Graduate School of Biomedical Sciences

1996 -1998 *Catalog* 

University of North Texas Health Science Center at Fort Worth



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University of North Texas Health Science Center at Fort Worth

**Graduate School of Biomedical Sciences** 3500 Camp Bowie Boulevard Fort Worth, Texas 76107-2699 817-735-2560

## 1996-1998 Graduate Catalog

This catalog is an official bulletin of the University of North Texas Health Science Center Graduate School of Biomedical Sciences and is intended to provide general information. It contains policies, regulations, procedures and fees in effect as of March 1, 1996. The health science center 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. Information provided by this catalog is subject to change without notice and does not constitute a contract between the University of North Texas Health Science Center Graduate School of Biomedical Sciences and a student or an applicant for admission. The institution is not responsible for any misrepresentation or provisions that might arise as a result of errors in preparation.

Students are responsible for observing the regulations contained herein; therefore, they are urged to read this catalog carefully. This catalog does not contain all institutional rules, regulations and policies for which a student is responsible. Students should also consult the Graduate Student Handbook.

The health science center reserves the right to withdraw a student for cause at any time.

The University of North Texas Health Science Center at Fort Worth is an equal opportunity/affirmative action institution. It is the policy of the health science center not to discriminate on the basis of race, color, religion, sex, age, national origin, disability, or disabled veteran or veteran of the Vietnam era status, in its educational programs, activities, admissions or employment policies. Questions or complaints should be directed to the Equal Opportunity Office, 817-735-2357.

### **President's Message**

### Dean's Message



Welcome to an institution that we believe is in the right place at the right time doing the right things.

Having our roots in the century-old osteopathic tradition of disease prevention and the promotion of healthful living gives us an uncommon advantage in today's medical, scientific and public health care arenas. Indeed, only 16 other academic institutions in the nation share this legacy.

Our goal is to assure you of a competitive edge as well, whether your future is in research, academia, government or health care. In addition to interdisciplinary training programs, we strive to provide you a supportive and stimulating atmosphere where everyone is encouraged to question, collaborate ... and succeed.

Mastering the mysteries of health and science for the betterment of humankind is a lifetime effort. Thank you for beginning your journey here at the UNT Health Science Center at Fort Worth.

DM. Richards

David M. Richards, D.O. President

Your interest in our graduate school comes at an important time in the history of medicine and science. Health care reform, the burgeoning of scientific information and the human genome project will change the face of medicine and health as we know it. Prevention and public health will be an integral



part of the new health care delivery system. Individuals trained to address and meet the challenges of the future are needed.

The Graduate School of Biomedical Sciences is a community of scholars dedicated to creating an environment that is stimulating, creative and meaningful. Our faculty are recognized nationally and internationally for research programs that utilize stateof-the-art methodology and instrumentation. Our public health program is commu-

nity driven and provides unique hands-on experiences in the public health environment.

Our eight centers of research excellence are positioned to provide leadership in biotechnology and biomedical and health science research well into the future.

We are indeed pleased by your interest in our graduate school. A graduate degree in biomedical sciences or public health is what you earn — a scientist or public health provider is what you become. Join us at the UNT Health Science Center at Fort Worth on the expedition to your success.

Thomas Yorio, Ph.D. Jorio

Thomas Yorio, Ph.D. Professor and Dean

Together we will provide a healthier future for a changing world.

### Contents

		Academic Calendars	4
		One/The UNT Health Science Center	7
		Two/Admission	14
		Three/Academic Policies	19
		Four/Master of Science and Doctor of Philosophy Programs Core Curricula	26
		Anatomy and Cell Biology Biochemistry and Molecular Biology Integrative Physiology Microbiology and Immunology Pharmacology Biomedical Sciences	
		Five/Master of Public Health Program	44
		Core Curriculum Environmental Health	
		Epidemiology Family Health Health Behavior	
		Health Economics Health Services Administration Health Services Research	
		Occupational Health	
		Six/Dual-Degree Programs	63
		Doctor of Osteopathic Medicine/Master of Public Health Doctor of Osteopathic Medicine/Master of Science Doctor of Osteopathic Medicine/Doctor of Philosophy	
		Cooperative Dual-Degree Programs	67
		Seven/Fiscal and Financial Aid Policies	0/
		Eignt/Student Life	71
		Nine/Course Descriptions	74
		Ten/Faculty and Health Science Center Officers	92
		The Graduate Faculty and Their Research Emeritus Faculty Professional Library Faculty	
		Graduate Council	
		Index	105
		Campus Access Map	107

#### Accreditation

The University of North Texas Health Science Center at Fort Worth is approved by the Texas Higher Education Coordinating Board and is a member of the Alliance for Higher Education, the Association of Academic Health Centers, the Council for the Advancement and Support of Education, and the Council of Graduate Schools. The University of North Texas Health Science Center at Fort Worth is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award master's and doctoral degrees. Texas College of Osteopathic Medicine is fully accredited by the Bureau of Professional Education of the American Osteopathic Association which is recognized by the U.S. Office of Education. TCOM is approved by the Texas State Board of Medical Examiners and is a member of the American Association of Colleges of Osteopathic Medicine.

For further information regarding the institution's accreditations and state approval or to review related documents, contact the Office of Educational Planning and Development, Medical Education Building 1-864, 817-735-2510.

3

# 1996-97 Academic Calendar

	FALL 96	SPRING 97	SUMMER 1 97	SUMMER 2 97
ADMISSIONS				
U.S. application deadline. All application materials must be submitted for consideration.	June 1	Nov 1	April 1	April 1
Non-U.S. application deadline. All application materials must be submitted for consideration.	May 1	Oct 1	Mar 1	Mar 1
IMPORTANT CLASS DAYS				
Classes begin. *Combined TCOM/Graduate School classes begin earlier.	Aug 26*	Jan 14*	June 3	July 7
12th class day (Fall & Spring)/4th class day (Summer I & II)	Sept 10	Jan 27	June 5	July 10
Final examinations	Dec 9-13	May 5-9	July 3	Aug 15
SCHEDULE CHANGES				
Last day for change of schedule other than a drop.	Sept 2	Jan 20	June 4	July 19
First day that a student may drop a course. Written consent of the instructor is required.	Sept 6	Feb 3	June 8	July 7
Last day to drop a course or withdraw from the health science center with a grade of W for courses that a student is not passing.	Oct 4	Feb 21	June 13	July 25
After this date, a grade of WF may be recorded.				
Beginning this date, instructors may drop student with a grade of student with a grade of WF for non-attendance.	Oct 7	Feb 28	June 27	Aug 1
Last day to drop a course with consent of the instructor.	Nov 1	March 28	June 309	Aug 1
First day that a student may request a grade of incomplete.	Nov 14	April 7	June 30	Aug 4
Last day to withdraw from the health science center. Process must be completed by 5 p.m. in the Registrar's Office.	Nov 29	April 25	June 30	Aug 4
FEE PAYMENT DEADLINES				
First installment. 50 % of Fall and Spring tuition and all fees are due upon deadline. Summer session tuition must be100% paid upon deadline date.	Aug 23	Jan 10	Due upon registration	Due upon registration
Second installment, 25%	Sept 27	Feb 17	-	-
Third installment, 25%	Nov 1	Mar 24	-	_
Payment deadline for tuition, fees and other charges to avoid blocks and delinquent payment fees. Late charges will be assessed.	Dec 1	April 25	-	-
REFUNDS				
Note: If all courses for the semester are dropped, see Withdrawal Refund	ls, below.			
Last day for refund of any course dropped.	Sept 11	Jan 31	June 6	July 10
Last day for any partial refund of tuition upon withdrawal.	Sept 20	Feb 20	June 10	July 14
WITHDRAWAL REFUNDS				
Last day for 100% refund.	Aug 23	Jan 13	June 2	July 3
Last day for 80% refund.	Aug 30	Jan 20	June 5	July 9
Last day for 70% refund.	Sept 6	Jan 27		a provident - Date in sta
Last day for 50% refund.	Sept 13	Feb 3	June 10	July 14
Last day for 25% refund.	Sept 20	Feb 10	-	-

4

## 1996-97 Academic Calendar

	FALL 96	SPRING 97	SUMMER 1 97	SUMMER 2 97	
GRADUATION DEADLINES					
Last day for graduation applicants to complete final comprehensive examination and file original copy of thesis or dissertation in graduate dean's office to avoid registration requirement for the semester of graduation.	Aug 9	Dec 13	Aug 8	-	
Last day to file graduate degree application for graduation without late fee.	Sept 30	Feb 14	June 6	-	
Last day for degree candidates to complete tool requirement.	Dec 13	May 12	Aug 8	-	
Last day for degree candidates to: 1. file original copy of thesis, problem in lieu of thesis or dissertation in graduate dean's office; 2. file application for degree (late fee charged); 3. pay all graduation fees; 4. remove grades of I in all courses required for degree (exceptions: thesis and dissertation). See Graduate Catalog for degree application instructions.	Nov 1	Mar 21	June 7	-	
Last day for departments to report to the graduate dean's office the results of final comprehensive examination for graduating students.	Nov 1	Mar 21	June 7	-	
Last day for degree candidates to return all final copies of previously filed thesis, problems in lieu of thesis and dissertation to graduate dean's office	Nov 29	April 25	July 25	-	
Commencement	Dec 14	June 7	Aug 16	-	

## 1997-98 Academic Calendar

	FALL 97	SPRING 98	SUMMER 1 98	SUMMER 2 98
ADMISSIONS				
Application deadline. All application materials must be submitted for consideration.	June 1	Nov 1	Apr 1	Apr 1
Non-U.S. application deadline. All application materials must be submitted for consideration.	May 1	Oct 1	Mar 1	Mar 1
IMPORTANT CLASS DAYS				
Classes begin. *Combined TCOM/Graduate School classes begin earlier.	Aug 25*	Jan 13*	June 1	July 6
12th class day (Fall & Spring)/4th class day (Summer I & II)	Sept 9	Jan 28	June 4	July 9
Final examinations	Dec 8-12	May 4-8	July 3	Aug 14
SCHEDULE CHANGES				-
Last day for change of schedule other than a drop	Sept 1	Jan 19	June 3	July 8
First day that a student may drop a course. Written consent of the instructor is required.	Sept 5	Feb 2	June 8	July 10
Last day to drop a course or withdraw from the health science center with a grade of W for courses that a student is not passing. After this date, a grade of WF may be recorded	Oct 3	Feb 20	June 12	July 19
First day instructors may drop student with a grade of WF for non-attendance.	Oct 6	Feb 27	June 26	July 25

## 1997-98 Academic Calendar

The second s	FALL 97	SPRING 98	SUMMER 1 98	SUMMER 2 98
Last day to drop a course with consent of the instructor.	Oct 31	Mar 27	June 30	July 26
First day a student may request a grade of Incomplete.	Nov 10	April 6	June 30	July 25
Last day to withdraw from the health science center. Process must be completed by 5 p.m. in the Registrar's Office.	Nov 28	April 24	June 30	July 29
FEE PAYMENT DEADLINES		The second		
First installment. 50 % of Fall and Spring tuition and all fees are due upon deadline. Summer session tuition must be100% paid upon deadline date.	Aug 22	Jan 9	Due upon registration	Due upon registration
Second installment, 25%	Sept 26	Feb 16		- 40°000
Third installment, 25%	Oct 31	Mar 23	-	-
Payment deadline for tuition, fees and other charges to avoid blocks and delinquent payment fees. Late charges will be assessed.	Nov 30	April 24	-	
REFUNDS				
Note: If all courses for the semester are dropped, see Withdrawal Refunds	below.			
Last day for refund of any course dropped.	Sept 10	Jan 30	June 4	July 9
Last day for any partial refund of tuition upon withdrawal.	Sept 19	Feb 9	June 8	July 13
WITHDRAWAL REFUNDS				
Last day for 100% refund.	Aug 22	Jan 12	May 29	July 3
Last day for 80% refund.	Aug 29	Jan 19	June 3	July 8
Last day for 70% refund.	Sept 5	Jan 26		_
Last day for 50% refund.	Sept 12	Feb 2	June 8	July 13
Last day for 25% refund.	Sept 19	Feb 9	-	-
GRADUATION DEADLINES				
Last day for graduation applicants to complete final comprehensive examination and file original copy of thesis or dissertation in graduate dean's office to avoid registration requirement for the semester of graduation.	Aug 8	Dec 12	Aug 17	-
Last day to file graduate degree application for graduation without late fee.	Sept 30	Feb 14	June 5	-
Last day for degree candidates to complete tool requirement.	Dec 12	May 11	Aug 7	
Last day for degree candidates to: 1. file original copy of thesis, problem in lieu of thesis or dissertation in graduate dean's office; 2. file application for degree (late fee charged); 3. pay all graduation fees; 4. remove grades of I in all courses required for degree (exceptions: thesis and dissertation). See Graduate Catalog for degree application instructions.	Nov 1	Mar 22	-	
Last day for departments to report to the graduate dean's office the results of final comprehensive examination for graduating students.	Nov 1	Mar 22	-	and the second
Last day for degree candidates to return all final copies of previously filed thesis, problems in lieu of thesis and dissertation to graduate dean's office.	Nov 29	April 19	-	-
Commencement	Dec 13	June 6	Aug 15	



# ONE The Health Science Center

#### Overview

The University of North Texas Health Science Center at Fort Worth is the learning center of choice for more than 500 students and over 1,600 graduates. The talents and energies of more than 170 faculty members, over 800 staff and some 300 volunteer physicians are dedicated to the fulfillment of the health science center's missions in education, research and service.

Located in the heart of Fort Worth's Cultural District, the UNT Health Science Center is a prominent and continually growing medical care/research complex. The center contains two schools: the Texas College of Osteopathic Medicine and the Graduate School of Biomedical Sciences.

The medical students - who will earn the D.O., or doctor of osteopathic medicine, degree - follow an innovative curriculum based on the century-old osteopathic traditions of disease prevention and the promotion of healthful living. Their education emphasizes comprehensive primary care, the unique benefits of osteopathic diagnosis and treatment, patient education, good nutrition and fitness, and being sensitive to the cost of health care to the patient and society. These students perfect their medical skills under the supervision of physicians in 23 college clinics and laboratories, over a dozen affiliated teaching clinics and hospitals across Texas, and many community outreach activities.

More than 100 students are pursuing their M.P.H., M.S. and Ph.D. degrees in the graduate school. Biomedical Science students specialize in anatomy and cell biology, biochemistry and molecular biology, integrative physiology, microbiology and immunology, and pharmacology. Public health students focus on the specialty fields of environmental health, epidemiology, family health, health behavior, health services administration, health economics, health services research and occupational health.

The health science center's first undergraduate program, offering a bachelor of science degree with a major in physician assistant studies, will begin in 1997.

The University of North Texas Health Science Center strives to create knowledge as well as teach it. Among the center's physicians and scientists are nationally respected faculty members who are leaders in areas such as the biochemistry of aging, vision, heart disease, DNA and genetics, substance abuse, wound healing, osteoporosis and nutrition. In less than 25 years, this growing team of experts has fostered the creation of eight centers of research excellence at the health science center and garnered over \$25 million in cumulative active research grants.

The center has one of the most advanced medical libraries in the southwest. The Gibson D. Lewis Health Science Library has virtually 100 percent of the world's current medical information available through a sophisticated computer-search system and communications network.

#### **Mission Statement**

The University of North Texas Health Science Center at Fort Worth is committed to achieving excellence in its programs of education, research and service. The health science center maintains the mission and traditions of the Texas College of Osteopathic Medicine and a longstanding relationship with the University of North Texas. The center also shares programs with other health-related and academic institutions.

The health science center educates osteopathic physicians and other health

professionals dedicated to careers in health care, teaching and research. Through its graduate programs, the center provides educational opportunities to biomedical scientists and public health professionals for roles in academic institutions, government agencies and industry. Primary health care is central to the mission of the institution. The center has a special mission to meet the needs of individuals in the geographic areas, and within the age, ethnic and socioeconomic groups, in which primary health care is most needed. Health care education and services emphasize promotion of health, prevention of disease and concern for the costs to the patient and to society.

#### Education

Undergraduate, graduate and postgraduate teaching programs provide strong foundations of knowledge and skills in the basic and clinical sciences. A focus is on the promotion of health and social, psychological, emotional and lifestyle factors that affect healthful living. Health care services delivered by the institution provide a critical educational arena where faculty serve as both teachers and role models in providing care. Each student is guided along a path of learning that has as its goals the development of critical thinking, problem solving and independent lifelong learning. Particular attention is given to developing attitudes, ethical behavior and personal attributes that characterize a caring health professional sensitive to the special need for primary health care.

#### Research

The health science center is a community of scholars who are members of the international scientific community. As members of scientific societies and other professional groups, faculty contribute to national and international dialogues in the sciences, medicine and health care. By engaging in scholarly pursuits that contribute to further understanding of health and disease, the faculty and students serve the community, the state and the nation.

#### Service

The health science center serves the community, the state and the nation, contributing to the exchange of knowledge and its application. Faculty, staff and students take part in outreach programs providing health care professionals, clinical services and education throughout the community, including primary care to underserved individuals. The health science center serves as an educational resource to further the continuing education of practicing physicians and other health professionals.

#### Graduate School of Biomedical Sciences

#### History

The Graduate School of Biomedical Sciences has its roots in the Texas College of Osteopathic Medicine, which began in 1970 as a private school. In 1972, TCOM's basic science courses were taught at North Texas State University (now the University of North Texas) in Denton. In addition to the basic sciences faculty hired by TCOM, certain additional North Texas faculty were contracted to participate in teaching these courses. All TCOM faculty in the basic sciences departments received joint appointments in the university's Departments of Biomedical Sciences, Biological Sciences or Biochemistry. They also received either full or associate graduate faculty status at the university. These appointments were important because they permitted TCOM basic science faculty to mentor graduate students either in the biomedical sciences master's degree program, or Ph.D.

students in biology or biochemistry

The successful collaboration of the two schools earned the confidence of state government leaders and, in 1975, TCOM became a state-supported medical school under the jurisdiction of the governorappointed North Texas State Board of Regents.

Over the years, TCOM grew in physical facilities as well as basic and clinical sciences faculty. In addition, the number of graduate students seeking training in the health sciences also grew. Until 1993, the students still were officially registered under the University of North Texas graduate program.

In 1992, TCOM faculty were training more than 70 graduate students seeking either the M.S. degree in biomedical sciences or the Ph.D. in biological sciences or biochemistry. These students received virtually all their training at TCOM, in courses taught by TCOM faculty and in laboratories on the TCOM campus in Fort Worth. Because these students wanted doctoral training in the health sciences, it was preferable that they receive a Ph.D. in biomedical sciences with specialties in anatomy and cell biology, biochemistry and molecular biology, physiology, pharmacology and microbiology and immunology.

Because it would benefit students to have their degrees in biomedical sciences and awarded by a health science center, the university and TCOM requested the Texas Higher Education Coordinating Board to transfer the M.S. degree in biomedical sciences and degree-granting authority from the university to the medical school, which was geared to evolve into a health science center, and to establish a Ph.D. degree in biomedical sciences.

On Jan. 25, 1993, the chancellor and TCOM's president submitted the following requests to the Texas Higher Education Coordinating Board: to transfer from UNT to the proposed UNT Health Science Center the Department of Biomedical Sciences and degree-granting authority for the M.S. degree in biomedical sciences; and to approve degree-granting authority to award the Ph.D. degree in biomedical sciences.

On July 15, 1993, the Texas Higher Education Coordinating Board approved the request to transfer the M.S. degree in biomedical sciences and the Department of Biomedical Sciences from UNT, and to establish a Graduate School of Biomedical Sciences at the proposed UNT Health Science Center.

During the summer of 1993, the Texas Legislature unanimously approved the redesignation of TCOM as the University of North Texas Health Science Center, specifying that the center would continue to be a separate and independently functioning institution, not a department or school within the University of North Texas.

The request for a Ph.D. in biomedical sciences was approved on Oct. 28, 1993, and as of Nov. 1, 1993, the UNT Health Science Center began offering both M.S. and Ph.D. degrees in biomedical sciences.

Recognizing the demand in the north Texas area for public health professionals, the UNT Health Science Center and University of North Texas developed a cooperative Master of Public Health program, which was approved by the Coordinating Board in July 1995.

#### **Mission Statement**

The Graduate School of Biomedical Sciences is committed to achieving excellence in education, research and service. The graduate school offers students opportunities to earn advanced degrees in biomedical sciences.

Faculty have been involved in graduate student training since 1975 through a relationship with the University of North Texas graduate program. In 1993, degree granting authority was given to the UNT Health Science Center at Fort Worth for

9

Master of Science and Doctor of Philosophy degrees in the biomedical sciences, and in 1995 to offer the Master of Public Health degree.

The graduate school provides an innovative educational environment that encourages rigorous investigation in areas of health science research, exemplary teaching skills and service to the community.

Graduate students receive a portion of their training with osteopathic medical students, providing an opportunity to gain insight into contemporary medicine, particularly in areas of primary care. The graduate school, in conjunction with the Texas College of Osteopathic Medicine, has a further goal to train students for D.O./M.S., D.O./M.P.H. and D.O./Ph.D. degrees for future positions as physician scientists in academic medicine and for public health careers. Biomedical science graduates fill positions in health science centers, colleges and universities, community health centers, federal agencies and industry.

#### Special Centers of Excellence

#### Cardiovascular Research Institute

The Cardiovascular Research Institute, established in 1995, was developed from the multidisciplinary research efforts of molecular biologists, pharmacologists, physiologists, and physicians in the internal medicine subspecialties of cardiology and pulmonology. A key role of the institute is to integrate basic research findings with the clinical therapeutic problems associated with over 50 million Americans who suffer from cardiovascular diseases.

Institute studies focus on heart disease, with special emphasis on understanding the role of exercise in the prevention of

and rehabilitation from heart disease. Research is conducted into the fundamental molecular biologic and cellular mechanisms associate with the improved cardiovascular function, cardio-protection from heart attacks and longer life of those people who have moderate- to highactivity lifestyles. Both the basic science and clinical divisions of the institute collaborate with pharmaceutical and biotechnology corporations in order to validate new diagnostic, preventive, therapeutic and corrective procedures. Institute activities involve local, national and international partnerships.

The institute also provides educational and research training opportunities for graduate and medical students, and postdoctoral and clinical fellows.

#### Center for Osteoporosis Prevention and Treatment

The center was established in 1993 by the Department of Internal Medicine's Division of Rheumatology to foster collaborative research between clinical and basic science faculty dedicated to fighting this debilitating affliction. Osteoporosis is an epidemic in America, resulting in widespread concern about the ability of the health care system to cope with this growing problem.

Basic science departments, the Department of Public Health and Preventive Medicine, the Department of Obstetrics and Gynecology, other departments of the medical school and other health care institutions participate in institute projects.

Goals are: to foster research and clinical efforts to improve the diagnosis, prevention and treatment of osteoporosis; to provide devices and drugs to initiate and validate new preventive techniques and therapies; to forge partnerships with other medical schools since these studies involve large numbers of patients and multi-center research activities; and to develop programs and service models to

educate the public and health care providers about osteoporosis. Research efforts are enhanced by the use of a DEXA X-ray densitometer, which facilitates the early diagnosis of bone mineral density abnormalities.

#### Institute of Forensic Medicine

The Institute of Forensic Medicine, established in the early 1980s, is an academic and research partnership between UNT Health Science Center's Department of Pathology and DNA/ Identity Laboratory and the Tarrant County Medical Examiner's Office.

The institute's goals are to increase the quantity and scope of research projects in forensic medicine as well as the number of graduate students studying toxicology, molecular biology and criminalistics. The collaborative strength and variety of the institute's teaching and research activities provide students a comprehensive training arena while building the health science center's forensic medicine research funding.

#### Institute of Nutrition and Cbronic Disease Prevention

The Institute of Nutrition and Chronic Disease Prevention was established in 1995 and represents the combined efforts of the Department of Internal Medicine and the Department of Biochemistry and Molecular Biology, as well as the talents of other interested faculty members.

The long-term mission of this institute is to promote good health by preventing the development and progression of chronic diseases through an emphasis on sound nutritional practices. The institute has three broad areas of focus: higher education, public education and community service, and basic and applied research.

Research activities address the role of nutrition in preventing cardiovascular

disease, cancer and diabetes, and the improvement of the quality of life during aging. Efforts focus on the nutritional components and molecular mechanisms of disease processes at the cell, organ and whole organism levels.

#### North Texas Eye Research Institute

The North Texas Eye Research Institute was formed in 1992 to serve as an academic and research focus for basic and clinical science activities within the visual science community of Fort Worth and north Texas.

The institute faculty consists of basic and clinical scientists who have primary appointments at the health science center, private practice or industry. They are heavily involved in the training of medical students, graduate students and postdoctoral fellows. Their research programs cover aspects of eye disease such as retinal degenerations, glaucoma, diabetic complications, aging and cataracts.

The institute sponsors a monthly Distinguished Visual Scientist Seminar Series, a weekly journal club, continuing medical education courses for health professionals and an annual eye health fair. Institute faculty also conduct clinical trials for testing the safety and efficacy of various therapeutic drugs and devices.

#### Substance Abuse Institute of North Texas

The Substance Abuse Institute of North Texas, established in 1993 by the Department of Pharmacology and the Department of Psychiatry and Human Behavior, is a consortium of professionals with expertise in substance abuse. Scientists and physicians in physiology, pathology, public health/preventive medicine, general and family practice and medicine also participate.

The institute's missions are to foster clinical and basic science research, train professionals whose efforts focus on the prevention and treatment of substance abuse, and serve as an information resource for area substance abuse treatment programs. The institute hosts research conferences and cosponsors seminars with area substance abuse prevention groups and pharmaceutical industries. The institute also regularly sponsors visits by international scholars to the health science center and the Fort Worth/Dallas Metroplex, and provides faculty consultants to state, federal and international agencies. Outreach programs involving many institutions from the North Texas area are being developed.

#### Wound Healing Research Institute -

A key role of the Wound Healing Research Institute, established in 1992, is to translate research results into viable treatments that minimize the pain and suffering caused by debilitating consequences of problem wounds.

Its five-fold mission includes: expanding knowledge of the process of injury and wound healing using novel in vitro models and molecular biology techniques; application of innovative approaches such as the use of hyperbaric medicine, growth factors, tissue replacement therapies to problem wounds to prevent amputation and permanent disability; training graduate and medical students, interns and residents in new and interdisciplinary approaches to problem wounds; disseminating knowledge and experience through courses, seminars, conferences and symposia as a part of continuing medical education; and evaluating new pharmaceuticals and devices through all phases of the FDA approval process.

Funding from federal, state and private agencies and organizations supports various projects conducted within the institute. Faculty from basic science departments and the departments of general and family practice, internal medicine, pathology, surgery and hyperbaric medicine make up the research staff of the institute.

Note: At the time this catalog was being printed, a center of excellence in geriatric research was under development. Please contact the Office of Research and Biotechnology for the latest information.

#### Institutional Support Services

#### Office of Research and Biotechnology

The Office of Research and Biotechnology develops policies and administers programs to enhance research and scholarly activity and to assure institutional compliance with all mandated requirements related to research. The office assists in proposal development, identification of and negotiations with potential sources of support, and postaward management of research funds, intellectual property, and patent and copyright matters.

