry; Ph.D., University of Texas at Austin, 1969.

GILES, Harlan R., Professor of Obstetrics and Gynecology; M.D., Duke University School of Medicine, 1969.

GILMER, Emily A., Assistant Professor of Health Communications; Reference Librarian; M.A., University of Missouri, 1972.

GILSON, Violet, Assistant Professor of Internal Medicine; M.D., Medical of Ohio, 1976.

GINTAUTAS, Jonas, Associate Professor of Anesthesiology; M.D., Moscow Pirago Medical Institute, 1967; Ph.D., Northwestern University, 1975.

GOOCH, Gary T., Assistant Professor of Microbiology; Ph.D., Brigham Young University, 1974.

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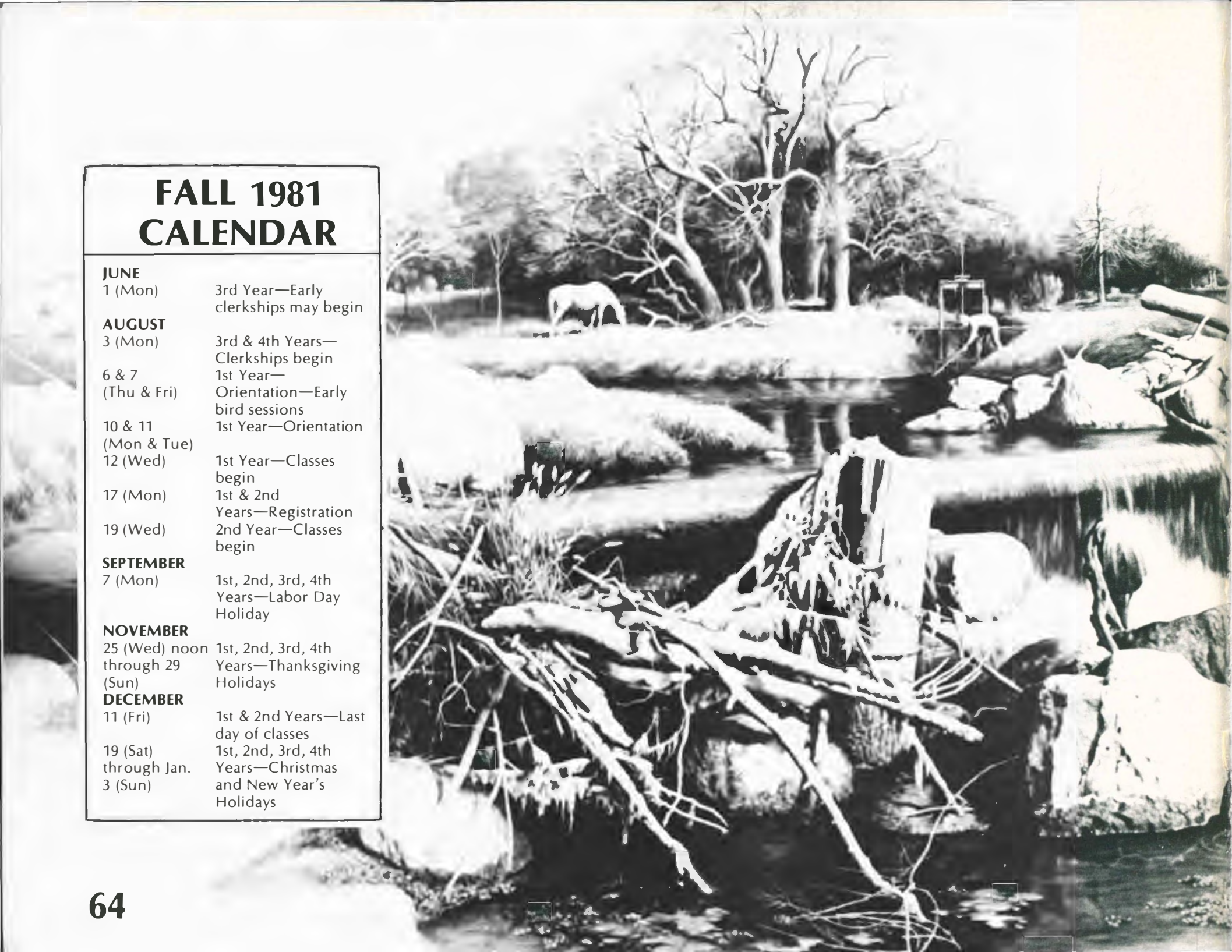
COWAN, James W., M.D., Assistant Clinical Professor
CURTIS, Wickliffe P., M.D., Associate Clinical Professor
DEVANNEY, Louis R., M.D., Associate Clinical Professor
DIAZ-BALL, Fernando L., M.D., Associate Clinical Professor
GARDUNO, Abel, M.D., Assistant Clinical Professor
HOUSER, Edward F., Jr., M.D., Associate Clinical Professor
KIBBEY, Richard G., M.D., Assistant Clinical Professor
LONG, Jack C., M.D., Clinical Instructor
MALDONADO, Leonard M.D., Associate Clinical Professor
NASLUND, Edward G., M.D., Associate Clinical Professor
SAND, Vijaichand S., M.D., Assistant Clinical Professor
STALCUP, Obie L., M.D., Clinical Instructor
TABER, David Owen, M.D., Associate Clinical Professor

FALL 1981 CALENDAR

JUNE	
1 (Mon)	3rd Year—Early clerkships may begin
AUGUST	
3 (Mon)	3rd & 4th Years—Clerkships begin
6 & 7 (Thu & Fri)	1st Year—Orientation—Early bird sessions
10 & 11 (Mon & Tue)	1st Year—Orientation
12 (Wed)	1st Year—Classes begin
17 (Mon)	1st & 2nd Years—Registration
19 (Wed)	2nd Year—Classes begin
SEPTEMBER	
7 (Mon)	1st, 2nd, 3rd, 4th Years—Labor Day Holiday
NOVEMBER	
25 (Wed) noon through 29 (Sun)	1st, 2nd, 3rd, 4th Years—Thanksgiving Holidays
DECEMBER	
11 (Fri)	1st & 2nd Years—Last day of classes
19 (Sat) through Jan. 3 (Sun)	1st, 2nd, 3rd, 4th Years—Christmas and New Year's Holidays



SPRING 1982 CALENDAR

JANUARY	
4 (Mon)	1st, 2nd, 3rd, 4th Years—Classes and clerkships begin
MARCH	
13 (Sat) through 21 (Sun)	1st & 2nd Years—Spring holidays
APRIL	
16 (Fri)	2nd Year—End of Term IV
24 (Sat) through May 2 (Sun)	3rd & 4th Years—Spring holidays
26 (Mon)	2nd Year—Term V begins
30 (Fri)	1st Year—Term II ends
MAY	
21 (Fri)	2nd Year—Term V ends
JUNE	
6 (Sun)	4th Year—Graduation

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