The office coordinates all basic and applied research, clinical trials and biomedical technology programs, including the centers of research excellence. Programs that promote these activities include seminars and workshops, faculty research programs, summer research training programs, collaborative and community outreach activities and a variety of programs to encourage students to enter careers in the health sciences.

The office also plays a leadership role in establishing and nurturing new research partnerships, technology transfer, and commercialization with industry and the private sector.

#### **Biomedical Communications**

The Department of Biomedical Communications is an educational service unit that supports development and implementation of health science center programs. Composed of medical arts/ photography, print services, audio-visual/ television and electronic engineering, the department's primary functions are the design and production of various forms of learning materials and the repair of equipment used by faculty and students.

Videotaping of procedures, patients or lectures, as well as production of specialized educational or promotional programs, is available both in the studio and on location. New video teleconferencing technology links the health science center and the University of North Texas in Denton to teach courses and conduct meetings. The department also receives programs on a variety of medical and policy issues via satellite.

Classroom playback of instructional videos, setup of audio-visual equipment for classroom use, student equipment checkout, maintenance of biomedical and electronic equipment, audio-visual systems design, and duplicating and offset printing are additional services offered by the department.

Medical arts personnel create charts, graphs, illustrations, posters, brochures, newsletters and magazines for the various educational, research and community service endeavors of the institution. Medical photographers provide the prints and slides to complete these instructional and promotional materials, as well as onsite photography of patients, procedures and important events.

#### Information Technology Services

Information Technology Services provides quality computer and telecommunication services to all academic, academic administrative and fiscal administrative areas of the health science center.

Academic Information Services administers the National Board of Medical Examiners and United States Medical Licensing Examinations, and provides scoring for classroom examinations. The effectiveness of TCOM's undergraduate and graduate curriculum is monitored through course and instructor evaluations. Using academic performance databases, this division provides analysis and reporting for a variety of academic and administrative applications.

Systems and Programming Services designs and implements computer systems and programs for fiscal and academic administrative areas of the institution. Currently, the division is completing a project to integrate all management information, from areas both internal and external to the health science center, into an enterprise-wide data system.

Network and Microcomputer Services is responsible for the design, installation and maintenance of academic and administrative local-area networks (LANs) on campus. Computer users connected to the LAN have access to a variety of software programs and are able to exchange data and electronic mail with users across the institution and off campus. Dial-in access is available for both IBM and Macintosh platforms.

The division provides consultation and user assistance to computer users relative to hardware and software use, communications, printing and planning a computer purchase.

Telecommunication Services operates and maintains the campus-wide telephone system with state-of-the-art equipment and software, and maintains and produces an in-house telephone directory for faculty and staff. This division also manages the telephone voice mail system, as well as all pagers and answering services, and advises users about cellular telephones. The division is responsible for submitting the Yellow Pages and White Pages information to appropriate telephone companies.

Records Management maintains a program for the economical and efficient management of institutional records. The division is responsible for the preparation and maintenance of the records-retention schedule and approves all requests for the disposal of state records and the conversion of paper files to CD-ROM and optical disk.

#### *Gibson D. Lewis Health Science Library*

The health science center's library supports the educational, patient-care, research and community-service missions of the institution by meeting the information needs of faculty, students, staff and the local health sciences community.

Featuring the latest information technology, this spacious and attractive facility provides the physical and intellectual resources needed for study, instruction and research. The library collection contains over 132,000 volumes and 2,100 journal titles in the basic biomedical sciences, clinical medicine and affiliated fields. Special Collections preserves historically significant materials, including over 2,100 volumes of osteopathic and nineteenth century medicine, The William G. Sutherland Collection, and institutional archives, photographs and oral histories documenting the school's first 25 years.

The library uses the Library Information System (LIS) to provide access to the library's collections and to the National Library of Medicine's MEDLINE database. LIS may be accessed in the library, via telephone modem or through the Internet. Library instruction on LIS, MEDLINE and other library services, as well as reference services and mediated computer searches, are readily available.

Materials not owned by the library may be obtained through interlibrary loan from many sources. The library has been a resource library in the National Network of Libraries of Medicine since 1991. In addition, the library is a member of the South Central Academic Medical Libraries Consortium, which provides access to all 14 academic medical/health science center libraries in Texas, Arkansas, Louisiana, Oklahoma and New Mexico.

The library's Learning Resource Center houses an audio-visual collection of over 5,000 titles, over 300 computer software programs and about 100 anatomical models. The collection includes titles with a broad appeal to both medical/scientific users and the general public. Sixteen viewing rooms and 18 carrels are equipped with video playback and slidetape projectors.

Three networked microcomputer labs, with Macintosh and IBM-compatible computers, are available in the LRC for student, staff and faculty use. Monthly computer classes are also offered. The Internet can be accessed in all three labs by users who have registered with Information Technology Services and have received a password. Portable computers are also available for overnight and weekend checkout.

All health science center students receive the full range of library services, including borrowing privileges, individual and group study areas, photocopying, computer searches, reference help, document delivery services, print indexes, personal instruction in the use of the library and access to the library's collections. Students must have I.D. badges to borrow materials and gain access to the library's various study rooms.

Copy cards are available for purchase. The library is a member in the Copyright Clearinghouse Center to ensure compliance with the copyright law.

## Office of Multicultural Affairs

The Office of Multicultural Affairs was created to coordinate all multicultural activities of the institution. Members of the multicultural affairs office assist in the recruitment, retention and mentorship of underrepresented students, faculty and staff. The office also interacts with all other administrative and academic departments on issues relating to underrepresented groups such as outreach and enrichment programs, community services and institutional activities.

The Office of Multicultural Affairs sponsors several student organizations to encourage peer support, networking and community service. It also fosters interest in science and medicine by coordinating various programs for students from elementary school to college. Information in this chapter is current as of Jan. 1, 1996

# TWO Admission



#### Application

An application for admission can be obtained from the graduate office or by writing to:

Graduate School of Biomedical Sciences UNT Health Science Center at Fort Worth 3500 Camp Bowie Boulevard Fort Worth, Texas 76107-2699

All applicants applying for the first time to the Graduate School of Biomedical Sciences must pay a non-refundable application fee: \$25 for U.S. citizens, \$50 for non-U.S. citizens. The fee must be paid in U.S. currency. This application fee is valid for one year from the application date.

#### Deadlines

The following deadlines for submission of complete application materials apply to all students:

	U.S.	Non-U.S.
Fall	June 1	May 1
Spring	Nov 1	Oct 1
Summer	April 1	Mar1

It is highly recommended that non-U.S. citizens apply well in advance of these deadlines to allow preparation of immigration documents.

# **Requirements** for Admission

#### General Admission Requirements

All applicants for admission to the Graduate School of Biomedical Sciences must meet the following requirements, whether or not admission to a specific degree program is sought.

1. The applicant must hold a bachelor's

degree or its equivalent from a regionally accredited institution.

2. Specific grade point average (GPA) requirements for non-degree and degree-seeking students follow. The GPA is calculated by dividing the total number of grade points earned by the total number of semester hours attempted (A equals four grade points, B equals three, C equals two, D equals one, F equals zero). The applicant must have at least a 3.0 GPA on the last 60 undergraduate semester hours of course work before receiving the bachelor's degree, or on all undergraduate work, in order to receive unconditional admission to the Graduate School of Biomedical Sciences. Applicants who have already completed a master's degree must have at least a 3.0 GPA on the master's or meet the undergraduate GPA standards just listed in order to be admitted unconditionally. Non-degree seeking students will be allowed to take only 12 semester credit hours.

3. All students seeking a graduate degree are required to take the Graduate Record Examination (GRE). Specific requirements are listed later in this section.

- 4. The applicant may be required to take entrance examinations, either oral, written, or both, before admission to the Graduate School of Biomedical Sciences is granted.
- 5. The health science center requires an applicant from a foreign country to demonstrate satisfactory proficiency in oral and written English before being granted admission.
- 6. To be considered for admission, the applicant should file the following official credentials with the dean of the Graduate School of Biomedical Sciences at the address given above:
  - complete official transcripts from all colleges or universities attended
  - an application for admission to

the Graduate School of Biomedical Sciences

• official scores from the Educational Testing Service on the required entrance test (see below)

- the application fee
- two letters of evaluation by individuals in a position to comment on the applicant's potential as a graduate student and future professional.
- a written statement of personal career goals
- 7. An applicant who has attempted graduate work at another institution within the six-year period immediately before first enrollment in the Graduate School of Biomedical Sciences but has not received a graduate degree will be required to make up any grade point deficiency below a B average either at the institution at which graduate work was attempted or at the health science center. (See "Time Limitations" in the Master's Degree Program section of this catalog for details concerning validity of previous graduate work.)
- 8. Admission to the Graduate School of Biomedical Sciences does not imply candidacy for a graduate degree.
- Applicants for admission are furnished written notification of their admission status by the dean of the Graduate School of Biomedical Sciences.
   Statements by other health science center personnel concerning the applicant's admissibility are not valid until confirmed by the dean in writing.
- 10. Students who are admitted to a graduate degree program and do not enroll in the semester for which they have applied must contact the Graduate School of Biomedical Sciences to have their file re-evaluated.

#### Other Admission Requirements

In addition to meeting the general requirements for admission stated above,

applicants must also meet the following requirements.

- An applicant desiring to pursue graduate work in any subdiscipline or track whose undergraduate record does not show completion of the courses prerequisite to this subdiscipline or track will be required to make up such deficiencies in a manner prescribed by the student's major department.
- Students wishing to change from one subdiscipline or track to another must make application in the office of the graduate dean and must meet all specific program admission requirements for the new subdiscipline.

#### Graduate Record Examination Requirements

*All* students seeking admission to a graduate degree program are required to take the Graduate Record Examination (GRE). Applicants to the D.O./M.S, D.O./M.P.H. or D.O./Ph.D. programs may substitute an appropriate Medical College Admissions Test (MCAT) score with the approval of the dean. Only official score reports from the Educational Testing Service are acceptable.

Students must meet the Graduate School of Biomedical Sciences' minimum test requirements. For degree-seeking students, a satisfactory score on the GRE must be submitted before or during the first semester of study. A combined verbal and quantitative score of 1000 for the M.P.H., 1100 for the M.S. and 1200 for the Ph.D. are considered competitive. Until the admission test requirement is met, the graduate student is granted provisional admission only. If the test requirement is not met by the end of the first semester of enrollment, provisional admission will be canceled, and the student will thereafter be limited to taking a cumulative total of 12 semester credit hours.

The following procedures govern provisionally admitted students who have not taken the GRE.

- Students provisionally admitted to a degree program in the fall semester without the GRE must take the test in October. (Note: the sign-up date is in late August or in the first few days of September. Consult the GRE information bulletin for further information.) Early registration for the spring semester will not be permitted if an October score is not received from the Educational Testing Service. Regular registration for the spring semester also will be blocked unless the GRE provision is met.
- 2. Students provisionally admitted to a degree program in the spring semester without the GRE must take the test in February. Early registration for the summer and/or fall semesters is not possible for students admitted with this provision. Regular registration for the summer and fall terms will be blocked accordingly.
- 3. Students provisionally admitted to a degree program in the summer without the GRE must take the test by October. Registration in the fall semester will be permitted without the GRE submission of a score. Early registration for the spring semester is not possible for students admitted with this provision. Regular registration for the spring term will also be blocked.

In no case may the student who has not met the GRE or MCAT requirements (1) be admitted to candidacy for any degree, (2) file application to receive such degree, or (3) be permitted to enroll in courses such as thesis, dissertation, problem in lieu of thesis, etc.

The GRE or MCAT requirements may be waived by the graduate dean for the individual student only in exceptional cases and only on petition by the student to the graduate dean.

#### Admission of Continuing Students

A continuing student is defined as a student who enrolls one time during four consecutive semesters. Example: enrolls Summer I 1996; no enrollment Summer II 1996, Fall 1996 or Spring 1997; re-enrolls Summer I 1997.

Continuing students do not need to reapply to the Graduate School of Biomedical Sciences to enroll if they meet both of the following conditions:

- 1. The student has not received a degree from the health science center since last enrollment.
- 2. The student does not have any current blocks on his or her record, i.e., GRE or academic.

Students meeting these conditions are eligible for registration during early registration. Instructions are available in the Graduate School Schedule of Classes.

Students who are unsure that they meet all of the above conditions for reenrollment should contact the Graduate School of Biomedical Sciences before the registration period.

#### Readmission of Former Graduate Students

Students who previously have been admitted to the Graduate School of Biomedical Sciences but have not enrolled here once during the last four consecutive semesters (i.e., Fall, Spring, Summer I and Summer II) must follow these re-enrollment procedures:

- 1. File an admission application
- 2. Submit transcripts from all colleges attended (if any) since leaving the health science center, showing eligibility to re-enroll at each institution

Former students who have not enrolled elsewhere since leaving the health science center and are in good academic standing are required only to submit an admission application.

#### Courses Taken for Doctoral Credit by Students Completing the Master's Degree

Students completing the master's degree at the health science center who plan to continue work toward the doctorate degree are required to submit application for readmission to the Graduate School of Biomedical Sciences in doctoral status. Those who wish to begin taking courses to be credited on the doctorate before receiving the master's degree must declare this intention in the office of the graduate dean at the time of registration in doctoral status, so that doctoral work may receive proper credit. Final acceptance of such work will not be granted until the student has secured full admission to a specific doctoral program of study.

#### Admission of Students to Non-Degree Status

The health science center recognizes that some students may wish to be admitted to the Graduate School of Biomedical Sciences for the purpose of taking courses not necessarily leading to an advanced degree. Admission to the Graduate School of Biomedical Sciences will be granted subject to the following provisions.

- 1. The applicant must meet all of the general admission requirements described above.
- 2. The student in this status is required to receive credit in all graduate courses taken, and must maintain an average of B on all such courses attempted.
- A student who is admitted to nondegree status has no assurance that work completed under this status will

be applicable toward degree requirements should he or she subsequently be admitted to a degree program at the health science center. A maximum of 12 semester hours earned before admission to a degree program may be counted toward degree requirements. Exceptions to this policy can be approved only by the graduate dean upon recommendation of the student's advisory committee. Completion of departmental graduate courses by nondegree students does not obligate the Graduate School of Biomedical Sciences to grant admission to a degree program at a later date, unless all general and specific requirements for admission to that program have been met.

4. A student who wishes to change from non-degree status to degree status must have satisfactory GRE/MCAT scores on file in the Graduate School of Biomedical Sciences.

#### Admission Requirements for International Students

Applicants who are not U.S. citizens should apply for admission at least six months before the anticipated enrollment date, and should arrange to have test scores and transcripts in the graduate school at least 60 days before the enrollment date. If transferring from a college or university they must meet all normal UNT Health Science Center transfer admission requirements. Specific requirements are detailed below.

The health science center will not issue immigration papers for student visas until all admission credentials have been received and approved. A \$50 (U.S.) application fee is required and must be submitted with the application for admission. This fee is subject to change at any time. Applicants who are graduates of foreign colleges or universities must present the following documents for application:

- application forms for admission to the Graduation School of Biomedical Sciences accompanied by \$50 (U.S.) application fee
- official forms showing a minimum score of 550 on Test of English as a Foreign Language (TOEFL) or evidence of successful completion of a noncredit intensive course in English from the University of North Texas Intensive English Language Institute
- official transcripts from each college or university attended, with official English translation
- proof of financial resources available, filed with application for admission
- transfer credit from foreign universities. The amount of such credit that can be applied to a degree earned at the health science center will be determined by the graduate dean on recommendation of the student's advisory committee and major department or division. Recognition by the health science center of graduate credit earned elsewhere does not imply that degree credit will be allowed automatically.
- two letters of evaluation from individuals in a position to comment on the applicant's potential as a graduate student and future professional.
- English screening examination (see details below)

#### **English Screening Examination**

All international students and nonexempt permanent residents whose native language is not English are required to take the English Language Proficiency Screening Test after arrival at the health science center and before registering for classes. Information about test dates is available from the Graduate School of Biomedical Sciences at the health science center.

Exemptions from this test are made only for students who hold a bachelor's or graduate degree from an accredited U.S. college or university, or have completed four years of study at an accredited U.S. four-year secondary school. This screening test requirement is not eliminated by TOEFL scores or scores on other standardized tests (i.e., GRE), by English classes taken at other institutions or by completion of an intensive English program at another institution.

Students may take the screening test only one time for the semester of admission. Students may not retake the test later to get better results or to try to eliminate the requirement for English language classes mandated by the test.

A student's performance on the English Language Proficiency Screening Test determines the student's eligibility for (1) full-time health science center graduate study, (2) part-time health science center graduate study and part-time non-credit English as a Second Language (ESL) course work, or (3) full-time ESL course work (requiring additional fees). If ESL courses are required, they must be taken during the semester the screening test is taken. Required ESL courses may not be postponed and must receive first priority in the student's course scheduling. Students who do not successfully complete the required ESL course work during the first semester of enrollment will have restricted course registration or be blocked from further enrollment in the health science center.

There are no study aids available for the screening examination.



18 Graduate School of Biomedical Sciences



# THREE Academic Policies

The general policies of the Graduate School of Biomedical Sciences are determined by the Graduate Council and administered by the dean.

Standards, fees and other requirements may be modified at any time by the Graduate Council.

Students should review the Graduate Student Handbook for additional policies and procedures concerning their roles as students.

#### Absence for Religious Holidays

In accordance with state law, students absent due to the observance of a religious holiday may take examinations or complete assignments scheduled for the day missed within a reasonable time after the absence if the student has notified the instructor of each class of the date of the absence within the first 15 days of the semester.

Religious Holy Day Request Forms may be found in the Graduate Student Handbook or obtained from the Office of the Registrar. Instructor(s) may require a letter of verification of the observed holy day(s) from the religious institution.

Only holidays or holy days observed by a religion for which the place of worship is exempt from property taxation under Section 11.20 of the Tax Code may be included. A student who is excused under this provision may not be penalized for the absence, but the instructor may respond appropriately if the student fails to satisfactorily complete the assignment or examination.

#### Academic Misconduct

Cheating and plagiarism are types of academic misconduct for which penalties are described and assessed under the health science center's Code of Student Conduct and Discipline. (See Graduate Student Handbook.) The term "cheating" includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests or examinations; (2) dependence upon the aid of sources specifically prohibited by the instructor in writing papers, preparing reports, solving problems or carrying out other assignments; and (3) the acquisition, without permission, of tests or other academic material belonging to a faculty or staff member of the health science center.

The term "plagiarism" includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. Plagiarism also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.

Specific penalties can be assigned by a faculty member for certain cases of academic misconduct (including cheating and plagiarism). These penalties include: giving a failing grade for the test or assignment; reducing or changing the grade for the test, assignment or course: requiring additional academic work not required of other students; and assigning a failing grade in the course. Other specific penalties can be recommended by a faculty member to the appropriate administrative/academic authority, including denial of the degree, expulsion from the health science center or revocation of a degree already granted.

All graduate students are responsible for making themselves aware of the definitions and implications of academic misconduct. For further information on academic misconduct, penalties and appeal procedures, the student should refer to the Code of Student Conduct and Discipline in the Graduate Student Handbook.

#### **Appeal Processes**

Specific policies and procedures have been established for students seeking to appeal a grade in a course, denial of admission, qualifying or comprehensive examination scores or seeking an extension of time to complete a degree.

The grade appeal policy and procedures are listed below. The policy and procedures for requesting an extension of time to complete a degree are available through the office of the graduate dean.

Appeals concerning admission to graduate school should be addressed to the graduate dean.

Advice concerning how to pursue appeals on any other matter can be sought from the graduate dean.

# Grade Appeal Policy and Procedures

- 1. Any graduate student who believes that a grade has been inequitably awarded should first contact the instructor who awarded the grade in order to discuss the issue and attempt to resolve the differences. Any instructor no longer associated with the health science center at the time of the appeal will be represented in these proceedings by the chair of the department in question. The student who is unable to resolve the differences with the instructor has 30 days following the first class day of the succeeding semester to file a written appeal with the chair of the instructor's department, or of the equivalent administrative unit.
- 2. The chair may follow any of the four procedures below, or a combination of them.

<sup>•</sup> The chair may confer with the instructor.

• The chair may request that the instructor submit a written reply to the student's complaint.

• The chair may conduct a meeting of the two parties.

• The chair may refer the case directly to the appropriate departmental committee, as outlined below.

In following any of the first three procedures noted above, the chair should make a judgment on the merits of the case and recommend a specific action in regard to the disputed grade. Either the student or the instructor may appeal the recommendations of the chair.

- 3. The appropriate departmental committee to hear cases sent directly to it by the chair or appealed to it by either the student or the instructor shall be constituted as follows and shall perform the following four duties.
  - It shall be an ad boc committee consisting of three faculty members. Two of the members will be chosen from the department in which the grade is being questioned, one by the student and the other by the instructor. If either party to the dispute declines to choose a member of the committee, the department chair will select that member. The third faculty member of the committee, who will serve as chair, will be chosen either from within or outside the department by agreement of the student and the instructor. If they cannot agree upon a third member, the member shall be chosen by the chair of the department, with the provision that the student and the instructor may agree to stipulate that the third member of the committee be chosen from a related department or academic administrative unit rather than from the department in question.

• This *ad boc* committee should require written statements from each participant in the dispute. Judgments may be rendered upon the basis of these statements, upon other evidence submitted in support of the statements and upon the basis of oral hearing, if such a hearing seems necessary.

• The committee must make a recommendation for disposition of the case within 30 days of its appointment.

• All records in the case will be filed with the chair of the department in which the grade was originally awarded.

- 4. Either party to the dispute has 15 days following the rendering of the *ad hoc* committee's recommendation to appeal that recommendation to the dean of the graduate school, if the appeal is based solely upon alleged violations of established procedures. Substantive matters, up to and including the refusal of the instructor to act in accordance with the *ad hoc* committee's recommendation or the student's refusal to accept the verdict, may not be appealed to the graduate dean.
- 5. The dean of the graduate school will, after a review of the submitted written materials (and oral hearings if desired), make within 15 days a ruling about procedural questions. The ruling may be appealed by either the student or the instructor to the Graduate Council of the graduate school.

• The Graduate Council will have 30 days from the date of its appointment to complete its work.

• The Graduate Council shall operate within the guidelines set out for departmental *ad boc* committees above.

• All rulings made by the Graduate Council regarding procedural questions shall be final.

 All documents related to the case shall be returned to the chair of the originating department for departmental files.

#### Application for Graduate Degree

It is the responsibility of the student to keep aware of progress toward the degree and to file the appropriate degree application in the office of the graduate dean. Consult the Academic Calendar for the proper dates. The applicant's grade point average on all graduate work attempted must be at least 3.0 for the application to be accepted.

Because of the time required to receive transcripts, students otherwise eligible for graduation who complete their last course or courses elsewhere will not graduate at the end of the semester or summer session in which the work is completed, but will receive their degrees at the close of a subsequent graduate school semester or summer session.

Information concerning graduation fees is furnished on request by the office of the graduate dean, and is contained in the annual Tuition and Fee Register, available from the graduate office. Students anticipating graduation should consult the Academic Calendar for final dates for payment of fees and meeting other graduation requirements.

#### Auditing

With the written permission of the department chair and the dean of the graduate school, an individual fully eligible to enroll in the graduate school may sit in a class as an auditor without receiving graduate credit. The auditor's name will not be entered on the class roll, and the instructor will not accept any papers, tests or examinations.

Attendance as an auditor may not be made the basis of a claim for credit in the course. Students who are enrolled for credit may audit classes without payment of additional fees; others pay an auditor's fee as shown in the Tuition and Fee Register.

Permission cards for auditors are not

available during the official registration period, but may be requested in the graduate school office after classes begin.

A person 65 years of age or older may enroll as an auditor and observer without credit and without payment of an audit fee if space is available and if approved by the department chair and the dean. Such enrollment entitles the person to library privileges, but not the use of laboratory equipment and supplies, health and hospital benefits.

#### **Class** Attendance

Regular and punctual class attendance is expected. Although in general students are graded on intellectual effort and performance rather than attendance. absences may lower the student's grade where class attendance and class participation are deemed essential by the faculty member. In those classes where attendance is considered as part of the grade, the instructor should so inform students at the semester's beginning by a *written* notice. Any instructor who informs students in writing about the necessity of class attendance may request of the Registrar that a student be dropped from the course with a grade of WF upon the accumulation of the stated number of absences. If the instructor-initiated drop action falls within the time that the student is eligible to drop with instructor consent and without penalty, the Registrar's Office notifies the student that a WF will be recorded unless the student initiates the drop procedure, in which case a W will be assigned.

Departments and similar academic units have authority to establish a department-wide or course-wide policy, so long as the policy is in accord with the above stipulations.

#### **Commencement Exercises**

Commencement exercises are held in June at the health science center and in

December and August with UNT commencement ceremonies held in Denton. Diplomas may be obtained from the registrar after graduation has been verified.

#### Concurrent Enrollment at another Institution

Graduate students must secure written permission from the graduate dean before registering for any course or courses at another institution while registered for any courses at the health science center.

Failure to secure the required permission for concurrent enrollment prior to registration at the second institution may cause the health science center to refuse degree credit for the work taken elsewhere. In no case may the combined total of semester hours enrolled for at the two institutions exceed the maximum load permitted to graduate students.

#### **Course Changes**

#### **Adding Courses**

Graduate students must initiate all requests for adding courses in the office of the dean of the Graduate School of Biomedical Sciences. All requests must be made in writing. Consult the Academic Calendar for dates during which adds are allowed.

#### **Dropping Courses**

Students who wish to drop a course before the 12th class day (summer term, fourth class day), must do so in the Registrar's Office. After the 12th/fourth class day students must first receive the written consent of their instructor before dropping a course. The instructor may withhold consent for students to drop for any reason providing the instructor has informed students *in writing* at the beginning of the semester. The grade of W is recorded for any course dropped with the instructor's consent before the end of the sixth week of classes (summer term, eight class sessions). After that time the student must have a passing grade in order for the instructor to assign a grade of W for a dropped course; otherwise, the grade WF is recorded.

Instructors may drop students with grades of WF from courses for nonattendance at any time after the sixth week of classes (summer term, eight class sessions). See "Class Attendance" above.

Drop procedures must be completed by 5 p.m. on the deadline dates specified in the Academic Calendar. After these dates a student may not drop a course for any reason.

#### **Courses of Instruction**

Courses normally meet one hour per week in lecture for each semester credit hour (SCH). For the exceptions, the course descriptions in each department will explain meeting times.

Individual courses of instruction are subject to change or withdrawal at any time and may not be offered each semester of every year. Any course may be withdrawn from current offerings if the number of registrants is too small to justify conducting the course.

#### **Enrollment Certification**

Enrollment verification and loan deferments are completed in the Registrar's Office based upon the student's having registered and paid tuition and fees according to the following criteria.

*Full Time*: long semester, 12 or more hours; summer session, 3 hours per term.

International students may also request the International Student and Scholar Office (ISSO, Kendall Hall, Room 103, University of North Texas, Denton, TX) to issue letters of enrollment for the use of foreign governments, embassies, scholarship agencies and banks. See the graduate office of the health science center for details.

#### **Final Examinations**

Faculty members are expected to administer final examinations at the designated times during the final week of each long semester and during the specified day of each summer term.

If a final examination is not given in a particular course, the faculty member is expected to use the final examination period for summary, evaluation or other productive purposes.

Students who have as many as three final examinations scheduled on one day may appeal to the graduate dean to reschedule one of those examinations on another day during the final examination period.

#### **Grading System**

Courses numbered 5000 or higher ordinarily are taken by students working toward master's and doctoral degrees; those numbered 6000 or higher are open principally to doctoral students.

The Graduate School of Biomedical Sciences' grading system uses the letters A, B, C, D, F, P, NP, I, PR, W, WF and Z. The letter Z is used to indicate that a grade was not properly received and/or recorded for a course.

- A Excellent work; four grade points for each semester hour. (90-100)
- **B** Good work; three grade points for each semester hour. (80-89)
- **C** Fair work; two grade points for each semester hour. (70-79)
- **D** Passing work; one grade point for each semester hour. Courses in which the grade is D may not be counted toward a graduate degree. (60-69)
- **F** Failure; given when a student 1. has failed the course while still officially

enrolled at the end of the semester; 2. is failing in a course and misses the final examination without satisfactory explanation; or 3. stops attending class without completing an official drop or withdrawal. (59 and below)

- P Passed; a credit grade 1. on pass/no pass option; 2. in selected graduate individual problems and research courses.
- **NP** Not passed; a failing grade on the pass/no pass option; nonpunitive.
- Incomplete; a nonpunitive grade given only during the last one-fourth of a semester and only if a student is

   passing the course; 2. has justifiable reason why the work cannot be completed on schedule; and 3. arranges with the instructor to finish the course at a later date by completing specific requirements which the instructor must list on the grade sheet. For information on removal of I, see "Removal of I" below.
- **PR** Assigned at the close of each semester or summer term in which the graduate student is enrolled in thesis (5950) or dissertation (6950). No credit hours are shown when the grade of PR is assigned. When the thesis or dissertation has been completed and submitted to the graduate dean, appropriate grades and credit hours will be shown on the student's record for the required number of enrollments.
- ♥ Drop or withdrawal without penalty. Given when a student drops a course or withdraws from the graduate school according to the dates in the academic calendar. See regulations for dropping and withdrawing.
- **WF** Drop or withdrawal with failing grade. May be assigned after the dates listed in the academic calendar. See regulations for dropping and withdrawing.

At the graduate level, no semester

credit hours and no grade points are allowed for grades D, F, I, NP, P, PR, W, WF or Z.

A complete record of all previously used grades and grading systems is detailed on the official transcript.

#### Grade Point Average

The overall grade point average (GPA) is used to determine student class loads, eligibility for admission to the graduate school and certain programs and eligibility for graduation. It is calculated by dividing the total number of grade points by the total number of semester hours attempted. All GPA calculations are subject to postaudit and correction by the Registrar's Office.

The number of semester hours attempted includes all courses with grades of A, B, C, D, F and WF unless replaced by a later grade. Courses with grades of I, NP, P, PR, W or Z are not counted as courses attempted.

#### Quality of Work Required

The graduate student must maintain a 3.0 GPA on all courses that receive graduate credit, whether or not the courses are to be applied toward a graduate degree.

The student whose GPA earned at another institution is below 3.0 will be required to make up the deficiency either at the other institution or at the health science center. This regulation applies not only to graduate work attempted elsewhere before the student was first admitted to the Graduate School of Biomedical Sciences, but also to graduate work attempted elsewhere after the student's admission at the health science center.

Students must make satisfactory progress toward completion of degree requirements in order to remain in good standing within a specific degree program. Students whose progress is unsatisfactory may be removed from the program by the graduate dean on recommendation of the major department.

#### **Probation and Suspension**

A student who fails to maintain the required GPA of 3.0 on all courses carrying graduate credit may initially be subject to academic probation. If the student's grades do not improve, the student may be subject to suspension for a period of up to one calendar year before becoming eligible to re-enroll for further graduate courses. Graduate work completed elsewhere during a period of graduate suspension at the health science center may not be counted for graduate credit at the health science center.

The student whose graduate school GPA falls below 3.0 must make up the deficit, either by repeating courses in which the grades are low, or by completing other graduate school courses with grades high enough to bring the graduate school GPA up to 3.0. Low grades made in graduate courses at the health science center may not be duplicated at other institutions.

#### **Course Duplications**

A student may enroll for a course a second or subsequent time and have it counted as part of the semester's load. If a course is repeated, the last grade recorded will be considered by the graduate dean in certifying the student's eligibility for graduation.

The responsibility for initiating the official recording of a grade duplication lies entirely with the student. In the absence of such a request the registrar will include a repeated course in the student's cumulative record of hours attempted and grade points earned.

#### **Grade** Changes

No grade except "I" may be removed from a student's record once properly recorded. Changes are not permitted after grades have been filed except to correct clerical errors.

Requests for error correction must be initiated immediately after the close of the semester for which the grade was recorded.

A faculty member who believes that an error has been made in calculating or recording a grade may submit *in person* a request for a grade change to the department chair and the graduate dean. The registrar accepts requests for grade changes from the graduate dean.

#### Grade Reports

A grade report for each student is mailed to the student's permanent address at the close of each semester. It includes a statement of current academic status. If the grade report of the academic status is believed to be in error, the student should contact the Registrar's Office within 30 days.

At midsemester in the long sessions, instructors may provide individual written warnings to students who are doing unsatisfactory class work. These warnings are mailed from the Registrar's Office upon request of the instructor.

#### Pass/No Pass Grading

Any department of the health science center may elect to assign pass/no pass grades in graduate-level courses in which the student is engaged in individual research and is not attending an organized class, and in thesis, dissertation and problems courses. The student should inquire at the office of the Graduate School of Biomedical Sciences at the time of registration for such courses whether a letter grade or a pass/no pass grade will be granted. Pass/no pass grades are not taken into account in computing the student's graduate grade point average.

#### Removal of I

A student may remove a grade of "I" within one year of receiving the initial grade by completing the stipulated work, obtaining signatures of the instructor and the graduate dean (on a permit form from the dean's office), paying a \$5 fee at the Cashier's Office and returning the permit form to the instructor. The instructor then files the permit form in the Registrar's Office, along with the grade, and the grade point average is adjusted accordingly. If a student does not complete the stipulated work within the time specified (not to exceed one year after taking the course), the instructor may change the grade of "I" to a grade of F, if appropriate or the "I" will remain on the transcript and the student will be required to register for and re-take the course for it to count toward the degree plan. The GPA is adjusted accordingly.

A student who could not complete final examinations because of illness may remove a grade of "I" without payment of the fee. The graduate dean is authorized to waive the fee upon certification of illness signed by the attending physician.

#### **Open Records Policy**

Pursuant to the provisions and intent of Article 6252-17a, Texas Civil Statutes, known as the Open Records Act, and the Family Educational Rights and Privacy Act of 1974 as amended, known as the Buckley Amendment, the graduate school has established a policy relating to the accessibility of information in the custody of the University of North Texas Health Science Center.

Student records that include general information concerning the student and the student's individual relationship to the educational institution are available on request to health science center personnel who have an educational interest in the records, the student, and the student's parent or legal guardian if the student is a dependent for income tax purposes of the parent or legal guardian.

For information regarding the health science center's policy on access to records and to request accessibility to center records, contact the designated Custodian of Public Records, Office of the Vice President and General Counsel, UNT Health Science Center.

#### **Policies**

Policies and regulations are explained or printed in full in the Graduate Student Handbook, available in the graduate office. All health science center policies are subject to change throughout the year.

#### Student Load

Graduate students may schedule as many as 16 hours during any semester of the regular session, or seven hours in any summer term, if in the latter case the seven-hour load includes a four-hour laboratory course. For purposes of fulfilling the graduate residence requirement, a load of 12 semester hours is considered to be a full load.

Special restrictions apply to the load permitted to graduate teaching fellows and teaching assistants. The total load of course enrollment and teaching assignment may not exceed 16 semester hours in any long semester. Approval of the graduate dean is required for loads in excess of this amount, but approval will not be granted for a combined load in excess of 18 semester hours.

#### Summons

In the event a student's conduct or behavior is found to be in violation of a published policy or regulation, a summons may be issued. A summons is an official request that the student appear before a health science center administrator. It is always important and must have the student's immediate attention. Failure to answer a summons can result in disciplinary action.

#### Withdrawal from the Health Science Center

A student may withdraw from the health science center at any time prior to the deadline in the academic calendar by making a request in the Registrar's Office. For withdrawals processed by the relevant deadline, the grade of W is recorded for each course in which a withdrawn student was enrolled. After this date a withdrawn student receives a grade of W only for those courses in which there were passing grades at the time of withdrawal; otherwise the grade WF is recorded.

Official dates and deadlines for withdrawing are specified in the Academic Calendar.

# *Refund of Tuition in Case of Drops or Withdrawals*

Depending on the date of the drop or withdrawal, students may be eligible for full or partial refund of tuition. The amount of the refund is regulated by state law.

#### **General Requirements**

The candidate must earn 30 or more hours of graduate credit, depending upon the specific degree requirements. These degree requirements are determined by the graduate catalog currently in force at the time the student's degree plan is approved by the graduate dean.

Consult subsequent sections of this publication for the specific course requirements for the master's degree.

#### Level of Work Required

A maximum of 12 semester hours earned in non-degree or certification status before admission to a degree program may be counted toward degree requirements.

Exceptions to these limitations are granted only by the graduate dean on request of the student's major department.

FOUR Master of Science and Doctor of Philosophy Degree Programs



The Graduate School of Biomedical Sciences offers both M.S. and Ph.D. degrees in biomedical sciences. The graduate school encourages students to acquire a broad base of knowledge in those disciplines that flourish in the environment of a health science center and requires each student to pursue specialized research and study in a particular area of biomedical science. The training students obtain equips them for professional careers in health science centers, universities and industry. Although students obtain a degree in biomedical sciences, a concentration in a subdiscipline may be chosen from anatomy and cell biology, biochemistry and molecular biology, integrative physiology, microbiology and immunology, and pharmacology.

#### Core Curriculum Requirements

Entering students to the graduate program are expected to complete the core requirements described as follows. For those students entering the Ph.D. program with an M.S. degree, the core program will be determined by the student's Ph.D. degree committee. In some instances, students may be required to take additional courses or request the waiver of a core requirement depending on their background. This shall be determined by the student's committee and approved by the graduate dean.

#### M.S. Core Program

BMSC 5960 Biomedical Ethics - 1 SCH BMSC 5950 Thesis - 3 to 6 SCH BMSC 5940 Seminar in Current Topics -1 to 3 SCH

Two core courses - 2 out of 5 of the subdiscipline core listings (one outside major subdiscipline) - 6 to 12 SCH Electives 9 to 12 SCH

#### Ph.D. Core Program

BMSC 5960 Biomedical Ethics - 1 SCH BMSC 5940 Seminar in Current Topics -1 to 3 hours

BMSC 5970 Techniques in Biomedical Science - 3 SCH

BMSC 6010 Qualifying Examination for Doctoral Students - 3 SCH

BMSC 6940 Individual Research - 3 to 24 SCH

BMSC 6950 Doctoral Dissertation - 3 to 12 SCH

Three core courses - 3 out of 5 of the subdiscipline core listings (two outside major subdiscipline) - 9 to 12 SCH

Electives - 25 to 36 SCH

In addition, Ph.D. students must demonstrate competency in a research tool by taking computer science courses, or they must have taken advanced mathematics and/or computer sciences (BMSC 6500 and 6510 or the equivalent). Students must demonstrate a competency in biostatistics.

Competency in biostatistics may be demonstrated by one of the following: 1) prior courses in biostatistics upon approval of graduate dean; 2) completion of approved biostatistics course during study at UNT Health Science Center; 3) successful completion of a placement examination.

#### **Core** Courses

#### Anatomy and Cell Biology

ANAT 5010 Gross Anatomy - 12 SCH ANAT 5110 Histology - 6 SCH ANAT 5120 Medical Neuroscience - 5 SCH ANAT 6020 Biomedical Cell & Molecular Biology I- 4 SCH ANAT 6030 Biomedical Cell & Molecular

Biology II - 4 SCH

**Biochemistry and Molecular Biology** BIOC 5010 Principles of Biochemistry -7 SCH BIIOC 5011 General Biochemistry - 7 SCH BIOC 5425 Advanced Biochemistry - 4 SCH

#### Integrative Physiology

PSIO 5020 Medical Physiology - 8 SCH PSIO 6070 Endocrine Physiology - 3 SCH

#### Microbiology and Immunology

MICR 5020 Medical Microbiology and Immunology - 6 SCH MICR 5030 Microbial Metabolism - 3 SCH

#### Pharmacology

PHRM 5010 Introduction to Pharmacology - 8 SCH

- PHRM 5030 Principles of Pharmacology -3 SCH
- PHRM 6080 Receptors and Drug Action 4 SCH

#### Master of Science Degree

#### **General Requirements**

The candidate must earn 30 or more graduate semester credit hours (SCH), depending upon the specific degree requirements. These degree requirements are determined by the graduate catalog currently in force at the time the student's degree plan is approved by the graduate dean.

Consult subsequent sections of this publication for the specific course requirements for the master of science degree.

#### Level of Work Required

A maximum of 12 SCH earned in nondegree or certification status before admission to a degree program may be counted toward degree requirements.

Exceptions to these limitations are granted only by the graduate dean on request of the student's major department.

#### **Time Limitations**

All requirements for the Master of Science degree must be completed within six years.

As individual courses exceed this time limit they lose all value for degree purposes. Credits that are more than six years old at the time of first registration for graduate work are not transferable from other institutions.

Time limits are strictly enforced. Students exceeding the time limit may be required to repeat the comprehensive exam, replace out-of-date credits with upto-date work, and/or show other evidence of being up to date in their major fields. Students anticipating that they will exceed the time limit should apply for an extension *before* the normal time period to complete the degree expires. Holding a full-time job is not considered in itself sufficient grounds for granting an extension.

Time spent in active service in the U.S. armed forces will not be used in computing the time limit. However, career members of the armed forces should consult the graduate dean concerning the credit given to work completed before or during active military service.

#### Use of Transfer Credit and Extension Credit

Subject to the approval of the graduate dean and the department concerned, a student who holds a bachelor's degree and who has been admitted to the Graduate School of Biomedical Sciences may apply toward a Master of Science degree up to six SCH of graduate work completed elsewhere.

Subject to the approval of the graduate dean and the department, Graduate School of Biomedical Sciences extension credit may be applied toward the Master of Science degree in the same ratio as transfer credit stated above, or in combination with transfer credit, so long as the total number of semester credit hours of combined transfer and extension credit does not exceed the limits stated above. Extension and correspondence credit earned at other institutions will not be counted toward a graduate degree at the health science center.

It is the student's responsibility to make sure that official transcripts of courses completed elsewhere are furnished to the office of the graduate dean. and that graduate credit has been assigned by the other institution or institutions to whatever courses are to be counted toward the health science center degree. Such courses, although listed on the health science center degree plan, will not be counted toward the degree until official transcripts showing graduate credit have been received and the credit has been approved by the graduate dean. All transfer courses are subject to the time limitation described above.

If transfer credits do not show a B average, the student is required to make up the deficiency either at the institution where the credit was earned or at UNT Health Science Center.

In accordance with the rules of the Texas Higher Education Coordinating Board, at least one-third of the semester credit hours required for any graduate degree must be completed in course work on the campus of UNT Health Science Center.

#### Master of Science Program Requirements

Each student is responsible for the completion of the Master of Science program according to the procedures that follow. Each item must be completed in the sequence and time period indicated. See the Graduate Office regarding paperwork when completing each step.

 Acceptance into the graduate school. If a student has been accepted on probation, he or she must take minimum of 8 SCH of formal graduate course work during the first regular semester of enrollment. A minimum GPA of 3.0 must be obtained.

- 2. Before registration in the second semester, the student must select a supervising professor and a graduate advisory committee. The graduate office will notify all new students of this deadline one month prior to the end of each semester. The committee will consist of the supervising professor and at least two other professors.
- 3. The committee will meet to approve a degree program for the student prior to registration in the second semester. Course work deficiencies will also be stipulated at this time. In addition, the student and the committee will select Option 1 (BMSC 5950, Thesis) or Option 2 (BMSC 5920, 5930, Problem in Lieu of Thesis). An MS degree resulting from selection of Option 2 will be considered as a terminal degree in the University of North Texas Health Science Center, Graduate School of Biomedical Sciences.

The requirements set by the graduate school are that a minimum of 30 SCH must be taken for thesis and 36 SCH for problem in lieu of thesis of which 15-20 SCH must be in core courses plus six hours of thesis. The use of Special Problem course numbers (i.e. 5900, 5910) is **limited to a maximum** of 6 SCH.

- 4. Before the end of the student's second regular semester, a research proposal should be approved by the committee.
- 5. A student must maintain continuous enrollment in a minimum of 3 SCH of thesis during each long semester until the thesis has been accepted by the dean of the graduate school. Thesis registration in at least one summer session is required if the student is using health science center facilities and/or faculty time during that summer session. Students must maintain

continuous enrollment once work on the thesis has begun.

Failure to maintain continuous enrollment will either invalidate any previous thesis credits or will result in the student being dropped from the degree program unless granted an official leave of absence by the graduate dean for medical or other exceptional reasons.

- 6. The completed thesis or problem in lieu of thesis will be submitted to the committee at least two weeks before the deadline required by the graduate school.
- 7. A formal seminar pertaining to the thesis or research problem will be presented in the department in the student's last semester.
- 8. A final oral examination over the thesis or research problem and related work will be given by the committee immediately following the seminar.
- Three copies of the thesis or problem in lieu of thesis are required for graduation.

#### Doctor of Philosophy Degree Program

#### **General Requirements**

The candidate must earn a minimum of 60 graduate semester credit hours (SCH) beyond the Master of Science degree or 90 SCH beyond the bachelor's degree.

This quantitative requirement must be regarded as a minimum. The quantity of course work to be completed by each candidate is arranged individually by the supervisory committee, subject to the approval of the graduate dean, and may be modified both as to quantity and as to type during the progress of the student's course work.

#### **Residency Requirement**

Every candidate for the doctoral degree must complete the appropriate residency requirement at the health science center. The minimum residency requirement consists of two consecutive long semesters at the health science center's graduate school (fall and the following spring, or spring and the following fall), or a fall or spring semester and one adjoining summer session. During the long semesters a minimum of 12 SCH must be taken. During the combined summer terms a minimum load of 6 SCH must be taken. Some departments have established more stringent residence requirements appropriate to their programs.

#### Level of Work Required

A maximum of 12 SCH earned in nondegree or certification status before admission to a degree program may be counted toward doctoral degree requirements. Exceptions to this limitation are granted only by the graduate dean on request of the student's major department.

#### **Time Limitations**

All work to be credited toward the doctoral degree beyond the master's degree must be completed within a period of 10 years from the date doctoral credit is first earned. No course credit beyond the Master of Science degree that is more than 10 years old at the time the doctoral program is completed will be counted toward the doctorate.

Time limits are strictly enforced. Students exceeding the time limit may be required to repeat the comprehensive exam, replace out-of-date credits with upto-date work, and/or show other evidence of being up-to-date in their major and minor fields. Students anticipating that they will exceed the time limit should apply for an extension *before* their ninth year of study. Holding a full-time job is not considered in itself sufficient grounds for granting an extension.

Time spent in active military service of the United States will not be considered in computing these time limits. However, career members of the armed forces should consult the graduate dean concerning credit given to work completed before or during active military service.

#### Transfer and Extension Work

Depending on the student's previous preparation and needs, as many as 24 SCH of advanced study beyond the Master of Science degree or its equivalent completed at another institution may be accepted and credited toward the doctorate, providing the candidate's advisory committee recommends acceptance of transfer credit to the graduate dean.

The student beginning doctoral study at the health science center should bear in mind that transfer credit is not allowed on the doctorate until all requirements governing admission to candidacy have been met and that such credit must in all cases be individually evaluated by the supervisory committee, recommended by the major department and approved by the graduate dean. The rule governing the time limit for doctoral credit applies also to transfer credits. Extension credit earned elsewhere may not be applied toward the doctorate at the health science center.

If transfer credits earned either before or after the first doctoral enrollment at the health science center do not show a B average, the student is required to make up the deficiency either at the institution where the credit was earned or at the health science center.

In order to be applied to a doctoral program at the health science center, courses completed elsewhere must have been taken at an institution that offers the doctoral degree in the area in which the courses were taken, or in a closely related area. In accordance with the rules of the Texas Higher Education Coordinating Board, at least one-third of the semester credit hours required for any graduate degree must be completed in course work on the campus of the UNT Health Science Center.

#### Degree Plan

A degree plan listing all courses should be completed by the student, approved by the student's advisory committee and department chair, and submitted to the graduate dean at an early point in the student's progress toward the degree, preferably soon after the first full semester of doctoral study has been completed.

The major professor and committee members are chosen on the advice of the department or division chair or graduate advisor in the major area. All subsequent requests for degree plan changes must be submitted in writing by the major professor to the graduate dean.

Doctoral degree requirements listed in the Graduate Catalog currently in force at the time the student's degree plan is approved by the graduate dean are those that need to be completed by the student.

Courses listed on the degree plan must carry letter grades, with the exception of those courses in which the student is engaged in individual research and is not attending an organized class. These courses, with the approval of the department, may be assigned pass/no pass grades.

#### *Qualifying Examination (BMSC 6010) and Admission to Candidacy*

The student who has completed all courses required for the degree (exclusive of dissertation) and has satisfied all admission and tool subject requirements should request that the major professor arrange for the qualifying examination to be held. The qualifying exam must be completed prior to completion of 72 SCH. The student must be enrolled in BMSC 6010 in the semester the examination is to be held. Consult the graduate advisor in the major area for information about the qualifying examination requirement.

Ordinarily, no dissertation enrollment is permitted until a grade for BMSC 6010 has been recorded and the student has passed. Students are admitted to candidacy for the doctoral degree by the graduate dean upon successful completion of the qualifying examination and other requirements.

#### **Dissertation Requirement**

A dissertation is required of all candidates for the doctorate. In general, 12 SCH are allowed for the dissertation. The student is required to enroll for dissertation credit in the major department under the course number BMSC 6950 and must maintain continuous enrollment in BMSC 6950 until the dissertation has been completed and submitted to the graduate dean. Enrollment in BMSC 6950 is limited to nine hours in each long term. Grades of PR will be recorded at the end of each semester or term of enrollment until the dissertation is filed with the Graduate School of Biomedical Sciences and approved by the graduate dean. Appropriate grades and credit hours will then be shown on the student's record. Three semester credit hours of dissertation enrollment are required during at least one summer session to maintain continuous enrollment.

When the advisory committee is formed, the student should request that the graduate dean appoint a health science center graduate faculty member to serve as a university member on the student's advisory committee. The university member will be a signing member of the student's advisory committee with the full rights and responsibilities of any other committee member. Before beginning the dissertation, the student should also consult the graduate office for information concerning the proper form for preparation of the paper.

When the dissertation is completed and has received preliminary approval of the advisory committee, the student's major professor will schedule the final comprehensive examination and notify the Graduate School of Biomedical Sciences of the date and time of the examination. The dissertation may not be submitted to the graduate dean until this examination has been passed.

No dissertation credit will be recorded until the dissertation has been approved by the student's advisory committee, submitted to the office of the graduate dean and finally approved by the graduate dean. Instructions for submission of the dissertation may be obtained from the office of the graduate dean.

#### **Continuous Enrollment**

A student must maintain continuous enrollment in a minimum of 3 SCH of thesis or dissertation during each long semester until the thesis or dissertation has been accepted by the dean of the Graduate School of Biomedical Sciences.

Doctoral students must maintain continuous enrollment subsequent to passing the qualifying examination for admission to candidacy.

#### Doctoral Program Requirements

Each student is responsible for the completion of the doctoral program according to the procedures below. Each item must be completed in the sequence and time period indicated. See the graduate office regarding paperwork when completing each step.

 A major professor should be selected by the student at the earliest possible time, in any event, before enrollment in the student's second long semester.

- 2. The student should meet with the intended major professor for guidance until a doctoral committee and degree plan are established.
- 3. A major professor and the student should select at least four doctoral committee members from the graduate faculty. The student has the responsibility for obtaining the agreement of the professors (using the Designation of Doctoral Advisory Committee Form) and will complete this before enrollment in the third long semester.
- 4. A major professor and the student should submit the names of at least three graduate faculty members from which the graduate dean will appoint the university member. The Graduate Council requires that at least one university member in addition to the other members of the doctoral student's committee, chosen from outside the student's major department, should be incorporated into the process of developing and writing the doctoral dissertation, from the formal or substantive inception of the topic through the comprehensive examination and final approval of the dissertation. The university member, or members, should take part in any formal hearing ("proposal defense") at which the topic is approved and should have a vote on the acceptance of the proposal. He or she should be a voting member of the final examination committee and should sign the dissertation fly pages.

Graduate faculty members should proceed to develop and adopt statements of policies and procedures for the implementation of the policy stated above, taking into account the individual needs of the various departments and addressing specifically the question of when and how the university member or members have first contact with and participate in the dissertation process. Exceptions to this policy may be approved by the Graduate Council upon recommendation by the graduate dean.

- 5. The committee should meet and evaluate all credentials of the student pertinent to the development of the degree program. An approved degree plan will then be submitted to the chair of the department and to the Dean of the Graduate School of Biomedical Sciences. The committee should meet with the student as needed to discuss progress, but must meet at least once per academic year. **The doctoral committee has sole responsibility for quality control of the student's Ph.D. program and dissertation.**
- 6. A degree plan must be filed before the student can enroll for his or her second academic year.
- 7. A research proposal must be approved by the doctoral committee as soon as possible after completion of the degree plan.
- 8. A student must maintain continuous enrollment in a minimum of 3 SCH of dissertation during each long semester and one summer semester until the dissertation has been accepted by the dean of the graduate school.

Failure to maintain continuous enrollment will either invalidate any previous dissertation credits or will result in the student being dropped from the degree program unless granted an official leave of absence by the graduate dean for medical or other exceptional reasons.

- The student will notify his committee upon passing the tool subject requirement in accordance with regulations set forth by the Graduate Council and the Graduate School of Biomedical Sciences.
- An oral qualifying examination intended to establish the student's candidacy for the Ph.D. degree will be administered by the committee upon

fulfillment of the tool and course work requirements. Qualifying examinations consist of each student writing an NIHstyle grant and defending the grant to the graduate faculty in their subdiscipline. The qualifying exam must be completed prior to completion of 72 SCH. Results of the qualifying examinations will be sent to the graduate school in writing. Each student is required to write and defend a grant proposal as a minimum qualifying exam; however, individual departments may have additional qualifying exam requirements, which are indicated in their graduate program descriptions.

- 11. Upon completion of the research and after consultation with the major professor, the student will submit a rough draft of the dissertation to the committee members at least one month before the graduate school deadline for receipt of the final draft and at least two weeks before the final defense. Committee members should return corrected drafts to the student as soon as possible. Working through committee members at all times, the student and major professor will resolve comments arising from the rough draft and incorporate them into a final draft.
- 12. During the final semester before graduation, the student will present a formal departmental seminar on the research. This seminar should be scheduled immediately before the final defense.
- 13. The doctoral committee will administer the final examination and sign final copies of the dissertation. The committee will notify the dean of the graduate school of results of the final examination.
- 14. **Three** copies of the dissertation will be submitted to the graduate dean by deadline date.

#### Department of Anatomy and **Cell Biology**

James E. Turner, Ph.D. Chair Robert J. Wordinger, Ph.D., Graduate Advisor Medical Education Building 2-202 817-735-2045

Graduate Faculty: Agarwal, Aschenbrenner, Cammarata, Chaitin, Garner, Moorman, Orr, Roque, Rudick, Schunder, Sheedlo, Turner, Wordinger

The Department of Anatomy and Cell Biology has a primary mission to provide instruction in the anatomical sciences, develop and maintain research programs, and participate in the service endeavors of the institution and profession. Research focuses on the eye involving retinal degenerations, glaucoma, diabetic complications and cataracts. Other research programs include axon growth and regeneration, cell secretory mechanisms and nervous system inflammatory mechanisms.

In support of the various research programs, the department maintains stateof-the-art facilities in microscopy, tissue culture and molecular biology. Over 8,000 square feet of research space is occupied by department faculty and staff.

The department is home to the North Texas Eye Research Institute which involves faculty from various basic science disciplines, as well as professionals in industry and private clinical practice.

#### **Degree** Plans

Below are typical degree plans for students in the anatomy and cell biology subdiscipline. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester and each student's progress toward thesis and dissertation research.

<i>Master of Scienc</i> Year 1	e Degree Plan for Anatomy and Cell Biology	
Fall BIOC 5010 BMSC 5940 ANAT 5900 Electives	Principles of Biochemistry Seminar in Current Topics Special Problems	7 SCH 1 SCH 3 SCH <u>3 SCH</u> 14 SCH
Spring ANAT 5110	Medical Histology and Cell Biology	6 SCH
PSIO 5020	Medical Physiology	8 5CH
		14 504
Summer 1 or 2 ANAT 5910 Electives	Special Problems	3 SCH <u>3 SCH</u>
		6 SCH
Year 2		
BMSC 5940 BMSC 5950	Seminar in Current Topics Thesis	1 SCH 3 SCH
Electives		<u>3 SCH</u> 7 SCH
Spring BMSC 5960	Biomedical Ethics	1 SCH
BMSC 5950	Thesis	<u>3 SCH</u> <u>4 SCH</u>
TOTAL		45 SCH

Doctor of Philo Year 1/Fall	sopby Degree Plan for Anatomy and Cell Biology	
BIOC 5010 ANAT 6690 BMSC 5940 Electives	Principles of Biochemistry Special Problems in Anatomy and Cell Biology Seminar in Current Topics	7 SCH 3 SCH 1 SCH <u>3 SCH</u> 14 SCH
ANAT 5110 PSIO 5020 BMSC 5960	Medical Histology and Cell Biology Medical Physiology Biomedical Ethics	6 SCH 8 SCH <u>1 SCH</u> 15 SCH
Summer 1 BMSC 5200 ANAT 6690	Biostatistics Special Problems in Anatomy and Cell Biology	6 SCH <u>3 SCH</u> 9 SCH
Year 2/Fall BMSC 5940 BMSC 6940 Electives	Seminar in Current Topics Individual Research	1 SCH 3 SCH <u>8 SCH</u> 12 SCH
Spring ANAT 5120 ANAT 6020 BMSC 6940 Electives	Medical Neuroscience Biomedical Cell and Molecular Biology I Individual Research	5 SCH 4 SCH 3 SCH <u>3 SCH</u> 15 SCH
BMSC 6500 BMSC 6940	Computer Applications in Science and Medicine Individual Research	1 SCH 5 SCH
Year 3/Fall ANAT 6030 BMSC 5940 BMSC 6010 Electives	Biomedical Cell and Molecular Biology II Seminar in Current Topics Qualifying Examination for Doctoral Students	4 SCH 1 SCH 3 SCH <u>4 SCH</u> 12 SCH
Spring BMSC 6510 BMSC 6950 Electives	Automated Information Resources in Science and Medicine Doctoral Dissertation	1 SCH 3 SCH <u>3 SCH</u> 7 SCH
Summer 1 or 2 BMSC 6950	Doctoral Dissertation	<u>3 SCH</u> 3 SCH
Year 4/Fall BMSC 6950 Electives	Doctoral Dissertation	3 SCH 4 SCH 7 SCH
TOTAL		100 SCH

#### Qualifying Exam for Doctoral Students (BMSC 6010)

The qualifying examination for doctoral students in the anatomy and cell biology subdiscipline is conducted according to the following guidelines:

- A student must pass BMSC 6010 (Qualifying Examination for Doctoral Students) to be admitted to candidacy for the doctoral degree.
- 2. The examination should be administered no later than the fifth semester of graduate study, excluding summer semesters. A justification for any delay of the examination must be submitted to the Graduate Affairs Committee of the department by the major professor.
- 3. The student's Advisory Committee will administer the qualifying examination. For the purpose of this examination, the department graduate advisor, in consultation with the department chair and the student's major professor, will appoint a chair of the examination committee. The student's major professor will not be a member of the examination committee.
- 4. The examination will consist of (a) a written, abbreviated NIH-style grant proposal to include a research plan and budget and (b) an oral defense of the written grant proposal.
- 5. The grant proposal will be based on a topic that is not directly related to the student's dissertation topic. During the first two weeks of the semester, the student will present two or three potential topics to the examination committee who, in consultation with the student, will select the topic of the proposal. The student will meet with the examination committee at least two times during the semester to review drafts of the proposal. The final written grant proposal must be distributed to the examination committee at least ten days prior to the examination.

#### Department of Biochemistry and Molecular Biology

Ladislav Dory, Ph.D., Acting Chair Richard Easom, Ph.D., Graduate Advisor Medical Education Building 2-402 817-735-2141

**Graduate Faculty:** Dimitrijevich, Dory, Easom, Fungwe, Gracy, Grant, B. Harris, Kudchodkar, Kulkarni, Lacko, McConathy, Rao, Wu

The Department of Biochemistry and Molecular Biology offers comprehensive graduate training in molecular aspects of biological processes. Both M.S. and Ph.D. degree programs are designed to accommodate a broad spectrum of student and faculty interests and require a significant contribution to knowledge through original research. Research training is conducted in modern laboratories and is complemented by informative didactic course work, seminars and journal clubs.

Among the research interests of the faculty are growth factors and signal transduction, cell matric interactions in normal and injured tissues, mechanism of enzyme action; lipoprotein structure, function and metabolism; post-transcriptional regulation of protein synthesis; regulation of hormone biosynthesis and secretion, regulation of cytokine gene expression, age-related changes in protein structure and function, endothelial cells, arterial wall and steroid binding proteins.

Students with undergraduate science majors in areas such as biology, chemistry and biochemistry that fulfill prerequisite courses of organic and inorganic chemistry will be considered for admission. The graduate curriculum consists of core courses covering biochemistry and molecular biology as well as other disciplines (physiology, pharmacology, cell biology and microbiology). In addition, advanced courses focus on the most recent progress in various areas of biochemistry and provide the student

#### Degree Plans

Below are typical degree plans for students in the biochemistry and molecular biology subdiscipline. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester and each student's progress toward thesis and dissertation research.

#### Master of Science Degree Plan for Biochemistry and Molecular Biology Year 1

BIOC 5011 BIOC 5940 Electives	General Biochemistry Seminar in Current Biochemistry	7 SCH 1 SCH <u>4 SCH</u> 12 SCH
Spring PHRM 5030 3MSC 5960 3IOC 5940 Electives	Principles of Pharmacology Biomedical Ethics Seminar in Current Biochemistry	3 SCH 1 SCH 1 SCH <u>7 SCH</u> 12 SCH
Year 2		
BIOC 5940	Seminar in Current Biochemistry	1 SCH
BMSC 5950	Thesis	6 SCH
BMSC 5920	Problem-in-Lieu of Thesis	3 SCH
DIVISC 3930	FIDDIEII-II-LIEU OF MESIS	<u>7 SCH</u>
		31 SCH

with a contemporary perspective in areas of greatest current scientific interest.

Most students complete the M.S. requirements in 1-2 years, while Ph.D. requirements are completed within 4-5 years.

#### Qualifying Exam for Doctoral Students (BMSC 6010)

The qualifying examination for doctoral students in the biochemistry and molecular biology subdiscipline is conducted according to the following guidelines:

- A student must pass BMSC 6010 (Qualifying Examination for Doctoral Candidates).
- 2. The examination will consist of (a) a written, NIH-style grant proposal to

include a research plan and budget and (b) an oral examination based on this proposal and fundamental principles of biochemistry.

- 3. Students must register for BMSC 6010 and meet corresponding deadlines for successful completion of the requirements.
- 4. The department graduate advisor serves as the examination coordinator, selecting an examination committee for each study which excludes faculty from the student's research laboratory and is composed of the graduate faculty, associate faculty or adjunct graduate faculty in the department.
- 5. The examination coordinator will: meet with all students enrolled in the course within two weeks of the beginning of

Doctoral Degre Year 1	e Plan for Biochemistry and Molecular Biology	
BIOC 5011 BMSC 6500 BIOC 5940 Electives	General Biochemistry Computer Applications in Science and Medicine Seminar in Current Biochemistry	7 SCH 1 SCH 1 SCH <u>3 SCH</u> 12 SCH
Spring PHRM 5030 BMSC 5960 BIOC 5940 BMSC 6510 BMSC 6940	Principles of Pharmacology Biomedical Ethics Seminar in Current Biochemistry Automated Information Resources in Science and Medicine Individual Research	3 SCH 1 SCH 1 SCH 1 SCH 1 SCH <u>6 SCH</u> 12 SCH
BMSC 5200	Biostatistics	<u>6 SCH</u> 6 SCH
Year 2 Fall		
ANAT 6030 BIOC 5940 BMSC 6940 Electives	Biomedical Cell and Molecular Biology II Seminar in Current Biochemistry Individual Research	4 SCH 1 SCH 3 SCH <u>4 SCH</u> 12 SCH
Spring BMSC 6940 Electives	Individual Research	6 SCH <u>6 SCH</u> 12 SCH
Summer 1or 2 Electives		<u>6 SCH</u> 6 SCH
<b>Year 3</b> Fall		
BMSC 6010 BMSC 6940 Electives	Qualifying Examination for Doctoral Students Individual Research	3 SCH 2 SCH <u>7 SCH</u> 12 SCH
Spring BMSC 6010 BMSC 6950 Electives	Qualifying Examination for Doctoral Students Dissertation	3 SCH 3 SCH <u>3 SCH</u> 9 SCH
Summer 1 or 2 BMSC 6950	Dissertation	3 SCH
Year 4 Fall		
BMSC 6950	Dissertation	6 SCH 6 SCH
TOTAL		90 SCH

the initial semester, review departmental guidelines and answer relevant procedural questions, discuss general guidelines for the selection of a topic, review the recommended written format for the preproposal and the final proposal, and supervise the random selection of committee members and appoint a chair for each examination committee. It is the responsibility of the examination committee chair to inform the student of impending deadlines and convey to the student the results of the examination committee meetings.

- 6. The grant proposal will be based on a topic that is not directly related to the student's dissertation topic. A written preproposal based on this problem will be developed and should include background, hypothesis, specific aims and a brief description of the experimental plan. The examination committee shall evaluate the preproposal on the basis of originality and scientific soundness through an oral presentation by the student. The decision of the examination committee to accept or reject the preproposal as suitable for development into a final proposal will be by majority vote of the members. If the preproposal is accepted with some reservations, those reservations will be conveyed in writing to the student by the chair of the examination committee.
- 7. The student will prepare the written proposal based on the approved topic without assistance of his/her major professor or fellow students. Procedural questions which arise during this time may be addressed to either the examination committee chair or the examination coordinator.
- 8. A rough draft of the proposal should be submitted to the examination committee approximately six weeks prior to the examination date. The examination committee will review the
draft for format and content of the experimental section and may request to meet as a committee with the student to discuss any problems with the proposal format. Approval at this point does not indicate scientific soundness of the proposal.

- 9. The final proposal will be typed and presented to the examination committee at least two weeks prior to the date of the examination. Copies will also be provided for other interested faculty.
- 10. At the examination, the student will make an oral presentation and defense of the proposal before the examination committee and other interested faculty. The oral examination will focus on, but not be restricted to, the proposal. The oral examination will also focus on integration of principles and basic biochemistry associated with the hypothesis, specific aims, and experimental plan.
- 11. The written proposal and oral defense will be evaluated on the basis of originality, the ability to synthesize and communicate information, and knowledge of basic biochemical principles. The examination committee will recommend either "pass" or "no pass" on the basis of the majority opinion of the committee. The examination committee will inform the examination coordinator in writing of the decision and the recommended grade for the student. If the grade is "pass", the entire faculty will assign a letter grade to the student based on the examination committee's recommendations and the student is advanced to candidacy. If the grade is "no pass," the student will be given one additional opportunity to rewrite and/or defend orally. A critique of the proposal and defense will be prepared by the examination committee chair and given to the student to aid in the rewrite and/or second defense. The second defense must occur by the next

regularly scheduled deadline for such examinations in the department. All of the graduate, associate graduate and adjunct faculty of the department will be strongly encouraged to attend the second defense, and all faculty, with the exception of the major professor, will vote on the pass or fail. If the second defense is not successful, an F will be assigned to both semesters of enrollment and the student will be dismissed from the Ph.D. program.

# Department of Integrative Physiology

Peter Raven, Pb.D., Chair H. Fred Downey, Pb.D., Graduate Advisor Medical Education Building 2-302 817-735-2080

**Graduate Faculty:** Barron, Caffrey, Downey, Gaugl, Gwirtz, He, Mallet, Raven, Scheel, Shi, Smith, Wilson

Physiology is an essential foundation for clinical and experimental medicine. The physiologist seeks an understanding of the physical and chemical mechanisms of biological processes. Thus, physiology is the study of the function of living organisms and their various components. It encompasses normal and abnormal function and ranges in scope from an understanding of basic molecular and cellular functions to a cognizance of biological control systems and of the integration of bodily functions among multiple organ systems.

The Department of Integrative Physiology maintains an active and productive research program with special emphasis on cardiovascular physiology. Research interests of the faculty include cardioprotection, myocardial energy metabolism, cardiac endocrinology, coronary flow and flow regulation, cardiovascular responses to exercise, and mechanisms of blood pressure and blood volume regulation in the cardiovascular system. Faculty programs are funded by extramural sources including the American Heart Association, the National Institutes of Health and the National Aeronautics and Space Administration.

Students may enter the program with a variety of academic backgrounds, providing that they have fulfilled prerequisite courses in biology, chemistry, physics, and mathematics. The graduate training program involves basic courses in physiology, neurobiology, pharmacology, molecular biology and biochemistry, and

#### Degree Plans

Below are typical degree plans for students in the integrative physiology subdiscipline. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester and each student's progress toward thesis and dissertation research.

Master of Science Degree Plan for Integrating Plant

Year 1 Fall		
BIOC 5010 BMSC 6940 Electives	Principles of Biochemistry Seminar in Current Topics	7 SCH 1 SCH <u>4 SCH</u> 12 SCH
Spring PSIO 5020 ANAT 5120 BMSC 5960	Medical Physiology Medical Neuroscience Biomedical Ethics	8 SCH 5 SCH <u>1 SCH</u> 14 SCH
Summer 1 BMSC 5200	Biostatistics	<u>6 SCH</u> 6 SCH
Year 2 Fall		
BMSC 5950 or	Thesis	6 SCH
BMSC 5920 BMSC 5930	Problem in Lieu of Thesis Problem in Lieu of Thesis	3 SCH <u>3 SCH</u> 6 SCH
TOTAL		38 SCH

advanced courses in selected topics. The program is designed to integrate the fundamental processes of molecular biology with organ system functions. Students participate in teaching and seminars and receive extensive training in techniques of contemporary physiological research. Doctoral students and Master of Science students selecting the thesis option, perform original, publishable research and present their research findings at national scientific meetings. One to two years are required to complete the Master of Science. Three to five years are required to complete the Doctorate of Philosophy.

Graduates with advanced degrees find employment in higher education, industry and government agencies.

Doctoral Degree Year 1	ee Plan for Integrative Pbysiology	
BIOC 5011 BMSC 6500 PSIO 5900 PSIO 6699	Principles of Biochemistry Computer Applications in Science and Medicine Special Problems Current Topics in Physiology	7 SCH 1 SCH 3 SCH <u>1 SCH</u> 12 SCH
Spring PSIO 5010 ANAT 5120	Medical Physiology Medical Neuroscience	8 SCH <u>5 SCH</u> 13 SCH
Summer 1 BMSC 5200	Biostatistics	6 SCH
Summer 2 PSIO 5910	Special Problems	2 SCH
Year 2 Fall		2 304
PSIO 5100 PSIO 6040 BMSC 6940 Electives	Cardiovascular Physiology I Advanced Techniques in Cardiovascular Physiology Individual Research	3 SCH 3 SCH 3 SCH <u>3 SCH</u>
Spring ANAT 6020 PSIO 5110 PHRM 5030 BMSC 6940	Biomedical Cell and Molecular Biology I Cardiovascular Physiology II Principles of Pharmacology Individual Research	4 SCH 3 SCH 3 SCH 2 SCH
Summer 1 Elective		12 SCH 3 SCH
Summer 2 BMSC 6940 BMSC 5940	Individual Research Seminar in Current Topics	3 SCH 2 SCH <u>1 SCH</u>
Year 3 Fall		3 SCH
BMSC 6010 Electives	Qualifying Examination for Doctoral Students	3 SCH <u>9 SCH</u> 12 SCH
Spring BMSC 6510 BMSC 5960 BMSC 5940 BMSC 6950	Automated Information Resources in Science and Medicine Biomedical Ethics Seminar in Current Topics Dissertation	1 SCH 1 SCH 1 SCH <u>9 SCH</u> 12 SCH
Summer 1 BMSC 6950	Dissertation	3 SCH
TOTAL		90 SCH

#### Qualifying Exam for Doctoral Students (BMSC 6010)

Students in the integrative physiology subdiscipline are required to submit an NIH grant application to their advisory committee in fulfillment of the requirements for BMSC 6010, Qualifying Examination for Doctoral Students. The grant application will describe the student's dissertation research project, and will serve as the student's dissertation proposal. Following a public, oral presentation of the research proposed in the grant application, the student defends the application before the advisory committee. Advisory committee members may question the student on any area of physiology, whether or not it is directly related to the research proposed in the grant application.

# Department of Microbiology and Immunology

Rafael Alvarez-Gonzalez, Ph.D., Acting Chair Jerry Simecka, Ph.D., Graduate Advisor Medical Education Building 2-428 817-735-2112

**Graduate Faculty:** Alvarez-Gonzalez, E. Harris, Hart, Romeo, Simecka

Microbiology seeks to understand the original and most abundant life forms on earth—the Bacteria, Achae and singlecelled Eucarya. Due to their rapid growth, simple nutrient requirement and relative genetic simplicity, microbes serve as primary model organisms for understanding the biochemistry, genetics and molecular biology of all living organisms. Microbiology provides the basic foundation for understanding infectious diseases.

Immunology is the study of the defense mechanisms of the host to microbial infections and other diseases. It seeks to understand the cellular, biochemical and genetic systems which allow higher organisms such as man to resist disease from the myriad of pathogens present in the environment.

The Department of Microbiology and Immunology maintains an active and productive research program with special emphasis on molecular microbiology and immunology. Research interests of the faculty include regulation of prokaryotic and eukaryotic gene expression molecular biology of microbial virulence, regulation and molecular biology of bacterial carbohydrate metabolism, host response to respiratory infections, molecular immunology; autoimmunity, mRNA decay as a mechanism for genetic regulation; structure and function of the human chromosome, and cancer. Faculty programs are funded by extramural sources including the National Science Foundation and the National Institutes of Health.

#### Degree Plans

Below are typical degree plans for students in the microbiology and immunology subdiscipline. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester and each student's progress toward thesis and dissertation research.

#### Master of Science Degree Plan for Microbiology and Immunology Year 1

Fall		
BIOC 5010	Principles of Biochemistry	7 SCH
BMSC 5940	Seminar in Current Topics	1 SCH
Electives		4 SCH
		12 SCH
Spring		
MICH 5030	Microbial Metabolism	3 SCH
MICR 5130	Structure and Euloction of Eukanyotic Chromosome	2 SCH
BMSC 5940	Seminar in Current Topics	2 SCH
BMSC 5960	Biomedical Ethics	1 SCH
Electives		3 SCH
		12 SCH
Summer		
BMSC 5200	Biostatistics	6 SCH
		6 SCH
lear 2		
Fall		
MICR 5020	Medical Microbiology and Immunology	6 SCH
Electives		5 SCH
		11 SCH
Spring		
BMSC 5950	Thesis	6 SCH
or	Deplemin Line of Thesis	
SMSC 5920	Problem in Lieu of Thesis	3 SCH
		6 SCH
OTAL		47 SCH

Students may enter the program with a variety of academic backgrounds providing that they have fulfilled prerequisite courses. The graduate training program involves basic courses in microbiology and immunology, molecular biology, biochemistry, and advanced courses in selected topics. Students participate in seminars and discussion of current research and receive extensive training in techniques of contemporary microbiology, molecular biology and immunology. Doctoral students and Master of Science students selecting the thesis option perform original, publishable research and present their research findings at national scientific meetings. One to two years are required to complete the Master of Science degree. The Doctor of Philosophy degree may be completed in three to five years.

Graduates with advanced degrees find employment in higher education, industry, and government agencies.

Doctor of Philo	sophy Degree Plan for Microbiology and Immunology	
BIOC 5010 BMSC 5940 BMSC 6500 BMSC 6940	Principles of Biochemistry Seminar in Current Topics Computer Applications in Science and Medicine Individual Research	7 SC 1 SC 1 SC <u>3 SC</u> 12 SC
Spring MICR 5030 ANAT 6020 BMSC 5960 MICR 5130 BMSC 5940 BMSC 6940	Microbial Metabolism Biomedical Cell and Molecular Biology I Biomedical Ethics Structure and Function of the Eukaryotic Chromosome Seminar in Current Topics Individual Research	3 SC 4 SC 1 SC 2 SC 1 SC <u>1 SC</u> 12 SC
BMSC 5200	Biostatistics	<u>6 SC</u> 6 SC
Summer 2 BMSC 6940	Individual Research	<u>6 SC</u> 6 SC
Year 2/Fall MICR 5020 BMSC 6940 Electives	Medical Microbiology and Immunology Individual Research	6 SC 3 SC <u>3 SC</u> 12 SC
Spring BMSC 5970 BMSC 5940 BMSC 6010 Electives	Techniques in Biomedical Sciences (3) Seminar in Current Topics Qualifying Examination for Doctoral Students	3 SC 1 SC 3 SC 5 SC
Summer 1 BMSC 6900 Electives	Special Problems	3 SCI 3 SCI
Summer 2 BMSC 6910 Electives	Special Problems	3 SCI 3 SCI
Year 3/Fall BMSC 6940 BMSC 6010 Electives	Individual Research Qualifying Examination for Doctoral Students	6 SCI 3 SCI <u>3 SCI</u>
Spring BMSC 6510 BMSC 6950 BMSC 6940 Electives	Automated Information Resources in Science and Medicine Dissertation Individual Research	12 SCH 1 SCH 3 SCH 2 SCH 6 SCH
TOTAL		12 SCH 96 SCH

#### Qualifying Exam for Doctoral Students (BMSC 6010)

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BMSC 6010 is offered each semester and is coordinated for the Department of Microbiology and Immunology by a member of the departmental graduate faculty.

Each student seeking a doctorate degree must successfully pass 6 hours of BMSC 6010, Qualifying Examination for Doctoral Students. A student may enroll in BMSC 6010 after all other course requirements designated on the student's degree plan are successfully completed. No more than 72 semester credit hours will be obtained by the student before seeking admission to candidacy.

Failure to progress satisfactorily results in the grade of WF as of the department's graduate policy bulletin. Failure of the student to complete BMSC 6010 with a grade of A or B results in dismissal of the student from the doctoral program. A doctoral student who does not fulfill the BMSC 6010 requirements may be allowed to complete the requirements for a Master of Science degree.

Successful completion of BMSC 6010 requires the preparation and oral defense of an original research proposal. Two attempts to successfully accomplish this are allowed.

The qualifying examination coordinator assigns a committee of five graduate faculty, including a committee chair, to serve as the student's examination committee. Three committee members must be from with the department and at least one member must be from an outside department. The student's major professor may not serve as a committee member.

The qualifying examination coordinator instructs the student on the regulations of the course and assists in initiating and preparing the proposal. The student should submit a report which presents the hypothesis, experimental strategy and specific aims for the proposal to the examination committee by mid-semester. The proposal must consist of the student's original ideas and is expected to significantly extend scientific knowledge in the chosen research area if the proposed experiments were actually conducted. The committee must approve this summary of the research proposal.

The student must prepare a detailed written report of the research proposal in NIH format after the summary has been approved. The final proposal will be typed and presented to the committee at least two weeks prior to the oral defense. The written and oral defense will be evaluated on the basis of originality, ability to synthesize and communicate this information.

If the proposal and defense are satisfactory, the examination committee will recommend a grade to the examination coordinator, who will present the grade to the entire department faculty for approval and the student will be advanced to candidacy.

Should the student's performance prove unsatisfactory, a critique of the proposal and defense will be prepared by the examination committee chair and given to the student to aid in the rewrite and/or second defense. The examination committee chair is responsible for preparing the critique and communicating it to the student. The student receives a grade of Incomplete for the semester and will have only one opportunity to repeat the defense. The second defense must occur within the next four months. Failure to repeat the defense will result in a grade of F and dismissal from the program.

### Department of Pharmacology

Harbans Lal, Ph.D., Chair Eugene Quist, Ph.D., Graduate Advisor Medical Education Building 2-334 817-735-2056

**Graduate Faculty:** Das, Dillon, Emmett-Oglesby, Forster, Lal, Luedtke, Martin, Quist, Wallis, Yorio

Pharmacology is a discipline which bridges the basic and clinical sciences. Classically, pharmacologists sought to understand the pharmacological responses, mechanisms and clinical uses of drugs. However, in recent decades, the

scope of pharmacology has expanded dramatically and includes cutting edge research in signal transduction and molecular biology. The Department of Pharmacology has several active research programs and has graduated numerous Master of Science and doctoral students. The areas of active research in the department include behavioral pharmacology, substance abuse, aging, eye research, signal transduction and molecular biology. Students in the pharmacology subdiscipline will be provided with a broad scope of research and teaching opportunities in preparation for successful careers in academic, industry and government.

#### **Degree** Plans

Below are typical degree plans for students in the pharmacology subdiscipline. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester and each student's progress toward thesis and dissertation research.

#### Master of Science Degree Plan for Pharmacology

Principles of Biochemistry Seminar in Current Topics	7 SCH 1 SCH <u>4 SCH</u> 12 SCH
Principles of Pharmacology Biomedical Ethics	3 SCH 1 SCH <u>8 SCH</u> 12 SCH
Thesis	6 SCH
Problem in Lieu of Thesis Problem in Lieu of Thesis	3 SCH <u>3 SCH</u> <u>6 SCH</u> <b>30 SCH</b>
	Principles of Biochemistry Seminar in Current Topics Principles of Pharmacology Biomedical Ethics Thesis Problem in Lieu of Thesis Problem in Lieu of Thesis

Doctoral Degree Year 1	e Plan for Pbarmacology	
Fall BIOC 5010 BMSC 5940 BMSC 5970 BMSC 6500	Principles of Biochemistry Seminar in Current Topics Techniques in Biomedical Sciences Compuer Applications in Science and Medicine	7 SCH 1 SCH 3 SCH <u>1 SCH</u> 12 SCH
Spring PSIO 5020 PHRM 5030 BMSC 5940	Medical Physiology Principles of Pharmacology Seminar in Current Topics	8 SCH 3 SCH <u>1 SCH</u> 12 SCH
Summer 1 BMSC 5200	Biostatistics	<u>6 SCH</u> 6 SCH
Year 2 Fall		
PHRM 5010 BMSC 5940 BMSC 6940	Introduction to Pharmacology Seminar in Current Topics Individual Research	8 SCH 1 SCH <u>3 SCH</u> 12 SCH
Spring BMSC 5960 BMSC 6510 PHRM 6080 PHRM 5070 BMSC 6940	Biomedical Ethics Automated Information Resources in Science and Medicine Receptors and Drug Action Behavioral Pharmacology Individual Research	1 SCH 1 SCH 4 SCH 3 SCH <u>3 SCH</u> 12 SCH
Summer 1 or 2 BMSC 6940	Individual Research	<u>6 SCH</u> 6 SCH
Year 3 Fall BMSC 6010 BMSC 6940 Electives	Qualifying Examination for Doctoral Students Individual Research	3 SCH 7 SCH 2 <u>SCH</u>
Spring BMSC 6940 BMSC 6950	Individual Research Dissertation	12 SCH 9 SCH 3 <u>SCH</u>
Summer 1 BMSC 6950	Dissertation	6 SCH
TOTAL		6 SCH 90 SCH

#### Qualifying Exam for Doctoral Students (BMSC 6010)

Doctoral students must perform satisfactorily in the development, writing, public presentation and defense before a pharmacology faculty committee of an NIH-style grant proposal on a pharmacological research project. The topic of the proposal may be related to the student's dissertation topic with prior approval of the committee. Pharmacology faculty may question the student on any topic in pharmacology whether or not it is related to the topic of the research proposal.

# Department of Biomedical Sciences

Thomas Yorio, Ph.D., Chair and Graduate Advisor Medical Education Building 1-804 817-735-2560

Graduate Faculty: Agarwal, Alvarez-Gonzalez, Aschenbrenner, Barker, Barron, Bidaut-Russell, Caffrey, Cammarata, Chaitin, Coleridge, Cunningham, Dansereau, Das, Dillon, Dimitrijevich. Dory, Downey, Easom, Eisenberg, Emmett-Oglesby, Forster, Fungwe, M. Garner, Gaugl, Gonzalez, Gracy, Grant, Gwirtz, B. Harris, E. Harris, Hart, Kaman, Kurtz, Lacko, Lal, Licciardone, Luedtke, Lurie, Mallet, Marshall, Martin, McConathy, Mills, Moorman, Motheral, Orr, Putthoff, Quist, Rao, Raven, Romeo, Roque, Rubin, Rudick, Scheel, Schunder, Sheedlo, Sherman, Shi, Shores, Simecka, Smith, Stern, Taylor, Turner, Wallis, Weis, Weiss, Wilson, Wordinger, Wu, Yorio

Adjunct Graduate Faculty: Allen, Bergamini, Clark, Collier, Dobbs, W. Garner, Guo, Kress, McCartney, Niessen, Pang, Sharif, Shulman, Vyas, Zachariah

Graduate faculty of the Robert B. Toulouse School of Graduate Studies at University of North Texas in Denton are also members of the graduate faculty of UNT Health Science Center at Fort Worth and, thus, may serve as committee members of health science center graduate students appropriate to their graduate appointment. See UNT Graduate Catalog for UNT graduate faculty listings.

#### Degree Plans

Degree plans for students in the Biomedical Sciences subdiscipline are tailored to the individual student's interest and vary greatly due to the interdisciplinary nature of the program. It is advantageous to the student to begin graduate study in a fall semester.

#### Qualifying Exam for Doctoral Students (BMSC 6010)

Doctoral students must perform satisfactorily in the development, writing, public presentation and defense before a graduate faculty committee of an NIHstyle grant proposal. The topic of the proposal may be related to the student's dissertation topic with prior approval of the student's doctoral committee. Graduate faculty are invited to the presentation and may question the student on any topic in biomedical sciences that is related to the topic of the grant proposal. FIVE Master of Public Health Degree Program



The objective of the Master of Public Health (M.P.H.) program is to prepare students to meet the needs of the growing health-care industry and the demand for trained public health workers in the public sector. Students in this program have the added benefit of interacting with health-care providers and students in the osteopathic medical program, as well as with faculty members engaged in significant public health research.

The M.P.H. program is a cooperative program with the University of North Texas (UNT) and has been designed to fully utilize, where appropriate, existing courses and program resources at both the university and the health science center. Courses offered at UNT are marked with an asterisk (\*) throughout this chapter.

Courses in biostatistics, epidemiology, health administration, environmental health, and social and behavioral sciences comprise the core curriculum. This degree is awarded with a major in one of eight specialty tracks. Specialty tracks include environmental health, epidemiology, family health, health behavior, health economics, health services administration, health services research and occupational health.

## Core Curriculum Requirements

Students entering the M.P.H. program are expected to complete the core requirements described as follows. In some instances, students may be required to take additional courses or may request to waiver a core requirement, depending upon their backgrounds. This shall be determined by the student's advisory committee and approved by the graduate dean.

Students must complete 18 SCH of core courses in the M.P.H. program in addition to the courses required for their specific tracks.

PHPM 5100	Principles of	3 SCH
PHPM 5110	Behavioral	3 SCH
PHPM 5200	Principles of Health Administration	3 SCH
PHPM 5210	Biostatistics for the Public Health	3 SCH
	Professional I	
PHPM 5300	Environmental Health	3 SCH
BMSO 5200	Biostatistics for the Public Health Professional II	3 SCH
		18 SCH

# **General Requirements**

The candidate must earn a minimum of 42 graduate semester credit hours (SCH), depending upon the requirements for the degree sought, as described above. This quantitative requirement must be regarded as a minimum. The quantity of course work to be completed by each student is arranged individually by the supervisory commitee, subject to approval by the graduate dean and may be modified both as to quantity and as to type during the progress of the student's course work. Specific graduate degree requirements are determined by the Graduate Catalog currently in force at the time the student's degree plan is approved by the graduate dean.

# Level of Work Required

A maximum of 12 SCH earned in nondegree or certification status before admission to a degree program may be counted toward degree requirements.

Exceptions to these limitations are granted only by the graduate dean on request of the student's major department.

# **Time Limitations**

All requirements for the Master of Public Health degree must be completed within six years. As individual courses exceed this time limit they lose all value for degree purposes. Credits that are more than six years old at the time of first registration for graduate work are not transferable from other institutions.

Time limits are strictly enforced. Students exceeding the time limit may be required to repeat out-of-date credits with up-to-date work, and/or show other evidence of being up to date in their major fields. Students anticipating that they will exceed the time limit should apply for an extension *before* the normal time period to complete the degree expires. Holding a full-time job is not considered in itself sufficient grounds for granting an extension.

Time spent in active service in the U.S. armed forces will not be used in computing the time limit. However, career members of the armed forces should consult the graduate dean concerning the credit given to work completed before or during active military service.

# Use of Transfer Credit and Extension Credit

Subject to the approval of the graduate dean and the department concerned, a student who holds a bachelor's degree and who has been admitted to the Graduate School of Biomedical Sciences may apply toward a Master of Public Health degree up to nine semester hours of graduate work completed elsewhere.

Subject to the approval of the graduate dean and the department, Graduate School of Biomedical Sciences extension credit may be applied toward the M.P.H. degree in the same ratio as transfer credit stated above, or in combination with transfer credit, so long as the total number of semester hours of combined transfer and extension credit does not exceed the limits stated above. Extension and correspondence credit earned at other institutions will not be counted toward a graduate degree at the health science center.

It is the student's responsibility to make sure that official transcripts of courses completed elsewhere are furnished to the office of the graduate dean, and that graduate credit has been assigned by the other institution or institutions to whatever courses are to be counted toward the health science center degree. Such courses, although listed on the health science center degree plan, will not be counted toward the degree until official transcripts showing graduate credit have been received and the credit has been approved by the graduate dean. All transfer courses are subject to the time limitation described above.

If transfer credits do not show a B average, the student is required to make up the deficiency either at the institution where the credit was earned or at UNT Health Science Center.

In accordance with the rules of the Texas Higher Education Coordinating Board, at least one-third of the semester hours required for any graduate degree must be completed in course work on the campus of UNT Health Science Center.

# Master of Public Health Program Requirements

Each student is responsible for the completion of the M.P.H. program according to the procedures that follow. Each item must be completed in the sequence and time period indicated. See the graduate office regarding paperwork when completing each step.

- 1. Acceptance into the graduate school. If a student has been accepted on probation, he or she must take a minimum of 6 credit hours of formal graduate course work during the first regular semester of enrollment. A minimum GPA of 3.0 must be obtained.
- 2. Before registration in the second semester, the student must select a supervising professor and a graduate advisory committee. The graduate office will notify all new students of this deadline one month prior to the end of each semester. The committee will consist of the supervising professor and at least two other professors.
- 3. The committee will meet to approve a degree program for the student prior to registration in the second semester. Course work deficiencies will also be stipulated at this time. In addition, the student and the committee will select Option 1 (BMSC 5950, Thesis) or Option 2 (PHPM 5800, Capstone Course in Public Health).

The requirements set by the graduate school are that a minimum of 42 SCH must be taken to complete the degree. 4. A student must maintain continuous enrollment in a minimum of three SCH of thesis during each long semester until the thesis has been accepted by the dean of the graduate school. Thesis registration in at least one summer session is required if the student is using health science center facilities and/or faculty time during that summer session. Students must maintain continuous enrollment once work on the thesis has begun.

Failure to maintain continuous enrollment will either invalidate any previous thesis credits or will result in the student being dropped from the degree program unless granted an official leave of absence by the graduate dean for medical or other exceptional reasons.

- 5. The completed thesis will be submitted to the committee at least two weeks before the deadline required by the graduate school.
- A formal seminar pertaining to the thesis will be presented in the student's last semester.
- 7. A final oral examination over the thesis and related work will be given by the committee immediately following the seminar.
- 8. **Three** copies of the thesis are required for graduation.

# **Environmental Health**

Kenneth L. Dickson, Ph.D, Track Director University of North Texas General Academic Building 470 817-565-2694

The Environmental Health track is designed to accommodate students with various backgrounds and interests, who desire careers related to the environmental aspects of public health. Specifically, the track provides the expertise and experience to analyze, monitor, interpret and mitigate the effects of chemical contaminant and microbial and viral pathogens in water, air, soil and food on public health and ecological health. The track is managed by the Environmental Science Program in the Department of Biological Sciences at University of North Texas in collaboration with UNT Health Science Center in Fort Worth. Faculty at both institutions are actively engaged in research directed at assessing risks to public health and the environment. This track prepares students in the M.P.H. program for technical and administrative jobs in the governmental and private sectors.

# Track Core Requirements

A total of 15 SCH of courses are required for the track in environmental health and are listed below.

BIOL 5040*	Contemporary	3 SCH
	Topics in	
	Environmental Science	ces
GEOG 5600*	Seminar in	3 SCH
	Environmental	
	Laws and Policy	
PHIL 5700*	Seminar in	3 SCH
	Environmental Ethics	
plus		
BMSC 5900	Special Problems	3 SCH
PHPM 5800	Capstone Course in	3 SCH
	Public Health	5 0011
or		
BMSC 5950	Thesis	6 SCH
		15 SCH

# **Designated Track Electives**

A total of 13-18 SCH must be selected from the following list with the consent of the track advisory committee.

BIOL 5360*	Chemistry of Water	4 SCH
	Pollution	
BIOL 5380*	Fundamentals of	3 SCH
	Aquatic Toxicology	
BIOL 5880*	Environmental	1 SCH
	Sciences Seminar	
BIOL 6300*	Hazardous Waste	3 SCH
	Management	
BIOL 6360*	Environmental	4 SCH
	Engineering	
GEOG 5400*	Environmental	3 SCH
	Modeling	
GEOG 5500*	Geographic	3 SCH
	Information Systems	
MATH 5840*	Foundations of	3 SCH
	Applied Multivariate	
	Statistics	
PHPM 5130	Principles of Public	3 SCH
	Health	
PHPM 5135	Methods in Public	3 SCH
	Health	
PHPM 5145	Seminar in Public	3 SCH
	Health Practice	
PHRM 5050	Introduction to	3 SCH
	Toxicology	
SOCI 6500*	Seminar on Social	3 SCH
	Organization and	
	Disorganization:	
	Society and Environm	ent

Below is a typical degree plan for a full-time student in the environmental health track. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester.

Year 1 Fall		
PHPM 5210 PHPM 5300 BIOL 5040 Electives	Biostatistics for the Public Health Professional I Environmental Health Contemporary Topics in Environmental Health	3 SCH 3 SCH 2 SCH <u>4 SCH</u> 12 SCH
Spring BMSO 5200 PHPM 5110 GEOG 5600 Elective	Biostatistics for the Public Health Professional II Behavioral Epidemiology Seminar in Environmental Laws and Policy	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH
Summer PHPM 5100 PHIL 5700	Principles of Epidemiology Seminar in Environmental Ethics	3 SCH <u>3 SCH</u> 6 SCH
Year 2 Fall PHPM 5200 Elective	Health Administration	3 SCH 3 SCH
BMSC 5900	Special Problems	3 SCH
BMSC 5950	Thesis	<u>3 SCH</u> 9 SCH
Spring PHPM 5800 or	Capstone	3 SCH
BMSC 5950	Thesis	3 SCH
TOTAL		42 SCH

# **Epidemiology** Track

John C. Licciardone, D.O., M.S., M.B.A., Track Director UNT Health Science Center Medical Education Building 1-422 817-735-2252

The epidemiology track is designed for students seeking to acquire technical skills in the fundamental methods of disease investigation and prevention in large populations. The core and track courses emphasize basic and advanced epidemiologic principles and their application to current problems in public health and related disciplines.

The track offers training in both acute and chronic disease epidemiology. Students in the epidemiology track are expected to use appropriate methods to plan, implement, and conduct epidemiologic research. Students are also expected to critically evaluate research methodology to assess validity and potential sources of bias. Expertise in computer use and statistics acquired in the public health program is used to analyze, interpret, and publish the results of epidemiologic investigation.

Current research in the epidemiology track involves traditional public health issues such as alcohol and drug abuse prevention, international health, occupational health risks, and the assessment of disease risk using meta-analytic methods. In addition, epidemiologic research methods are also being used to address issues in managed health care and clinical outcomes. Students in the epidemiology track have the opportunity to initiate collaborative research with faculty and staff in other departments of the Graduate School of Biomedical Sciences and the Texas College of Osteopathic Medicine.

# Track Core Requirements

A total of 18 SCH of courses are required for the track in epidemiology and are listed below.

РНРМ 5600	Advanced	3 SCH
РНРМ 5610	Chronic Disease	3 SCH
DUDICECOO	Epidemiology	
РНРМ 5620	Health Care	3 SCH
PHPM 5140	Epidemiology	2.0011
1111 M 9140	Public Health	3 SCH
plus		
BMSC 5900	Special Problems	3 SCH
PHPM 5800	Capstone Course	3 SCH
	in Public Health	
or		
BMSC 5950	Thesis	<u>6 SCH</u>
		18 SCH

#### **Designated Track Electives**

A total of 9 SCH must be selected from the following list with the consent of the track advisory committee.

BMSC 5960	<b>Biomedical Ethics</b>	1 SCH
PHPM 5120	Epidemiology of Zoonoses	3 SCH
PHPM 5130	Principles of Public Health	3 SCH
PHPM 5135	Methods in Public Health	3 SCH
PHPM 5145	Seminar in Public Health Practice	3 SCH
PHPM 5400	Community Health	3 SCH
PSYC 5700*	Advanced Quantitative Methods in Psychology	3 SCH
SOCI 5210*	Introduction to Social Statistics	3 SCH
SOCI 6200*	Seminar on Research Methods: Demograph Techniques	3 SCH ic

Below is a typical degree plan for a full-time student in the epidemiology track. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester.

Year 1 Fall PHPM 5210 PHPM 5300 PHPM 5200 Elective	Biostatistics for the Public Health Professional I Environmental Health Health Administration	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH
Spring PHPM 5100 BMSO 5200 PHPM 5110 Elective	Principles of Epidemiology Biostatistics for the Public Health Professional II Behavioral Epidemiology	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH
Year 2		
PHPM 5620 PHPM 5140 PHPM 5600	Health Care Epidemiology Field Studies in Public Health Advanced Epidemiology	3 SCH 3 SCH 3 SCH
BMSC 5900	Special Problems	3 SCH
BMSC 5950	Thesis	<u>3 SCH</u> 12 SCH
Spring PHPM 5610 Elective plus	Chronic Disease Epidemiology	3 SCH 3 SCH
PHPM 5800 or	Capstone	3 SCH
BMSC 5950	Thesis	<u>3 SCH</u> <u>9 SCH</u>

# Family Health

Adela Gonzalez, MPA, Track Director UNT Health Science Center Medical Education Building 1-840 817-735-2401

The track in family health utilizes a multidisciplinary approach in preparing practitioners with clinical background (e.g. medicine, nursing, allied health, social work, psychology, dentistry, physician's assistant, health education, etc) to assume public health leadership roles in programs related to the health and well-being of families. The program can be tailored to an individual's previous experience and professional goals.

# Track Core Requirements

A total of 18 SCH of courses are required for the track in family health and are listed below.

PHPM 5320	Family Health: Ethni	ic 3 SCH
	and Cultural Aspects	5
	in the Clinical Settin	g
PHPM 5140	Field Studies in	3 SCH
	Public Health	
PHPM 5400	Community Health	3 SCH
PHPM 5135	Methods in Public	3 SCH
	Health	0 0 0 1 1
plus		
BMSC 5900	Special Problems	3 SCH
PHPM 5800	Capstone Course in	3 SCH
	Public Health	5 0011
or	- abite riculti	
BMSC 5950	Thesis	6 SCH
	110010	10.0011
		18 SCH

#### **Designated Track Electives**

A total of 9 SCH must be selected from the following list with the consent of the track advisory committee.

BMSC 5960	<b>Biomedical Ethics</b>	1 SCH
PHPM 5410	Case Management for Public Health	3 SCH
	Professionals	
PHPM 5425	Quality Management for Public Health	3 SCH
PHPM 5230	Hoalth Education in	2 6 6 11
1111 M 9290	a Clinical Setting	3 SCH
PHPM 5240	Seminar on Clinical	3 SCH
	Geriatrics	
PHPM 5500	Introduction to	3 SCH
	International Health	
PHPM 5510	Clinical Geographic	3 SCH
	Medicine	
PHPM 5520	Preventive	3 SCH
	Geographic Medicine	
PHPM 5530	Clinical Travel	3 SCH
	Medicine	
PHPM 5540	Seminar in	3 SCH
	International Health	
PHPM 5560	Field Studies in	3 SCH
	International Health I	
PHPM 5570	Field Studies in	3 SCH
	International Health II	CRUS
PHPM 5580	Special Studies in	3 SCH
	International Health	
PHPM 5130	Principles of Public	3 SCH
	Health	
PHPM 5145	Seminar in Public	3 SCH
	Health Practice	
PHPM 5930	Seminar in Dental	3 SCH
	Public Health	
PSYC 6130*	Assessment and	3 SCH
	Treatment of Substance	e
	Abuse	

Below is a typical degree plan for a full-time student in the family health track. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester.

Year 1 Fall			
PHPM 5210 PHPM 5300 PHPM 5400	Biostatistics for the Public Environmental Health Community Health	Health Professional I	3 SCH 3 SCH <u>3 SCH</u> 9 SCH
Spring BMSO 5200 PHPM 5110 PHPM 5220	Biostatistics for the Public Behavioral Epidemiology Family Health: Ethnic and Clinical Setting	Health Professional II Cultural Aspects in the	3 SCH 3 SCH <u>3 SCH</u> 9 SCH
Summer PHPM 5100 PHPM 5140 Elective	Principles of Epidemiology Field Studies in Public Hea	/ alth	3 SCH 3 SCH <u>3 SCH</u> 9 SCH
Year 2 Fall			
Elective PHPM 5200	Health Administration		3 SCH 3 SCH
BMSC 5900 or	Special Problems		3 SCH
BMSC 5950	Thesis		<u>3 SCH</u> 9 SCH
Spring PHPM 5135 Elective plus	Methods in Public Health		3 SCH 3 SCH
PHPM 5800 or	Capstone		3 SCH
BMSC 5950	Thesis		3 SCH
TOTAL			45 SCH

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52 Graduate School of Biomedical Sciences

# **Health Behavior**

Joseph Doster, Ph.D., Track Director University of North Texas Terrill Hall 351 817-565-2671

The public health movement is motivated by a desire to protect the nation's health. Historically, this movement resulted in improvements in the domestic infrastructure and biological interventions. The recognition of the importance of psychological aspects of the public health movement increased as these preventive health efforts attempted to impact chronic illnesses.

Public health has recognized the importance of lifestyle behavior changes in the promotion of health behaviors, the prevention of physical and phychological trauma, and the creation of environmental contexts supportive of personal wellbeing. This track provides an experientialintegrative approach wherein classroombased knowledge occurs within the context of practical experiences in biophyschological research and behavioral health programming.

#### Track Core Requirements

A total of 18 SCH of courses are required for the track in health behavior and are listed below. PSYC 5070\* Medical and 3 SCH Behavioral Disorders PSYC 5040\* Psychological 3 SCH Applied Aspects of Health PSYC 5840\* Psychometric Theory 3 SCH SOCI 5400\* Seminar on the 3 SCH Sociology of Health plus BMSC 5900 Special Problems 3 SCH PHPM 5800 Capstone Course 3 SCH in Public Health or BMSC 5950 Thesis 6 SCH 18 SCH

#### Designated Track Electives

A total of 9 SCH must be selected from the following list with the consent of the track advisory committee.

COMM 5180	* Seminar in	3 SCH
	Organizational	
	Communication	
CSAG 5400*	Health Delivery	3 SCH
	Systems	
PADM 5200*	Public Personnel	3 SCH
	Management	
PSYC 4000*	Abuse in Adult	3 SCH
	Relationships	
PSYC 4020*	Psycholgy of Death	3 SCH
	and Dying	
SYC 4110*	Interviewing for	3 SCH
	Paraprofessionals	
	3 SCH	
PSYC 4510*	Psychology	3 SCH
	Practicum	
PSYC 5200*	Psychology of	3 SCH
	Women	
PSYC 5310*	Crisis and	3 SCH
	Adjustment Demands	
PSYC 5340*	Life Span	3 SCH
	Developmental	
	Psychology	
PSYC 5350*	Counseling for	3 SCH
	Sexual Dysfunction	
PSYC 5710*	Ecological and	3 SCH
	Nutrient Influences	
	3 SCH	
PSYC 5720*	Principles of Behavior	
	Modification	
PSYC 5780*	Advanced	3 SCH
	Psychopathology	
PSYC 5860*	Seminar on the	3 SCH
	Psychology of Aging	
PSYC 5890*	Counseling for Late	3 SCH
	Maturity	
PSYC 6110*	Professional Issues in	3 SCH
	Behavioral Medicine	
PSYC 6130*	Assessment and	3 SCH
	Treatment of	
	Substance Abuse	
PSYC 6400*	Research	3 SCH
	Methodology	
	Applications	

Below is a typical degree plan for a full-time student in the health behavior track. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester.

Fall		
PHPM 5210 PSYC 5070 PHPM 5200 Elective	Biostatistics for the Public Health Professional I Medical and Behavioral Disorders Health Administration	3 SCH 4 SCH 3 SCH <u>3 SCH</u> 13 SCH
Spring	Disate failes for the Dahlis Haath Data and H	0.0011
PHPM 5110	Biostatistics for the Public Health Professional II Behavioral Epidemiology	3 SCH
PSYC 5040	Psychological Applied Aspects of Health	3 SCH
PSYC 5840	Psychometric Theory	<u>3 SCH</u> 12 SCH
Year 2 Fall		
PHPM 5300	Environmental Health	3 SCH
Electives	6 SCH	
BMSC 5900	Special Problems	3 SCH
or BMSC 5950	Thesis	3 904
		12 SCH
Spring		
PHPM 5100	Principles of Epidemiology	3 SCH
SOCI 5400	Seminar on Social Health	3 SCH
PHPM 5800	Capstone	3 SCH
or BMSC 5950	Thesis	0.0011
2000 3330	116315	<u>3 SCH</u> 9 SCH
TOTAL		46 SCH

# **Health Economics**

Kenneth A. Koelin, Ph.D., Track Director University of North Texas Wooten Hall 325 817-565-4542

The health economics track is designed to provide M.P.H. professionals with expertise to analyze alternative options for allocating scarce community resources to competing public health programs to maximize the benefits to society as a whole. This option will also establish the theoretical basis for public health (government provision of health services) as opposed to private health (market based provision of health care services). Track Core Requirements

A total of 15 SCH of courses are required for the track in health economics and are listed below.

ECON 5030*	Microeconomic	3 SCH
	Analysis	
ECON 5180*	The Economics	3 SCH
	of Health Care	
ECON 5880*	Seminar on Current	3 SCH
	Health Care	
	Economics Research	
plus		
BMSC 5900	Special Problems	3 SCH
PHPM 5800	Capstone Course	3 SCH
	in Public Healthor	
BMSC 5950	Thesis	6 SCH
		15 SCH

# **Designated Track Electives**

A total of 12 SCH must be selected from the following list with the consent of the track advisory committee. ECON 5150, Public Finance, is strongly recommended.

BMSC	5960	Biomedical Ethics	3	SCH
ECON	5040*	Macroeconomic	3	SCH
		Analysis		
ECON	5140*	Managerial	3	SCH
		Economics		
ECON	5150*	Public Finance	3	SCH
ECON	5440*	Economics of Natural	3	SCH
		Resources and		
		Environment		
ECON	5460*	Industrial	3	SCH
		Organization and		
		Public Policy		
ECON	5640*	Multivariate	3	SCH
		Regressional		
		Analysis		
ECON	5650*	Advanced	3	SCH
		Econometrics		
ECON	5700*	Economic	3	SCH
		Development		
ECON	5750*	Regional	3	SCH
		Economics		
PHPM	5130	Principles in	3	SCH
		Public Health		
PHPM	5135	Methods of	3	SCH
		Public Health		
PHPM	5140	Field Studies in	3	SCH
		Public Health		
PHPM	5145	Seminar in	3	SCH
		Public Health		
		Practice		

Below is a typical degree plan for a full-time student in the health economics track. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester.				
Year 1 Fall PHPM 5210 PHPM 5200 Elective Elective	Biostatistics for the Public Health Professional I Health Administration	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH		
Spring ECON 5030 BMSO 5200 PHPM 5100 Elective	Micro Analysis Biostatistics for the Public Health Professional II Principles of Epidemiology	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH		
Summer Elective		<u>3 SCH</u> 3 SCH		
Year 2 Fall PHPM 5110 ECON 5180	Behavioral Epidemiology Health Care Economics	3 SCH 3 SCH		
plus BMSC 5900 or	Special Problems	3 SCH		
BMSC 5950	Thesis	<u>3 SCH</u> 9 SCH		
ECON 5880 Elective plus	Seminar on Current Health Care Economics Research	3 SCH 3 SCH		
PHPM 5800 or	Capstone	3 SCH		
TOTAL	Inesis	<u>3 SCH</u> <u>9 SCH</u> 45 SCH		

#### Health Services Administration

Robert Bland, Pb.D. and Al Bavon, Pb.D., Track Directors University of North Texas Wooten Hall 173 817-565-2165

The courses in the health services administration track are designed to provide the competencies necessary for administrative careers in the public health profession. The program draws on the expertise of well-qualified faculty to provide competencies in program planning and administration, policy analysis, human resources management, and financial management. The core members of the faculty have published several books as well as articles in leading journals on public management. Current faculty research interests include such public health issues as assessing the effects of regulatory changes in controlling workers' compensation costs and the effects of motor vehicle emission programs on reducing outdoor air pollution. The Department also has a wide network of alumni working in the public sector in Texas and other states who have been instrumental in placing students in positions of responsibility in the public sector.

### Track Core Requirements

A total of 15 SCH of courses are required for the track in health services administration and are listed below.

PADM 5200*	Public Personnel	3 SCH
	Management	
PADM 5430*	Financial	3 SCH
	Accountability in	
	Government	
ECON 5180*	Economics of	3 SCH
	Health Care	
plus		
BMSC 5900	Special Problems	3 SCH
PHPM 5800	Capstone Course in	3 SCH
	Public Health	
or		
BMSC 5950	Thesis	6 SCH
		15 SCH

#### **Designated Track Electives**

A total of 9 SCH must be selected from the following list with the consent of the track advisory committee.

BLAW 5760*	Insurance Law	3 SCH
CSAG 5400*	Health Delivery	1-3 SCH
	Systems	
CSAG 5810*	Seminar on	1-3 SCH
	Administration of	
	Programs in Aging	
PADM 5060*	Seminar in	3 SCH
	Intergovernmental	
	Relations	
PADM 5300*	Introduction to	3 SCH
	Planning	
PADM 5400*	Governmental	3 SCH
	Budgeting	
PADM 5500*	Seminar in Program	3 SCH
	Evaluation	
PADM 5700*	Public Health and	3 SCH
	Emergency	
	Administration	
PHPM 5130	Principles in Public	3 SCH
	Health	
PHPM 5135	Methods of Public	3 SCH
	Health	
PHPM 5140	Field Studies in	3 SCH
	Public Health	
PHPM 5145	Seminar in Public	3 SCH
	Health Practice	

Below is a typical degree plan for a full-time student in the health services administration track. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester.

Year 1 Fall		
PHPM 5210 PHPM 5300 ECON 5180 Elective	Biostatistics for the Public Health Professional I Environmental Health Economics of Health Care	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH
Spring BMSO 5200 PHPM 5110 PADM 5430 PADM 5200	Biostatistics for the Public Health Professional II Behavioral Epidemiology Financial Accountability in Government Public Personnel Management	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH
Summer PHPM 5100	Principles of Epidemiology	<u>3 SCH</u> 3 SCH
Year 2 Fall		
Electives PHPM 5200	Health Administration	3 SCH 3 SCH
BMSC 5900 or	Special Problems	3 SCH
BMSC 5950	Thesis	<u>3 SCH</u> 9 SCH
Spring Elective		3 SCH
PHPM 5800 or	Capstone	3 SCH
BMSC 5950	Thesis	<u>3 SCH</u> 9 SCH
TOTAL		45 SCH

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58 Graduate School of Biomedical Sciences

# **Health Services Research**

Susan Brown Eve, Ph.D., Track Director University of North Texas Chilton Hall 390 817- 565-2296

Health services research is an interdisciplinary field concerned with assessing the need for health care services, examining factors that influence the use of health care services, examining the types of services and organizations that can be used to deliver care, planning systems to deliver those services, monitoring the use of services, and assessing outcomes of delivery systems for patient populations. Students select courses from disciplines including sociology, anthropology, economics, geography, psychology, health education, gerontology, and rehabilitation studies. Health services researchers may be employed in academic settings in universities, health science centers, and schools of public health; by health care providers, such as hospitals or HMOs that need populationbased planning for the delivery of health care; by local, state, national and international health care planning bodies, including state and county health departments, the national Public Health Service, and the World Health Organization.

#### Track Core Requirements

A total of 18 SCH of courses are required for the track in health services research and are listed below. SOCI 5400\* Seminar in the 3 SCH Sociology of Health ECON 5180\* Economics of 3 SCH Health Care GEOG 4120\* Medical Geography 3 SCH SOWK 5890\* Seminar in 3 SCH Social Work, Current Issues: Evaluation Research plus BMSC 5900 Special Problems 3 SCH PHPM 5800 Capstone Course 3 SCH in Public Health or BMSC 5950 Thesis 6 SCH 18 SCH

#### **Designated Track Electives**

A total of 9 SCH must be selected from the following list with the consent of the track advisory committee.

ANTH 5200*	Seminar in Cultura1	3 SCH
	Anthropology	
CSAG 5400*	Health Delivery 1	-3 SCH
CEAC 5710*	Systems	
CSAG 5/10*	Health Aspects of	3 SCH
	Human Aging	
HLTH 5170*	Critical Health Issues	3 SCH
HLTH 5300*	Health Promotion:	3 SCH
	Advanced Concepts	
	and Theories	
HLTH 5310*	Health Education	3 SCH
	Workshop	
HLTH 5320*	Health Education	3 SCH
	Workshop	
HLTH 5500*	Advanced Concepts	3 SCH
	in Epidemiology	
PHPM 5130	Principles in Public	3 SCH
	Health	
PHPM 5135	Methods of Public	3 SCH
	Health	
PHPM 5140	Field Studies in	3 SCH
	Public Health	

PHPM 5145	Seminar in Public	3 SCH
	Health Practice	
PSYC 5040*	Psycholgical and	3 SCH
	Applied Aspects of	
	Health: A Behavioral	
	Medicine Approach	
RHAB 5230*	Psychosocial Aspects	3 SCH
	of Rehabilitation	
RHAB 5350*	Medical and	3 SCH
	Psychiatric Aspects	
	of Rehabilitation	
SOCI 5450*	Population and	3 SCH
	Society	
SOCI 5200*	Seminar in Research	3 SCH
	Methods and Design	
SOCI 5210*	Introduction to	3 SCH
	Social Statistics	
SOCI 5260*	Seminar on	3 SCH
	Sociology of Mental	
	Health and Mental Illi	ness
SOCI 5773*	Qualitative Research	3 SCH
	Methods (TWU Feder	ation
	course)	
SOCI 6200*	Seminar on Research	3 SCH
	Methods	
SOCI 6500*	Seminar on Social	3 SCH
	Organization/	0.0011
	Disorganization	
	Omerion	

Below is a typical degree plan for a full-time student in the health services research track. It is advantageous to the student to begin graduate study in a fall semester. This degree plan may vary depending upon availability of course offerings in a given semester.

Year 1 Fall			
PHPM 5210 PHPM 5300 PHPM 5200 Elective	Biostatistics for the Public Environmental Health Health Administration	Health Professional I	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH
Spring BMSO 5200 PHPM 5110 SOCI 5400* ECON 5180*	Biostatistics for the Public Behavioral Epidemiology Sociology of Health Economics of Health Care	Health Professional II	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH
PHPM 5100	Principles of Epidemiology	,	3 SCH
Year 2 Fall			3 500
GEOG 5960 Elective	Medical Geography		3 SCH 3 SCH
BMSC 5900	Special Problems		3 SCH
BMSC 5950	Thesis		<u>3 SCH</u> 9 SCH
Spring SOWK 5890	Seminar in Social Researd Evaluation Research	ch Current Issues:	3 SCH
plus			3 SCH
or	Capstone		3 SCH
BMSC 5950	Thesis		<u>3 SCH</u> <u>9 SCH</u>
			40 0011

# **Occupational Health**

Scott Taylor, D.O., Track Director UNT Health Science Center Medical Education Building 1-426 817-735-2362

This track is designed to provide expertise in analyzing, monitoring, interpreting, preventing, and mitigating the effects of chemical, physical, and biological agents on the health of individuals and populations in the workforce, families, and the community.

# Track Core Requirements

A total of 15 SCH of courses are required for the track in occupational health and are listed below. PHPM 5130 Industrial Hygiene 3 SCH PHPM 5320 Introduction to 3 SCH Occupational Health

PHPM 5420Occupational Health<br/>Law and Ethics3 SCHplusBMSC 5900Special Problems3 SCHPHPM 5800Capstone Course in<br/>Public Health3 SCHorBMSC 5950Thesis6 SCH

18 SCH

#### **Designated Track Electives**

A total of 9 SCH must be selected from the following list with the consent of the track advisory committee.

BIOL 5040*	Contemporary Topics	2 SCH
	Sciences	
BIOL 5880*	Environmental	3 SCH
	Sciences Seminar	5 5Cm
BIOL 6300*	Hazardous Waste	3 SCH
0101 0500	Management	3 SCH
BMSC 5960	Biomedical Ethics	2 8011
FADP 4000*	Environmental and	2 SCH
LADI 4000	Hazardous Matariala	3 SCH
	Pagulations	
FADD 4010*	Regulations	2.0011
LADF 4010	Frazardous Material	3 SCH
	Emergency Planning	
	and Community-to-Kn	low
CEOC 5400	Act Requirements	
GEOG 5400*	Environmental	3 SCH
CEOC SEAR	Modeling	
GEOG 5500*	Geographic	3 SCH
TTY THE S ( COAS	Information Systems	
HLTH 5400*	Stress Managment	3 SCH
	for the Health	
	Professional	
MATH 5840*	Foundations of	3 SCH
	Applied Multivariate	
	Statistics	
PHPM 5320	Advanced	6 SCH
	Occupational	
	Health Practicum	
PHPM 5330	Clinic Clerkship in	4 SCH
	Occupational Medicine	2
PHPM 5310	Introduction to	3 SCH
	Occupational	
	Environmental	
	Epidemiology	
PHPM 5130	Principles in Public	3 SCH
	Health	
PHPM 5135	Methods of Public	3 SCH
	Health	
PHPM 5140	Field Studies in	3 SCH
	Public Health	1.00
PHPM 5145	Seminar in Public	3 SCH
	Health Practice	
PHPM 5400	Community Health	3 SCH

<b>Degree Plan</b> Below is a typ It is advantageous plan may vary de	ical degree plan for a full-tin s to the student to begin grad pending upon availability of	ne student in the occupational he duate study in a fall semester. Th course offerings in a given seme	alth track. is degree ester
Year 1 Fall PHPM 5200 PHPM 5210 PHPM 5320 Elective	Health Administration Biostatistics for the Public I Introduction to Occupationa	Health Professional I al Health	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH
Spring PHPM 5100 PHPM 5110 PHPM 5130 Elective	Principles of Epidemiology Behavioral Epidemiology Industrial Hygiene and App	lied Toxicology	3 SCH 3 SCH 3 SCH <u>3 SCH</u> 12 SCH
Summer BMSO 5200	Biostatistics for the Public I	Health Professional II	<u>3 SCH</u> 3 SCH
Year 2 Fall PHPM 5420 PHPM 5300 plus BMSC 5900 or BMSC 5950	Occupational Health Law a Environmental Health Special Problems Thesis	nd Ethics	3 SCH 3 SCH 3 SCH <u>3 SCH</u> <u>3 SCH</u> 9 SCH
Spring Elective			3 SCH
PHPM 5800	Capstone		3 SCH
BMSC 5950	Thesis		3 SCH
TOTAL			42 SCH



# S X Dual-Degree Programs

# Joint D.O./Pb.D.

### **General Description**

The dual-degree program is a course of study by which a student may concurrently pursue the D.O. degree through the Texas College of Osteopathic Medicine and the Ph.D. degree through the Graduate School of Biomedical Sciences. The program is normally six years in duration. At the end of this time, the student is expected to have completed the curriculum requirements for the D.O. degree in accordance with TCOM policies and for the Ph.D. degree in accordance with policies of the graduate school and the relevant department of the University of North Texas Health Science Center as they apply to the second degree.

#### Format

The general format of the dual-degree program is explained below. While the format may be regarded as the standard working format, it is understood that deviations from this format that meet the curriculum requirements are also acceptable. A degree plan is established by the student's major professor and advisory committee and filed in the graduate office.

**Block 1**. Block 1 consists of the preclinical years for the D.O. degree. During Block 1, the student will complete the first five semesters of the D.O. curriculum and will pass Part 1 of the National Board of Osteopathic Medical Examiners (NBOME). During this block the student will register only at TCOM. An exception to this rule is if the student wishes to register for graduate courses which are not part of the D.O. curriculum during this block. In this case, the student will register for such graduate courses through the graduate school. During Block 1 the student will select a graduate

advisory committee, and will file an approved graduate degree plan of at least 90 semester credit hours (SCH) with the graduate school, of which 45 hours are joint D.O./Ph.D. basic science courses.

Block 2. Block 2 consists of two years dedicated to graduate study. In order to maintain enrollment at TCOM during this block, the student will register for a threehour course in directed studies each semester of this block. (Hours for directed studies will not apply toward the Ph.D.) However, the major course load for the student during Block 2 will be through the Graduate School of Biomedical Sciences. Thus, during Block 2 the student is expected to complete all course work required for the Ph.D. degree, with the exception of dissertation, pass the **Qualifying Examination for Doctoral** Students (BMSC 6010) and have an approved dissertation research proposal.

**Block 3**. During Block 3, the student will complete the required clinical rotations and electives and will pass Part 2 of the NBOME. During this block, the student may also continue work toward the Ph.D. dissertation.

At the end of Block 3 the student is expected to have completed the curriculum required for the D.O. degree and to have completed at least 45 additional hours of graduate courses under the Graduate School of Biomedical Sciences as required for the second degree,

Block 1	Year 1 Year 2	DO Basic Science Courses Basic Science Courses
Block 2	Year 3	
	Year 4	
Block 3	Year 5 Year 6	Clinical Science, DO Courses, Rotations Clinic Rotations, Resear Rotation Elective

including the research dissertation. Following completion of the curriculum required for both degrees, the student is awarded the D.O. degree through TCOM and the Ph.D. through the Graduate School of Biomedical Sciences of the UNT Health Science Center.

# **Entrance Requirements**

The entrance requirements for the dual-degree program are identical to those for the D.O. program at TCOM and the Ph.D. program in the Graduate School of Biomedical Sciences as described in the respective catalogs, including an overall undergraduate GPA of at least 3.0 and a competitive GRE or MCAT score.

# Cost of the Program

Since dual-degree students are enrolled at UNT Health Science Center throughout the six years of study, they will pay the standard medical school tuition during each block. They also pay the hourly tuition rate for all courses not required for the D.O. degree, i.e., the 45 or more SCH required for the Ph.D.

# **Financial Assistance**

The health science center will provide financial assistance to all students selected for the dual-degree program. The minimal financial assistance will consist of a fellowship in an amount sufficient to pay all tuition costs during Block 2 and a graduate stipend during this time.

#### PhD Individual Research Individual Research

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Basic Science Courses, Qualifying Exam, Individual Research Individual Research, Dissertation

# Administration of the Program

Since the dual-degree program requires the student to follow a separate curriculum in each of two schools, each school will have administrative authority over the student's degree program. Students in the dual program are often given preference for selecting clinical rotation sites.

# Joint D.O./M.S.

Some students may elect to take a joint D.O./M.S. degree. Students in this program receive up to 24 hours of credit for their didactic medical basic science courses toward their M.S. degree and take six semester credit hours of thesis. See Chapter Four for requirements of the M.S. degree program that must be met for the joint program. The graduate office will help the students select a major department and mentor to assist students in preparing a degree program. Additional graduate courses may be required by a particular subdicipline. Please see individual subdiscipline course requirements for the M.S. degree.

# Joint D.O./M.P.H.

Muriel Marshall, D.O., Dr. P.H., Track Director UNT Health Science Center Medical Education Building 1-432E 817-735-5379

The primary objective of the D.O./ M.P.H. is to provide clinical professionals specialized public health training to develop, integrate, and apply culturally competent social, psychological, and biomedical approaches to the promotion and preservation of health.

The family health track is designed primarily for clinical health professionals who are interested in the interrelationship of behavioral science, public health and medicine as it influences family health. Students may elect a specialization track other than the family health track. The D.O./M.P.H. is designed so that the requisite requirements could be completed during the four years of medical education, providing the student begins M.P.H. coursework the summer prior to matriculation in the medical curriculum. A typical degree plan for the D.O./M.P.H. student follows. Approximately 18 credit

hours of the medical curriculum may be applied toward the 45 credit hour requirement for the M.P.H. degree. However, a student may elect to complete the D.O./M.P.H. in five years, taking an additional year to complete the M.P.H. requirements. This year is typically between years 2 and 3 of the medical curriculum. Please see the graduate advisor for the D.O./M.P.H. degree or the graduate dean for further details regarding specialized D.O./M.P.H. degree plans.

# D.O./M.P.H. Degree Plan

OTAL up to 18 SCH (tr	ransfer from DO curriculum)	<u>6 SCH</u> 33 SCH 51 SCH
MSC 5950	Thesis	<u>6 SCH</u>
PHPM 5800 BMSC 5900	Capstone Special Problems	3 SCH 3 SCH
oluc		3 SCH
Spring PHPM 5110 OO Curriculum	Behavioral Epidemiology	3 SCH <u>3 SCH</u>
Fall BMSC 5400 DO Curriculum	Community Health	<u>3 SCH</u>
BMSC 5100 BMSC 5140 Year 2	Principles of Epidemiology Field Studies in Public Health	3 SCH <u>3 SCH</u> 6 SCH
Summer		3 SCH
Spring BMSC 5200 DO Curriculum	Health Administration	3 SCH <u>3 SCH</u>
BMSC 5300 DO Curriculum	Environmental Health	<u>3 SCH</u>
Summer 2 BMSO 5200	Biostatistics for the Public Health Professional II	6 SCH <u>3 SCH</u> 3 SCH
Summer 1 PHPM 5500 PHPM 5130	Biostatistics for the Public Health Professional I Principles of Public Health	3 SCH <u>3 SCH</u>

# Cooperative Dual MPH Programs

Currently, the Graduate School of Biomedical Sciences at UNT Health Science Center has an arrangement with Baylor College of Dentistry to offer the D.D.S./M.P.H. degree. Those interested in this program should contact the graduate school for information on admission and requirements for the degrees.

The graduate school also offers dual degrees with the School of Community Service at University of North Texas, whereby a student can earn a Master of Science or Doctor of Philosophy degree in sociology from UNT, coupled with a Master of Public Health degree from the health science center. Please contact the graduate school for further information.



SEVEN Fiscal and Financial Aid Policies

# *Tuition and Mandatory Fees*

The amounts shown in this catalog are subject to change without notice by action of the Texas Legislature or the University of North Texas Board of Regents. For current information on tuition and fees, see the Graduate School of Biomedical Sciences' Tuition and Fee Register printed for the particular academic year in which enrollment is planned, or inquire in the graduate office.

The UNT Board of Regents has been granted the authority, within established guidelines, to set graduate tuition rates by program.

Graduate tuition is \$38 per credit hour for in-state residents and \$246 per credit hour for out-of-state students. To calculate costs for graduate courses, use the table below.

Students are responsible for payment of the charges listed in the table below.

# **Admission Application Fee**

All applicants new to the University of North Texas Health Science Center must pay a \$25 (U.S. residents) or \$50 (non-U.S. citizens and permanent residents) non-refundable admission application fee.

#### **Option to Pay Tuition by Installment**

The Texas Legislature has the authority

#### **TUITION AND MANDATORY FEES**

to modify or eliminate installment payment of tuition at each regular or called legislative session.

The health science center allows the payment of tuition and fees during the fall and spring semesters through the following alternatives:

- full payment of tuition and fees upon registration or by the payment deadline for early registration; or
- one-half payment of tuition and fees upon registration, or by the payment deadline for early registration, with separate one-fourth payments before the start of the sixth and 11th class weeks. *Note:* All course-related or optional fees are paid with the initial installment payment.

#### *Fees (Non-Refundable) for Payment of Tuition by Installment* Handling fee: \$15

Delinquent payment fee: \$15 See the Academic Calendar for installment payment deadlines.

#### **Tuition and Fee Payments**

Tuition and fee payments may be made by cash, cashier's check, money order or personal check. Credit cards are not accepted.

# **Tuition and Fee Policies**

Tuition covers graduate work. It and the various fees provide limited health

services and admission to various centersponsored events. Course-related fees and materials are additional. Students must purchase their own textbooks and supplies.

Fees charged for application, late registration, duplication of records, graduation and regalia, late filing for graduation, replacement diplomas and miscellaneous items are noted in the current Tuition and Fee Register available at the graduate office.

# Residency Regulations for Tuition Purposes

Rules and regulations for determining residency status are specified under Title III of the Texas Education Code and are available in the health science center Office of Medical Student Admissions and the Graduate School of Biomedical Sciences. In general, students must physically reside in Texas for the 12month period immediately preceding their initial registration in an educational institution in Texas. Other factors may be considered for residency determination for tuition.

Students who are not legal residents of Texas must pay non-resident tuition including the statutory tuition charges and standard health science center fees approved by the UNT Board of Regents. Admission requirements for non-residents are the same as for resident students. Certain residency exceptions do not

	TEXAS RESIDENTS	NON-RESIDENTS	
Tuition per semester hour	\$38	\$246	Minimum of \$100 in long semesters: \$50 in summer terms
General use fee per semester hour	\$6	\$6	Maximum \$60
Student service fee per semester hour	\$6	\$6	Maximum \$72
Activities Center fee	\$25	\$25	
Computer fee	\$25	\$25	
Medical fee	\$25	\$25	
Identification card fee	\$5	\$5	One-time fee: replacement ID cards are \$5
Property damage deposit	\$10	\$10	One-time charge, refundable on graduation or final withdrawal

Tuition rates for non-resident and foreign students must be determined no later than January 1 of each odd-numbered year by the Texas Higher Education Coordinating Board. The tuition rate is currently set at \$246 per semester credit hour.

affect actual residency status but do allow for a non-resident tuition exemption. Refer to "Tuition and Fee Waivers" section of this chapter for further information.

#### Responsibility of the Student

The student is responsible for knowing residence status and for registering under the proper status. Any questions concerning residency must be discussed with the proper authority in the graduate office before registration.

Any student erroneously classified as a resident will be reclassified and will be required to pay all out-of-state tuition due. Attempts to evade non-resident fees may subject the student to the statute penalty and to possible disciplinary action.

#### Change of Status: Non-resident to Resident

A student who is at any time classified as a non-resident retains non-resident status until reclassification as a resident is applied for and is officially approved by the registrar.

# Change of Status: Resident to Non-resident

Students who are classified as residents but become non-residents by virtue of any change of domicile must notify the registrar of such change immediately. Students who believe they have been erroneously classified have the opportunity for appeal. The appeal is to be made to the authority by whom the original classification was assigned, either in the graduate office or in the Registrar's Office.

# **Tuition and Fee Waivers**

Several exemptions and waivers are available to qualifying students. Brief descriptions of these are listed below. Waiver refunds must be requested during the semester application is made. Such requests must be made before the 12th class day in long semesters and the fourth class day in summer terms. Requests for retroactive refunds cannot be honored. Additional information and applications are available in the graduate office.

#### **Exemptions and Waivers**

- 1. Certain veterans, dependents, etc., of the U.S. armed forces are exempted from payment of tuition.
- 2. Certain orphans of members of the U.S. armed forces, Texas National Guard and Texas Air National Guard are exempted from payment of tuition.
- 3. Deaf or blind students are exempted from payment of tuition.
- 4. Children of disabled firemen, peace officers, employees of the Texas Department of Corrections and game wardens are exempted from payment of tuition.
- 5. Children of U.S. prisoners of war or persons missing in action are exempted from payment of tuition.
- 6. Resident rather than non-resident tuition is applied to certain students from other nations of the American hemisphere.
- 7. Resident rather than non-resident tuition is applied to teachers and professors of Texas state institutions of higher education, their spouses and their children.
- 8. Resident rather than non-resident tuition is applied to a teaching or research assistant provided the student is employed at lease one-half time by the health science center in a position that relates to the degree sought.
- 9. Resident rather than non-resident tuition is applied to a non-resident holding a health science center competitive academic scholarship of at least \$1000 for the academic year for which the student is enrolled.
- Students who are concurrently enrolled in more than one program at UNT Health Science Center are not charged duplicate fees.

- Certain health science center fees are waived for UNT or health science center full-time employees, their spouses and their dependents.
- Certain health science center fees are waived for students enrolled only in off-campus courses.

# **Tuition and Fee Refunds**

A student who drops a course or withdraws from the graduate school within certain time periods may be entitled to a partial refund of tuition and fees. These refunds are calculated according to the category and time schedule listed below. Application fees, late registration charges, fee for student identification card, delinquent payment fees, and installment handling fees are non-refundable. Any financial obligation to the health science center must be resolved before any refunds will be made.

#### Class Drops

Refunds are made for any course dropped through the 12th class day for the long semester and through the fourth class day in the summer (see Academic Calendar for dates). The semester's first class day is always the first official day of classes for the graduate school rather than the first day of an individual's class.

To calculate the refund for a class dropped, take the fee paid for the original hours and subtract the fee shown in the Tuition and Fee Register for the new number of hours. The difference between the two is the amount of the refund. *Note:* If all classes for the semester are dropped, see "Schedule of Withdrawal Refunds" in this catalog.

# Withdrawal from the Graduate School of Biomedical Sciences

Withdrawal refunds are determined by the number of enrolled semester credit hours at the time of withdrawal. Withdrawal percentages are applied to the

total amount of tuition and fees as prescribed by state law, not the amount paid. The withdrawal schedule and percentages of refund shown below pertain to total withdrawal for the semester. The withdrawal schedule and the percentages of refund are mandated by the Texas Legislature. The semester's first class day is always the first official graduate school day of classes rather than the first day the individual attends class. A withdrawal refund is based on the day of withdrawal, regardless of the date the class first meets. See the Academic Calendar in this catalog for the dates classes begin.

Additional information may be found in the Tuition and Fee Register or by contacting the graduate office.

#### **Refund of Property Damage Deposit**

A student who does not return to the health science center because of a transfer, graduation or withdrawal from school must request refund of the property damage deposit; the refund is not automatic. If not claimed within four years after the last enrollment date, the deposit is nonrefundable and the proceeds are used to fund scholarships and activities.

Request for refund of this deposit should be made to the graduate office.

#### Schedule of Withdrawal Refunds

UNT Health Science Center shall refund a percentage of tuition and mandatory fees to students withdrawing from the institution during a fall or spring semester according to the following withdrawal schedule:

Before first day of class	100
During the first five class days	80
During the second five class days	70
During the third five class days	50
During the fourth five class days	25
After the fourth five class days	Nor

### **General Financial Policies**

The UNT Health Science Center is a state-supported institution subject to state laws. Extension of credit is prohibited and all financial obligations to the health science center must be paid when due. Tuition and fees are subject to change by action of the Texas Legislature or the UNT Board of Regents.

# **Correction of Errors**

Students are responsible for any additional amounts due the health science center resulting from auditing and correction of records after registration fees have been paid including all registration assessment errors, change from off-campus to on-campus classes, invalid employment waivers, etc.

# **Payments by Third Party**

Checks issued by a third party in payment of a student's tuition, fees or other charges should be made payable to either the student or to both the student and the health science center. Arrangements may be made with the graduate office in cases where cash amounts should not be made available to the student.

# **Returned** Checks

A returned check is defined as any check returned to the health science center unpaid due to no fault of the bank or the university.

Upon receipt of a returned check, notification is mailed to the issuing party or the individual in whose behalf the check was issued. The address on the check and/or the address in the official health science center records is used.

# **Financial Aid**

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UNT Health Science Center offers programs to assist graduate students in meeting the costs of financing their education. Though financial aid is an alternative for eligible students, it should be considered a supplement to a student's own financial resources. Students must be accepted into an eligible program to be considered for financial aid. Non-degree seeking students are not eligible for financial aid.

A student may apply for financial aid by completing the Free Application for Federal Student Aid (FAFSA). This should be done immediately upon acceptance into the health science center and yearly thereafter.

#### Federal Programs

Students who complete the FAFSA, show financial need as determined by the needs analysis service and meet all general eligibility requirements as outlined for each program may apply for federal financial aid. In addition, most aid programs require that the recipient adhere to academic and/or financial criteria in order to maintain eligibility. Some programs have limited funds; therefore, student files that are completed first are considered first.

#### Federal and State Programs

Federal Work Study Federal Perkins Loans Federal Family Education Loan Program Texas Public Education Grant

In addition, students may apply through the health science center's Office of Financial Aid for assistance to private programs. Students may also apply directly to private foundations for scholarships and loans. Most programs have individual selection criteria and various award limits.

Contact the Office of Financial Aid, Medical Education Building 1-116 at 817-735-2520 or 800-346-8266 for more information.



# EIGHT Student Life
# **Student Affairs**

Staff members of the Office of Student Affairs are available for general counseling or information and assistance with any phase of campus life. In emergency situations (such as death in the family) special assistance can be provided for notification of professors, medical withdrawal, etc. The office provides policy interpretation and rights adjustment upon request, handles disciplinary and social adjustment problems, and provides self-development opportunities and enrichment activities.

# Founders' Activity Center

Located on the north end of campus, the Founders' Activity Center is open to students, faculty and staff. The center features aerobics classes, regularly scheduled recreational sports, lecture series, multi-purpose outdoor court and recreational equipment. Cardiovascular exercise equipment is available, as well as free weights and weight machines. Exercise and nutrition programs can be tailored to the individual by the center's Health Promotions Manager. The Founders' Activity Center, managed under the Public Health Program, is open seven days a week.

# Health Insurance Program

Although health insurance may be purchased from any insurance carrier, a group student health insurance plan is offered by a non-university-affiliated carrier for students enrolled at the health science center. Application forms are available in the Office of Student Affairs. *It is compulsory for all students to carry medical and hospitalization insurance.* See the graduate office for details. Proof of insurance must be provided at each registration.

# **Honors** Day

Each year during Honors Day, the health science center recognizes students who have excelled academically, as well as those who have made outstanding contributions to the institution, the community and the medical and scientific professions.

# Identification Card Regulations

The identification card is distributed after all fees have been paid. The card entitles the bearer to access to all health science center facilities and serves as an identification for clinic and health services.

Lost ID cards may be replaced for a \$5 charge.

The card is void upon termination or interruption of enrollment and when not properly encoded.

Fraudulent use of the ID card subjects the user to a fine of \$2,000 and up to one year in jail (Class A Misdemeanor). Anyone who uses the ID card to give false information to a police officer is subject to a fine of \$200 (Class C Misdemeanor).

# Liability

The health science center is not responsible for and does not assume any liability for loss of or damage to personal property. A student may want to provide personal insurance coverage for possessions on campus.

# **Living Accommodations**

There is no on-campus housing at UNT Health Science Center. The health science center does not assume any responsibility in housing arrangements but does support the federal housing policies that housing owners not discrimate because of race, color, sex, age, disability, veteran status or national origin. Information on local housing accommodations is available in the student lounge.

# Motor Vehicle Regulations

People who operate motor vehicles and bicycles on the health science center campus must comply with the Texas Uniform Traffic Code and the published center regulations regarding vehicle and bicycle use, parking, display of decals and penalties for violation. See Graduate Student Handbook for details on parking policies.

# **Organizations** Policy

The University of North Texas Health Science Center recognizes the right of any group of students, faculty or staff to form a voluntary organization for purposes not forbidden by the laws of the United States or the state of Texas. All organizations that include enrolled students as members must be registered with the Office of Student Affairs if they will use any university facilities, space or grounds for meetings.

Policies regulating the organization, functioning, sponsorship and privileges of registered or recognized organizations are available in the Office of Student Affairs.

#### **Graduate Student Association**

All members of the graduate student body, full or part-time, are full and equal members of the Graduate Student Association (GSA). GSA promotes the interests and opinions of the student body, sponsors projects and events beneficial to students and acts as the voice of students on matters of policy and student welfare. Monthly GSA meetings are held during the long semesters. Members elect officers at the end of each spring semester. The GSA president and vice president serve as student representatives to the Graduate Council.

# DO/PbD Student Association

The DO/PhD Student Association (DPSA) is open to all students involved in the dual DO/PhD program. DPSA takes an active roll in developing the policies governing the dual program. DPSA serves as a formal liaison between the Graduate Student Association and the Student Government Association of the Texas College of Osteopathic Medicine. A further goal of the organization is to promote research among fellow osteopathic medical students.

### Black Graduate Student Association

The Black Graduate Student Association (BGSA) is open to all African-American graduate students. BGSA was formed to promote fellowship among African-American graduate students. Further goals of the organization include assisting in recruitment and retention efforts, generating funds for scholarships, and serving as role models in the arena of science for elementary and secondary youth.

# Scheduling Events

Student organizations are required to schedule events, seminars, programs and lectures through the Student Development Office. Facilities reservation forms may be picked up from this office and submitted to the Office of Student Affairs for official approval and scheduling.

# Student Lounge

The Student Lounge is located on the first floor of Medical Education Building 1, directly across from the Main Auditorium. The lounge provides a relaxed atmosphere for students with various recreational game tables available. The Student Development Coordinator and *Speculum* offices are housed within the lounge.

# **Student Publications**

UNT Health Science Center publishes a student yearbook, *The Speculum*, on an annual basis. The yearbook is a cooperative effort between medical and graduate students. All students are encouraged to participate in the production of the yearbook.

# NINE Course Descriptions



Prerequisite requirements may be waived on an individual basis as determined by department. All courses require permission of the course director for enrollment.

# **BIOMEDICAL SCIENCES (BMSC)**

# 5080. Radiation Safety.

1 hour. Radiation sources, interaction of radiation with matter and human tissues, radiation measurement and dosage, instrumentation, regulations, and practical and safety procedures. Prerequisite(s): consent of department. Offered on demand.

#### 5200. Biostatistics.

6 hours. Statistical methods and experimental design; descriptive statistics; data presentation; parametric and non-parametric methods of hypothesis testing including two-sample tests, analysis of variance, regression and correlation analyses; introduction to multivariate statistics. Competency with computer statistical packages is developed. Offered each summer, this course is designed to span both five-week summer semesters.

# 5680. Learning and Performance Skills for Biomedical Sciences Graduate Students.

1 hour. Course is designed to improve skills in reading, writing and presenting technical information. Offered on demand.

# 5900-5910. Special Problems.

1-3 hours each. For students capable of developing a problem independently through conferences and activities directed by the instructor. Problem chosen by the student with the consent of the instructor and department chair. May be repeated for credit. Offered each semester.

# 5920-5930. Problem in Lieu of Thesis.

3 hours each. In lieu of a thesis, the candidate must complete one or both of the problems courses. As part of the requirements for each course, the student must present in writing a formal report based upon the work done in the course, which must be approved by the advisory committee and filed in the graduate school. This report must be prepared according to instructions given in the manual for preparing the thesis. One copy of each paper is to be submitted to the graduate dean. Offered each semester.

# 5940. Seminar in Current Topics.

1 hour. Specialized weekly lectures on topics of current interest by students, faculty and/or invited speakers. May be repeated for credit. Offered Fall and Spring.

### 5950. Thesis.

3-6 hours. To be scheduled only with consent of department. 6 SCH required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit. Offered each semester.

# 5960. Biomedical Ethics.

1 hour. Covers major ethical issues in biomedical sciences, including: authorship and intellectual property; conflict of interest; data selection/research design; privacy and confidentiality; discrimination and sexual harassment; misconduct and whistle-blowing; animals in research; human subjects in research; implication of funding sources for research. Offered each Spring.

#### 5970. Techniques in BMSC.

.33 - 2 hours (varies by technique chosen). A practical course in techniques. Students will participate in laboratories demonstrating up-to-date techniques in biomedical sciences. A listing of the techniques of participating laboratories is available upon request from the graduate school. Offered each semester.

# 6010. Qualifying Examination for Doctoral Students.

3 hours. Demonstration of competence in a specific area of biomedical science as evidenced by criteria established by the faculty of each discipline. Offered each semester.

# 6500. Computer Applications in Science and Medicine.

1 hour. Use of computers in the scientific and medical fields. Special attention is given to hardware configurations; using word processing, spreadsheets and databases; charting and graphing statistical data; and discussion of cross-platform issues. Practical integration of different software tools is addressed. Enrollment is limited. Offered each Fall and Summer I.

# 6510. Automated Information Resources in Science and Medicine.

1 hour. Extensive training on the Internet, Library Information System (LIS), and MEDLINE is provided. Instruction is provided on creating correctly formatted bibliographies for journal article publication. Other search engines and databases such as Grateful Med and Current Contents are discussed. Prerequisite: BMSC 6500 or equivalent. Enrollment is limited. Offered each Spring and Summer II.

#### 6900-6910. Special Problems.

1-3 hours each. For students capable of developing a problem independently through conferences and activities directed by the instructor. Problem chosen by the student with the consent of the instructor and department chair. May be repeated for credit. Offered each semester.

#### 6940. Individual Research.

1-12 hours. Doctoral research of independent nature. A maximum of 24 SCH allowed toward degree. Offered each semester.

#### 6950. Doctoral Dissertation.

3, 6 or 9 hours. To be scheduled with consent of department. A maximum of 12 SCH allowed toward degree. No credit assigned until dissertation has been completed and filed with the graduate office. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit. Offered each semester.

#### ANATOMY AND CELL BIOLOGY (ANAT)

#### 5010. Gross Anatomy.

12 hours. A complete study of the gross morphological features of the human body. Lecture material and dissection are organized regionally. Lectures are presented by anatomy department faculty supplemented by clinical faculty correlations for each region. There is a radiologic component in the laboratory consisting of representative X-rays, CAT scans and MRIs; clinical faculty in radiology present correlations. each student is required to participate fully in dissection of a human cadaver for successful completion of the course. Exams will be taken with the medical students with an additional written component. Enrollment is limited. Prerequisite: ANAT 5210 (may be taken concurrently). Offered each Fall.

#### 5110. Medical Histology and Cell Biology.

6 hours. A thorough study of the cells, tissues and organs of the human body is presented. Laboratory sessions stress the interpretation of tissue morphology based on principles derived from modern molecular and cellular biology. Tissue sections are examined by means of light microscopy in the laboratory. Pertinent electron microscopic data are included when deemed necessary. Offered each Spring.

#### 5120. Medical Neuroscience.

5 hours. Principles of neuroanatomy and neurophysiology fundamental to an understanding of basic clinical neurology. In addition to clinical case studies and presentations in neuropharmacology and neuroradiology, laboratory dissection of human brain material is an important component of the course. Offered each Spring.

#### 5210. Embryology.

3 hours. Anatomical development of the human from fertilization to full term. Emphasis is on the early development and subsequent formation of organs and organ systems. Clinical presentations are integrated into the lectures to introduce the student to the more common congenital malformations. A library research paper and seminar are required. Offered each Fall.

#### 5900-5910. Special Problems.

1-3 hours each. For students capable of developing a problem independently through conferences and activities directed by the instructor. Problem chosen by the student with the consent of the instructor and department. May be repeated for credit. Offered each semester.

#### 6020. Biomedical Cell and Molecular Biology I.

4 hours. Discussion of historical and current experimental information relating to the structure and function of eukaryotic animal cells. The cell membrane, nucleus, genetic translation, cytoskeleton, cellular organelles and extracellular matrix are presented in relation to cell growth and energetics as well as to cell motility and regulation of cell metabolism. Emphasis is on the critical evaluation of research papers and the integration of molecular biology, biochemistry and cell biology. Prerequisite: undergraduate- or graduate-level biochemistry. Offered every other Spring (odd years).

#### 6030. Biomedical Cell and Molecular Biology II.

4 hours. An intensive laboratory course designed to give students the expertise to perform basic techniques currently utilized in cell and molecular biology. Techniques will include plasmid preparation; isolation of cDNA inserts from various plasmids; extraction of nucleic acids; agarose gel electrophoresis; Northern and Southern blot analyses; cDNA cloning; sequencing and analysis; PCR amplification; protein gel electrophoresis; and immunoblot analysis. Prerequisite: undergraduate- or graduatelevel biochemistry. Offered every other Fall (odd years).

#### 6040. Advances in Ocular Biology.

3 hours. Emphasis is on the current literature and contemporary approaches dealing with current topics in ocular biology. Each year will focus on one or several research and/or clinical areas. Offered every other Fall (odd years).

#### 6050. Visual Sciences Seminar.

I hour. A monthly presentation by a visiting distinguished visual scientist. The seminar will be preceded by a journal check where articles relating to the seminar will be discussed. Offered every Fall and Spring.

### 6080. Diseases of the Eye.

3 hours. Structure and function of the various ocular tissues, as well as the diseases which affect them. Lectures presented by basic scientists and clinical ophthalmologists. Offered on demand.

#### 6690. Special Problems in Anatomy and Cell Biology.

1-3 hours. For students capable of developing a problem independently through conferences and activities directed by the faculty. Problem chosen by the student with the consent of the instructor and the department chair. Offered every semester.

#### 6699. Special Problems in Ocular Research.

1-3 hours. For students capable of developing a problem independently through conferences and activities directed by the faculty in areas of visual sciences. Problem chosen by the student with the consent of the instructor and the department chair. Offered every semester.

#### **BIOCHEMISTRY AND MOLECULAR BIOLOGY (BIOC)**

#### 5010. Principles of Biochemistry.

7 hours. An introduction to the chemical structure and processes related to living systems. A survey of intermediary metabolism. Offered every Fall.

#### 5011. General Biochemistry.

7 hours. A comprehensive course in biochemistry emphasizing the structure, function and regulation of processes in living systems at the molecular level. Offered every Fall.

#### 5345. Molecular Aspects of Cell Signaling.

3 hours. Advanced study of signal transduction events from the plasma membrane to the nucleus. Topics include receptor activation, the generation of second messengers and eukaryotic transcriptional activation and repression. Prerequisite: BIOC 5010 or 5011.

#### 5425. Advanced Biochemistry.

4 hours. Topics include structure and function of nucleic acids and proteins, lipids, carbohydrates and regulation of metabolism. Tools for structural studies will be considered and current research reports in this area will be discussed. Offered every Spring.

### 5510. Signal Transduction.

2 hours. Current publications in the general area of receptorsignal transduction will be discussed in the journal club format. Students are required to participate in presentation and discussion of current articles. Offered every Fall and Spring.

#### 5520. Enzyme Regulation and Mechanism.

2 hours. Current topics in the areas of Enzyme Mechanism and Regulation will be discussed, based on student and faculty presentations of literature articles. Offered every Fall and Spring.

#### 5530. Structure and Function of Proteins.

2 hours. Topics will include the isolation of proteins from tissue, their structural and functional characterization, effects of natural and synthetic mutants on the structure, stability and function of proteins. Prerequisite: BIOC 5010 or BIOC 5011; may be taken concurrently. Offered every Fall and Spring.

#### 5540. Advanced Lipoprotein Metabolism.

2 hours. Presentation and discussion of recent research findings and literature reports in lipoprotein metabolism and related areas. Prerequisite: BIOC 5010 or BIOC 5011; may be taken concurrently. Offered every Fall and Spring.

#### 5550. Advanced Clinical Biochemistry.

3 hours. This course has an emphasis on performance, evaluation and diagnostic interpretation of clinical laboratory tests. Topics include endocrine biochemistry, cancer biochemistry tumor markers, biochemistry of nutrition, etc. Offered every Fall and Spring.

#### 5680. Selected Topics in Biochemistry.

1-3 hours. Current research interests in the field of biochemistry. May be repeated as topics vary. Offered on demand.

#### 5900-5910. Special Problems.

1-3 hours each. For students capable of developing a problem independently through conferences and activities directed by the instructor. Problem chosen by the student with consent of the instructor and department. May be repeated for credit. Offered every semester.

#### 5940. Seminar in Current Biochemistry.

1 hour. A study of current literature; current research emphasized. Required of all graduate biochemistry students in each semester of graduate residence. Offered every Fall and Spring.

#### 6680. Advanced Techniques in Biochemistry.

1 hour. Methods and instrumentation currently used in biochemical analyses. Presented in four-week mini-courses consisting of 8 hours of lecture and 24 hours of laboratory. Topics vary from year to year but will include among others, protein sequencing and amino acid analysis, nucleic acid sequencing, tissue culture, monoclonal antibody production, column chromatography, radioisotopes, peptide synthesis and gel electrophoresis and electrofocusing. Offered on demand.

#### 6690. Current Topics in Biochemistry and Molecular Biology.

1-3 hours. Emphasis on the current literature and contemporary approaches dealing with current topics in Biochemistry and Molecular Biology. Each semester will focus on one of several research areas. Prerequisite: BIOC 5425. Offered on demand.

# INTEGRATIVE PHYSIOLOGY (PSIO)

#### 5020. Medical Physiology.

8 hours. The study of organ system physiology with special emphasis on control mechanisms and the maintenance of homeostasis. Primary emphasis is placed on cardiovascular, muscular, gastrointestinal and renal function. Discussion sections, laboratory exercises and guest lectures utilized. Offered each Spring.

# 5100. Cardiovascular Physiology I.

3 hours. Designed to familiarize the student with current concepts and progress in human cardiovascular function. Topics include molecular basis of myocardial contraction, electrochemical coupling, regulation of myocardial mechanics and ventricular performance, the peripheral circulation and the vessel wall, local regulation of tissue blood flows, and neural control of the circulation. Prerequisite: PSIO 5020. Offered every other Fall (even years).

#### 5110. Cardiovascular Physiology II.

3 hours. Continuation of PSIO 5100. Topics include capillary and lymphatic dynamics, control of blood pressure, coronary blood flow, splanchnic blood flow, regulation of cardiac output and specific cardiovascular perturbations. Prerequisite: PSIO 5100. Offered every other Spring (odd years).

#### 5200. Respiratory Physiology.

3 hours. Designed as an in-depth study of the functional anatomy and physiology of the respiratory system with emphasis on the human. Topics presented by students, followed by class discussions including pulmonary mechanics and blood flow. Respiratory blood gases and neurohumoral control of ventilation. Prerequisite: PSIO 5020. Offered every other Fall (odd years).

#### 5300. Renal Physiology.

3 hours. This course familiarizes the student with current concepts and progress in human renal function. Topics include the body fluids, the renal vascular bed, glomerular filtration, tubular function, acid-based physiology, renal pathophysiology and the history of renal physiology. Prerequisite: PSIO 5020. Offered every other Spring (even years).

#### 5900-5910. Special Problems.

1-3 hours each. For students capable of developing a problem independently through conferences and activities directed by the instructor. Problem chosen by the student with the consent of the instructor and department. May be repeated for credit. Offered each semester.

#### 6020. Advances in Cardiovascular Physiology I.

3 hours. Directed, in-depth study of current research literature with emphasis on the heart. Oral reports and written reviews are required. Prerequisite: PSIO 5100. Offered each semester.

#### 6030. Advances in Cardiovascular Physiology II.

3 hours. Directed, in-depth study of current research literature with emphasis on the peripheral circulation. Oral reports and written reviews are required. Prerequisite: PSIO 5110. Offered each semester.

#### 6040. Advanced Techniques in Cardiovascular Physiology.

3 hours. Methods and instrumentation currently used in cardiovascular research. Presented in modular units of approximately 3-4 weeks duration. Credit: 1 hour per module. May be repeated for credit as topics vary. Prerequisite: PSIO 5020. Offered each semester.

# 6050. Physiology of Skeletal and Smooth Muscle.

3 hours. Designed as an in-depth study of the functional anatomy and physiology of skeletal and smooth muscle. Topics include functional anatomy, molecular basis of contraction, electro- and pharmaco-coupling and regulation of muscle mechanics. Special topics are presented by students. Prerequisites: ANAT 5120, PSIO 5020. Offered every other Fall (odd years).

#### 6060. Cardiovascular Regulation During Exercise.

3 hours. The course will provide an integrative physiological basis of blood pressure regulation during exercise. The mechanisms to be discussed include "Central Command" and the "exercising muscle pressor reflex" and their integration with basic hemodynamic responses to exercise. Offered each Summer I.

#### 6070. Advanced Endocrine Physiology.

3 hours. An interactive survey of modern endocrinology presented largely from the current primary literature. The scope will focus on mechanisms and will extend from molecular biology (hormone interactions with genes, receptors, ion channels, second messengers, etc.) to systematic control (feedback, secretion, distribution, metabolic clearance rate, etc.) Broad topic areas discussed will be determined in part by class interests. Offered every other Fall (odd years).

#### 6080. Advanced Autonomic Physiology.

3 hours. This course will cover anatomy, neurotransmitters, and cellular mechanisms of the autonomic nervous system with special emphasis on the peripheral systems. Parasympathetic and sympathetic control of physiological function will be discussed with system emphasis determined in part by student interests. Current research literature combined with up to date reviews will be used to spur discussions which will focus on mechanisms extending from molecular biology to systemic control. Individual student interests will be used to determine special topic areas for the last half of the course. Prerequisites: ANAT 5120, PSIO 5020. Offered every other Fall (even years).

#### 6090. Myocardial Metabolism: Concepts and Controversies.

3 hours. Comprehensive overview of current scientific issues related to heart muscle metabolism and function. Specific topics include: control of myocardial substrate metabolism; ATP synthesis and utilization; myocardial ischemia, "stunning," and "hibernation;" advanced techniques for studying myocardial metabolism. Prerequisites: BIOC 5010 or 5011, PSIO 5020. Offered every other Spring (odd years).

#### 6699. Current Topics in Physiology.

1-3 hours. Survey of literature, oral presentations and written reports. Offered each semester.

### MICROBIOLOGY AND IMMUNOLOGY (MICR)

### 5020. Medical Microbiology and Immunology.

6 hours. Medical microbiology, basic and clinical immunology and infectious diseases are studied in eight modules consisting of lectures, laboratories and problem-solving medical cases with laboratory demonstrations and examples. In addition, 28 medical cases are solved by computer-assisted instruction. The course covers bacteria, viruses, fungi and parasites and related diseases. Offered each Fall.

# 5050. Host-Parasite Relationships in Infectious Diseases.

3 hours. Emphasis on pathogenicity, pathogenesis, and the host's innate and acquired resistance to infection. Lectures, conferences, literature review and selected laboratory exercises are utilized for student instruction. Demonstration of independent student initiative is an essential part of this course, and a special project is required. Offered on demand.

# 5060. Advanced Clinical Immunobiology.

3 hours. Areas covered include immunopharmacology, diagnosis of immunodeficiencies, recent concepts in allergy, cancer immunotherapy and other recent advances in clinical immunology. Prerequisite(s): MICR 5010. Offered on demand.

### 5100. Cultivation and Identification of Mammalian Cells.

4 hours. Practical aspects of cultivation of mammalian cells including medium preparation, cell passage and sterility testing. Course includes cultivation and identification of *chlamydia* and herpes simplex viruses from patient specimens. Offered on demand.

# 5130. Structure and Function of the Eukaryotic Chromosome.

2 hours. Current publications in the general area of chromosomal structure and function in mammalian cells will be discussed in the journal club format. Students are required to participate in the presentation and discussion of current articles related to chromatin structure, nucleosomes, histone proteins, metaphase chromosomes, telomeres, centromeres, nuclear matrix, nuclear pores, nucleolus, nuclear envelope, nuclear laminas, DNA replication, transcription, DNA damage and repair, ribonucleoprotein particles, splicesosomes, and macromolecular interactions in heterochromatin and euchromatin (interphase chromatin). Offered every Spring.

### 5200. Medical Virology.

2 hours. Combination of formal lecture and student presentations on current topics including virus multiplication, viral genetics, induction and action of interferon, pathogenesis and epidemiology of virus infections. Offered on demand.

### 5300. Current Topics in Molecular Microbiology.

2 hours. Presentation and discussion of current research, emphasizing microbial physiology, genetics and molecular biology. Offered each semester.

#### 5800. Microbial Metabolism.

3 hours. Biochemistry and molecular biology of viruses, bacteria and higher organisms, including gene biochemistry and gene expression. Offered on demand.

#### 5900-5910. Special Problems.

1-3 hours each. For students capable of developing a problem independently through conferences and activities directed by the instructor. Problem chosen by the student with the consent of the instructor and department. May be repeated for credit. Offered each semester.

#### 6020. Advances in Microbiology and Immunology I.

3 hours. Advanced course in microbiology covering the latest techniques such as molecular biology and biochemistry applied to microbial systems. Prerequisite: MICR 5020. Offered on demand.

#### 6030. Advances in Microbiology and Immunology II.

3 hours. Course consists of a survey of current advances in the field of immunology, employing current research manuscripts as a basis for course material. Topics covered may vary from year to year. Example of topics include generation of antibody diversity, interleukins and signal transduction in immune cells, ontogency of the immune response, antigen processing and presentation and mechanisms of autoimmunity. Offered on demand.

#### 6040. Advanced Techniques in Microbiology and Immunology.

3 hours. Methods and instrumentation currently used in Microbiology and immunology. Presented as a rotation course through several faculty laboratories featuring hands-on methodology and techniques. Offered on demand.

## 6080. Advances in Virology.

3 hours. Course is designed to cover modern culture techniques, molecular biology, host-virus interaction, interferon and antivirals among other topics. Prerequisite: MICR 5020. Offered on demand

#### 6650. Current Topics in Microbiology and Immunology.

3 hours. A consideration of findings in the most recent literature—microbiology, immunology, parasitology and virology. Course will follow a small group interactive format, student's presentations and panel discussions. Prerequisite: MICR 5020. Offered on demand.

#### PATHOLOGY (PATH)

#### 5900-5910. Special Problems.

1-3 hours each. For students capable of developing a problem independently through conferences and activities directed by the instructor. Problem chosen by the student with the consent of the instructor and department. May be repeated for credit. Offered each semester.

#### 6330. Pathology I.

5 hours. Incorporates the general fields of study known classically as basic and systematic pathology. Approach is primarily at organ levels after an introductory phase emphasizing fundamental pathophysiology. The latter encompasses processes associated with inflammation/repair, cell injury and death, infection, fluid/hemodynamic derangement and neoplasia. Subsequent systems approach illustrates major diseases and disorders encountered in the practice of medicine. Throughout, the language of medicine is emphasized as well as clinical features and differential diagnoses, where appropriate. Ultimately the student should be able to recognize, understand and predict the general effects of those pathologic processes encountered in clinical medicine. PATH 6331 must be taken consecutively. A grade is not assigned until PATH 6331 has been completed. Offered each Fall.

#### 6331. Pathology II.

9 hours. This course encompasses all environmental, nutritional, toxicologic and forensic topics. These lifestyle-related diseases are core pathologic elements in modern society and merit separate and specific consideration in our curriculum. The impact of diet, substance abuse, industrial disorders and trauma of disparate types is extraordinary and will be considered comprehensively in this course. Autopsies are an integral part of Pathology II and all students will be expected to attend necropsy sessions at the Tarrant County Medical Examiner's Office. An autopsy report on a participatory case is required as well. The goal of these latter activities is to correlate clinical data and the course of disease with necropsy findings. Prerequisite: PATH 6330. PATH 6331 must be taken the semester immediately following completion of PATH 6330. A grade is not assigned for PATH 6330 until PATH 6331 has been completed. Offered each Spring.

# PHARMACOLOGY (PHRM)

# 5010. Introduction to Pharmacology.

8 hours. Introduction to the pharmacological basis of drug action. Both lectures and laboratory experiences are included, with emphasis on drug mechanisms and fundamental principles including physiochemical properties of drugs, drug receptor interactions, pharmacokinetics, pharmacodynamics, pharmacogenetics and drug interactions. Offered each Fall.

#### 5020. Advanced Pharmacology

3 hours. A continuation of PHRM 5010, covering specific drug classes and emphasizing molecular basis for drug action and basic principles of pharmacology and toxicology. Prerequisite(s): PHRM 5010. Offered on demand.

### 5030. Principles of Pharmacology.

3 hours. Topics include drug disposition, pharmacokinetics, drug metabolism, drug tolerance, drug interactions and receptor mechanisms. Offered each Spring.

### 5050. Introduction to Toxicology.

3 hours. The interrelationships of natural and synthetic agents to biologic systems are compared with the resulting toxicological response of the organism. Identification of causative agents and determination of limits of detection and safety are discussed. The principles of instrumentation methods and their use in a toxicological laboratory are described. Offered on demand.

#### 5060. Experimental Toxicology.

3 hours. Lecture and laboratory experience emphasizes adverse reactions to chemicals and drugs, environmental hazards and analytical techniques for detection of foreign substances in biological fluids and tissues. Includes qualitative and quantitative laboratories, identification of causative agents and metabolic studies of toxic agents. Visits to professional laboratories specializing in toxicology are included. Offered on demand.

#### 5070. Behavioral Pharmacology.

4 hours. Drugs that modify behavior are studied from the standpoint of the behavioral and neurochemical events in the brain that mediate the effects of psychoactive drugs. A daily laboratory on an arranged basis provides experience in the techniques of objectively quantifying drug effects on behavior in rats. Offered every other Spring (even years).

#### 5900-5910. Special Problems.

1-3 hours each. For students capable of developing a problem

independently through conferences and activities directed by the instructor. Problem chosen by the student with the consent of the instructor and department. May be repeated for credit. Offered each semester.

# 6020. Advances in Molecular Pharmacology.

3 hours. An in-depth review of the current literature on modern pharmacology and signal transduction of drug receptors. Oral reports and written reviews required. Prerequisite: ANAT 6020. Offered on demand.

# 6030. Advances in Behavioral Pharmacology.

3 hours. Directed, in-depth study of current research literature with an emphasis on behavioral pharmacology. Oral reports and written reviews required. Prerequisite: PHRM 5070. Offered every other Spring (odd years).

### 6050. Ocular Pharmacology.

3 hours. Review of pharmacological principles and therapeutic approaches regarding ocular diseases and eye organ systems. Offered on demand.

# 6080. Receptors and Drug Action.

4 hours. In-depth course of drug receptor pharmacology and receptor classes. Emphasis on techniques for studying receptor function, second messenger signaling and molecular pharmacology. Offered every other Spring (even years).

#### 6699. Current Topics in Pharmacology.

1-3 hours. Review of current topics in pharmacology including pharmacology of aging, ocular pharmacology, behavioral pharmacology and new drugs on the horizon. Offered each Fall.

### PUBLIC HEALTH PROGRAM

# РНРМ

### 5100. Principles of Epidemiology.

3 hours. An introduction to epidemiology for students majoring in any aspect of public health. Principles and methods of epidemiological investigation, both for infectious and non-infectious diseases, as well as for assurance of health, are included. Prerequisite: PHPM 5210 or equivalent. Offered each Spring and Summer 1.

### 5110. Behavioral Epidemiology.

3 hours. The derivation of ecological models based on natural history of behavior in humans and non-humans as basis for

investigation, analysis and design of dysfunctional behavior intervention strategy. The course includes a laboratory component. Offered each Spring.

#### 5130. Principles of Public Health.

3 hours. Practices, concepts and theories of assuring the learning of healthful behavior in human populations. Dynamics of healthy personality, character and role development in individuals and groups is analyzed. Cultural comparisons are studied both in context and over time. Offered each semester.

#### 5135. Methods in Public Health.

This course covers, in depth, the design of epidemiological studies applied to assurance of healthful behavior, including practical and theoretical considerations, biases, confounding and misclassification, concept of cause and causal models. The course includes a laboratory for study of examples from the literature and analysis of methods presented. Offered on demand.

#### 5140. Field Studies in Public Health.

3 hours. Topics of special nature or of interest to students with specific topic area of problem focus: i.e., health educational, maternal and child care, dental health, environmental health, health administration, nutrition preventive medicine and epidemiology. Course includes field experience to observe public health role models and project presentation. Offered each semester.

#### 5145. Seminar in Public Health.

3 hours. Problems of public health practice examined. Topics include women's health, special populations, mental health, violence, adolescent health and economic aspects related to topics. May be repeated for credit. Offered on demand.

#### 5200. Health Administration.

3 hours. Basic concepts and theories of health care organizational environment, context structure, processes, performance and administrative functions of systems analysis and planning, programming, budgeting and personnel management as they apply to definition and assurance of community health goals. Offered each Fall and Spring.

# 5210. Biostatistics for the Public Health Professional I.

3 hours. Logic and language of scientific methods in life science research; use of basic statistics in testing hypotheses and setting confidence limits. Simple and multiple regression and elementary experimental designs. Offered each semester.

#### 5220. Family Health: Ethnic and Cultural Aspects in the Clinical Setting.

3 hours. This course is designed to explore the ethnic and cultural influences related to chronic, degenerative and communicable diseases found in the clinical setting. Offered every Fall.

#### 5230. Health Education in the Clinical Setting.

3 hours. Identification of methods used to develop and administer educational components of health care regimens. Emphasis on specification of behaviors and selection of motivation strategies associated with improved behavioral and health outcome. Methods to improve patient compliance with therapeutic regimens. Offered on demand.

#### 5240. Seminar on Clinical Geriatrics.

3 hours. Problems of aging and public health solutions for older Americans examined. Subareas of aging explored; biological, social, behavioral, and economic aspects of aging. Offered on demand.

#### 5300. Environmental Health.

3 hours. An introduction to the environmental determinants of health. Consideration is given to urban water supply and waste water disposal, open and closed air quality control, solid and hazardous wastes, sanitation, and the regulatory framework for environmental health risks. Offered each Fall.

#### 5400. Community Health. 3 hours.

Introduction to general principles of health planning and program development of community-based public health programs oriented toward a perspective that links together strategies to address public health problems, with practical techniques and tools for community needs assessment and program evaluation. Offered each Fall and Spring.

#### 5500. Introduction to International Health.

3 hours. The introductory course provides the student with an overview of the conditions, practices and obstacles encountered in delivering primary health care in the international arena. The differences and commonality of the challenges facing the health care provider are explored. The history of international health and the roles of government and non-governmental agencies are presented along with specific models of intervention and evaluation of major international health problems. Offered each Spring.

#### 5510. Clinical Geographic Medicine.

3 hours. The major diseases of tropical and developing countries will be emphasized, along with reemergent diseases in the United States. The course will focus on the etiology, geographical distribution, pathogenesis, clinical presentation, diagnosis, and treatment as well as the epidemiological characteristics. Prerequisite: a clinical background or consent of the instructor is required (students or professionals in medicine, dentistry, veterinary medicine, nursing, etc.) Offered every other Spring (even years).

#### 5520. Preventive Geographic Medicine.

3 hours. The basic principles of preventive medicine will be applied to the major geographic diseases. The main emphasis will be on the prevention and control of infectious diseases of public health importance in the international arena. Prevention of some non-infectious conditions will also be considered.

Prerequisite: Clinical Geographic Medicine Course and a clinical background or consent of the instructor is required (students or professionals in medicine, dentistry, veterinary medicine, nursing, etc.) Offered every other Fall (even years).

#### 5530. Clinical Travel Medicine.

3 hours. An in-depth course on the current issues, immunizations, precautions, prophylaxis, evaluation, treatment and longterm management of the health of the traveler. Travel health will include the infant, young child, adult, the pregnant traveler as well as those with chronic medical conditions. Prerequisite: A clinical background or consent of the instructor is required (students or professionals in medicine, dentistry, veterinary medicine, nursing, etc.) Offered every other Fall (odd years).

#### 5540. Seminar in International Health.

3 hours. The student is exposed to a focused review of the current international health literature. Each student will engage in a critical review of the world literature and present a published scientific study with a defense and discussion of the results, conclusions, and Applications. Prerequisite: PHPM 5500, 5510, 5520 or 5530. Offered on demand.

#### 5560. Field Studies in International Health I.

3 hours. Topics of special nature or of interest to students with specific topic area of problem focus in the field of international health. Course includes field experience and project presentation. Prerequisite: Advance permission of the instructor with site and program approval also. International sites may require several months of advance planning. Offered on demand.

#### 5570. Field Studies in International Health II.

3 hours. An extension of Field Studies I allowing the student defined experiences in research and/or Practice. Prerequisite: Advance permission of the instructor with site and program approval also. International sites may require several months of advance planning. Offered on demand.

# 5580. Special Studies in International Health.

3 hours. Students may work on special International Health projects under the guidance of a faculty member. Prerequisite: Advanced approval by instructor is needed. Offered on demand.

#### 5600. Advanced Epidemiology.

3 hours. This course extends the principles and fundamental concepts covered in PHPM 5100. Emphasis is on methodologic issues, potential sources of bias, and the use of multivariate modeling techniques. Course content includes the planning, implementation, and conduct of epidemiologic studies, as well as the analysis and presentation of collected data. Prerequisites: PHPM 5210 and BMSO 5200. Offered each Fall.

#### 5610. Chronic Disease Epidemiology.

3 hours. This course provides a survey of common chronic diseases in the United States and epidemiologic methods used in the prevention and control of such diseases. Course content includes study of the multifactorial etiology of many chronic diseases and the methodologic problems posed in studying chronic diseases. Prerequisite: PHPM 5100. Offered every other Spring (odd years).

#### 5620. Health Care Epidemiology.

3 hours. This course focuses on the application of epidemiologic methods in hospitals, clinics, and managed care organizations. Course content includes the review of newly-developed instruments and methodologies for health care epidemiology, as well as the advantages and limitations of using traditional epidemiologic methods in a novel setting. Prerequisites: PHPM 5210 and BMSO 5200. Offered every other Fall (even years).

#### 5630. Acute Disease Epidemiology.

3 hours. This course focuses on the practical methods used in responding to acute disease outbreaks. Course content includes methods for disease identification, control, surveillance, and prevention of secondary outbreaks. Prerequisite: PHPM 5100.

#### 5930. Seminar in Dental Public Health.

3 hours. Seminars focus on principles of dental public health, patterns of dental health care financing, need, demand and use of dental services in community-based public health programs. Offered each Spring.

#### 5320. Advanced Occupational Health Practicum.

3 hours. This course is designed to provide a practical experience in the practice of occupational health in a clinical setting. This is an advanced, clinical course intended to prepare the occupational health practitioner for independent practice. Prerequisite: A licensed physician who has successfully completed at least one full year of post-graduate medical education or a licensed physician's assistant or nurse practitioner with at least one year of clinical practice. Offered on demand.

# 5330. Clinic Clerkship in Occupational Medicine and Personal Health.

3 hours. A four-week rotation in occupational and personal health. Offered on demand.

#### **BMSO**

#### 5200. Biostatistics for the Public Health Professional II.

3 hours. Logic and language of scientific methods in life science research; use of basic statistics in testing hypotheses and setting confidence limits. Simple and multiple regression and elementary experimental designs. Offered each Fall, Spring and Summer II.

#### NTPH

#### 5120. Epidemiology of Zoonoses.

3 hours. Through lectures and class discussions, epidemiological principles and concepts are applied to the study of selected diseases whose agents of infection are transmitted between animals and man. Offered on demand.

#### 5130. Industrial Hygiene.

3 hours. Presents a variety of topics of importance in industrial hygiene. Topics include: respirators, pulmonary function testing, details of OSHA including major health standards and policy decisions, the Toxic Substance Control Act, management of industry, and other topics. Offered every other Fall (odd years).

# 5310. Introduction to Occupational Environmental Epidemiology.

3 hours. This course reviews the epidemiology of occupational diseases and discusses those aspects of epidemiology peculiar to occupational health studies. Both factual and methodological issues are discussed and include such topics as occupational risk factors, surveillance of occupational disease and injury patterns in selected occupational groups. Prerequisite: PHPM 5100. Offered every other Spring (even years).

#### 5320. Introduction to Occupational Health.

3 hours. This course provides an overview of the principles and practice of occupational health. Topics covered include: the role of surveillance in occupational health, impairment and disability, occupational lung disease, occupational skin disease, occupational diseases of the nervous system, alcohol and drug abuse in industry, ergonomics, and occupational muscular skeletal disease. Offered every other Fall (even years).

#### 5410. Case Management in Public Health.

3 hours. This course introduces students to the philosophy and practice of case management in a variety of health care/ human services settings and examines selected Federal, State and local case management initiatives in relation to a number of important public health problems. Offered every other Fall (odd years).

#### 5420. Occupational Health Law and Ethics.

3 hours. Introduces administrative and regulatory law principles, specific laws (OSHAct, SARA, etc.) And pertinent agencies (OSHA, EPA, ASDR, etc.) And related topics such as risk communication, worker's compensation, etc. Offered every other Spring (odd years).

#### 5425. Quality Management in Public Health.

3 hours. This course introduces students to the philosophy and practice of an integrated quality management system in health care, including quality assurance, utilization review, risk management and outcome assessments. Offered every other Spring (odd years).

#### 5800. Capstone.

3 hours. The capstone course is designed to allow students the opportunity to apply methods and techniques learned in the MPH program to a practical public health problem. All students, regardless of their specialty track, will participate as a member of an interdisciplinary team to define a public health problem, develop a study design, implement an assessment, conduct a risk assessment and communicate results. The course is designed to be the capstone activity for students in the MPH program who do not elect the thesis option. Offered each semester.

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The following courses are offered at the University of North Texas for specific MPH tracks. Consult the appropriate department at UNT for frequency of course offerings. The main telephone number for UNT is 817-565-2000.

# ANTHROPOLOGY (ANTH)

#### 5200. Seminar in Cultural Anthropology.

3 hours. A survey of anthropological attempts to understand and explain the similarities and differences in culture and human behavior.

# **BIOLOGICAL SCIENCES (BIOL)**

# 5040. Contemporary Topics in Environmental Science and Ecology.

1-3 hours. Contemporary topics and issues in environmental science and ecology. Topical themes include global climate change, biodiversity, wetlands, population and aquatic, terrestrial or plant ecology. May be repeated for credit as topics vary.

#### 5360. Chemistry of Water and Water Pollution.

4 hours. Chemical and engineering approaches to water and waste water treatment. Laboratory studies for assessing chemicals in water and waste water. Application of standardized analytical methods for evaluating water quality. Prerequisite: 6 SCH of chemistry.

#### 5380. Fundamentals of Aquatic Toxicology.

3 hours. Theory and methodologies used by scientists, regulatory agencies and industry to measure the impact of man's activities on freshwater aquatic ecosystems. The course has its foundations in history, but concentrates on current methodologies and theories.

#### 5880. Environmental Seminar Series.

1 hour. A weekly seminar series covering a broad range of environmental research topics. Invited speakers are prominent local, regional or national researchers. May be repeated for credit.

#### 6300. Hazardous Waste Management.

3 hours. An introduction to the dynamic and rapidly changing field of hazardous waste management. Management issues such as legal, technological and sociological aspects are presented. Types of hazardous waste and numerous treatment/disposal options are reviewed.

#### 6360. Environmental Engineering.

4 hours. Water, land and air pollution control technologies are presented. Engineering approaches to pollution problems are demonstrated by considering technical feasibility and economic constraints. Laboratory exercises provide instruction for quantitative analysis of water and waste water; field trips to various pollution-control facilities. Prerequisites: CHEM 1410-1420 and 1430-1440.

#### **BUSINESS LAW (BLAW)**

#### 5760. Insurance Law.

3 hours. Designed to lead the student into a study of fundamental legal doctrines and concepts applicable to the field of insurance. Includes contract law, parties to the contract, insurable interest, agency powers, waiver and estoppel, warranties, representations and concealment, the rights of the beneficiary, and provisions controlling and limiting loss. Pertinent to the lifehealth and property liability areas.

#### CENTER FOR STUDIES ON AGING (CSAG)

#### 5400. Health Delivery Systems.

1-3 hours. A cross-cultural overview of health delivery systems followed by an extensive consideration of all aspects of the health delivery system in the United States. Government and private sector involvement in delivery of health services to the aged is emphasized.

#### 5710. Health Aspects of Human Aging.

1-3 hours. Examination of general and cellular theories of aging and general age-related changes in various body systems. Issues covered include myths and facts about physical health and aging, normal age-related changes and common chronic illnesses associated with old age. Students will become familiar with medical terminology to facilitate effective communication with health care professionals who work with the elderly in both institutional and community settings.

#### 5810. Seminar on Administration of Programs in Aging.

1-3 hours. History of long-term care; administrative role in relation to board of directors, community and employees. Overview of medical, nursing, rehabilitative and social components of care. May be repeated for credit as topics vary.

#### COMMUNICATION STUDIES (COMM)

**5180.** Seminar in Organizational Communication. 3 hours. A study of the transmission of information and ideas within an organization with emphasis on the problems encountered in the business world. Prerequisite: 12 SCH in communication or business or equivalent experience.

# EMERGENCY ADMINISTRATION AND PLANNING (EADP)

### 4000. Environmental and Hazardous Materials Regulations.

3 hours. History, purpose and scope of environmental regulations (federal and state) as they relate to hazardous materials and hazardous waste.

# 4010. Hazardous Materials Emergency Planning and Community Right-to-Know Act Requirements.

3 hours. History, purpose and scope of the Superfund Amendments and Reauthorization Act (SARA) and functions of the local emergency planning committee.

#### **ECONOMICS (ECON)**

#### 5180. Economics of Health Care.

3 hours. Applications of economic theory and analysis to the financing and delivery of medical care. Emphasis on the use of economic concepts to understand public policy issues in medical care.

#### 5030. Microeconomic Analysis.

3 hours. Theory of the firm relating to production and employment; consumer behavior and related concepts of microeconomic efficiency.

#### 5040.Macroeconomic Analysis.

3 hours. National income determination and measurement, macroeconomic stabilization policy and macroeconomic theory.

# 5140. Managerial Economics.

3 hours. Integrates microeconomic theory with accounting, finance, marketing and production management. Incremental reasoning to decision making under uncertainty. Prerequisites: ECON 3550 or 5030. Students may not receive credit for both ECON 4140 and 5140.

#### 5150. Public Finance.

3 hours. Analysis of theoretical foundations, structure and performance of public sector. Includes issues of public choice theory, market failures, taxing, spending, borrowing and subsidies. Individual readings and research required. Prerequisite(s): ECON 1100 and 1110 or consent of department. Students may not receive credit for both ECON 4150 and 5150.

#### 5180. The Economics of Health Care.

3 hours. Application of economic theory and analysis to the financing and delivery of medical care. Emphasis on the use of economic concepts to understand public policy issues in medical care. Students may not receive credit for both ECON 4180 and 5180.

#### 5440. Economics of Natural Resources and Environment.

3 hours. Natural resource management and use: problems of renewable and non-renewable resources including scarcity and market responses, role of property rights, externalities, benefitcost analysis and energy policy with emphasis on Texas. Analysis of environmental problems and policy formulation. Prerequisite(s): ECON 1100 and 1110, or consent of department. Students may not receive credit for both ECON 4440 and 5440.

#### 5460. Industrial Organization and Public Policy.

3 hours. Emphasizes relationships between structure, conduct and performance of industries. Topics include concentration, barriers to entry, pricing, mergers, product differentiation, technical change, antitrust and regulation. Case studies of selected American industries illustrate the theory and public policy implications. Individual readings and research required. Prerequisite(s): ECON 3550 or consent of department. Students may not receive credit for both ECON 4460 and 5460.

#### 5640. Multivariate Regression Analysis.

3 hours. Application of multivariate regression analysis to issues in business and the social sciences. Topics include estimation and analysis of linear models under ideal and nonideal conditions, instrumental variables estimation and estimation of models with limited dependent variables. Emphasis is placed upon the application of computer technology to practical problems in forecasting and policy analysis. Prerequisite(s): 3 hours of college statistics or consent of instructor. (Same as AECO 5880.)

#### 5650. Advanced Econometrics.

3 hours. Comprehensive examination of the theory and practice of econometrics. Topics include estimation and analysis of the general linear statistical model, estimation of simultaneous equations models and estimation of models with limited dependent variables.

#### 5700. Economic Development.

3 hours. General analysis and survey of development theories, problems and policies involved with those countries that have not yet attained the level of economic well-being and integration observed in the United States. Individual readings and research required.

#### 5750. Regional Economics.

3 hours. Economic analysis applied to regional problems; problems and techniques relevant to the Southwest economy. Individual readings and research required.

#### 5880. Seminar on Current Health Care Economics.

3 hours. Topics include health care reform; problems associated with health insurance markets; alternative health care financing systems in the United States and other countries; health care regulation by the states; universal health care coverage; and the "public goods" nature of health care. Topics are subject to change depending on the current trends in the field and the relevancy to students' interest. Course includes presentations and discussions students' research papers. Prerequisite: ECON 4180 or 5180.

### GEOGRAPHY (GEOG)

#### 4120. Medical Geography.

3 hours. Locational aspects of disease and health care, spatial patterns of diseases, health facilities, health care policies and problems. Prerequisite: GEOG 2400 or consent of department.

#### 5400. Environmental Modeling.

3 hours. Dynamic models of environmental processes: land masses, water bodies, atmospere. Models of pollution (water, land, air) and human impacts on the environment.

#### 5500. Introduction to Geographic Information Systems.

3 hours. Introduction to the concepts of computer-based spatial data handling, known as Geographic Information Systems (GIS) technology. Presents the concepts of GIS in a general way utilizing several GIS packages and hypothetical GIS problems.

#### 5600. Seminar in Environmental Policy.

3 hours. Analysis and evaluation of environmental policy, including spatial, historical, economic, ecological and institutional dimensions of contemporary resource management issues.

# HEALTH PROMOTION (HLTH)

#### 5170. Critical Health Issues.

3 hours. Health aspects and health promotion implications of current health issues. Exploration of health problems currently found in society; role of health educators interns of preparation, planning, instruction and evaluation.

#### 5300. Health Promotion: Advanced Concepts and Theories.

3 hours. An analysis of the growing body of knowledge concerning health promotion and education. Concepts of theory, research and practice are discussed, analyzed and used as a framework for investigative study.

#### 5310 - 5320. Health Education Workshop.

6 hours. A workshop for teachers, nurses, principals, superintendents and community leaders with opportunities to concentrate on individual and group problems. Activities based upon the problems, needs and interests of participants. Consultants from most areas of health utilized. HLTH 5320 must be taken in conjunction with HLTH 5310.

#### 5400. Stress Management for the Health Professional.

3 hours. This course identifies environmental, organizational, interpersonal and individual patterns of stress with reference to the role of the health professional. Prevention and intervention strategies are emphasized.

#### 5500. Advanced Concepts in Epidemiology.

3 hours. This course extends the principles and fundamental concepts covered in PHPM 5100. Emphasis is on methodologic issues, potential sources of bias, and the use of multivariate modeling techniques. Course content includes the planning, implementation, and conduct of epidemiologic studies, as well as the analysis and presentation of collected data.

Prerequisites: Prerequisites: PHPM 5210 and BMSO 5200.

### MANAGEMENT SCIENCE (MSCI)

#### 5180. Data Analysis.

3 hours. Emphasis on model assumptions, applying the correct statistical model and interpreting the results. Topics include linear regression, experimental design, time-series decomposition, linear programming and elementary matrix theory. Prerequisite: MSCI 5010 or equivalent, or consent of department.

#### MATHEMATICS (MATH)

#### 5840. Foundations of Applied Multivariate Statistics.

3 hours. For students who need to understand multivariate statistical techniques or apply them in the behavioral, environmental, life, management or social sciences. Vector and matrix operations, transformations, decompositions, multiple regression, factor analysis and multiple discriminant problems. Prerequisite: MATH 1710 or consent of department.

#### PHILOSOPHY (PHIL)

#### 5700. Seminar in Environmental Ethics.

3 hours. An intensive analysis of new positions in environmental ethics with special emphasis on their theoretical value as a contribution to contemporary philosophy and their practical value with regard to environmental policy and decision making.

#### PSYCHOLOGY (PSYC)

#### 4000. Abuse in Adult Relationships.

3 hours. A general survey of current research on psychological, interpersonal and situational factors involved in physical and emotional abuse in dating, cohabiting and martial relationships. The interdisciplinary body of research is covered from a psychological perspective. Prerequisite: PSYC 3650 or equivalent.

#### 4020. Psychology of Death and Dying.

3 hours. Concepts and attitudes concerning death and dying from a psychological perspective; concurrent research on death and dying; development of insights and understanding to prepare the student to interact effectively with people who are terminally ill and their family members.

# 4110. Interviewing for Paraprofessionals in Psychology.

3 hours. Introduction to the interviewing process in mental health service settings. Includes purposes, objectives, goals, types and skills of interviewing via lectures, plus taped and live demonstrations. Prerequisite: PSYCH 4610.

#### 4510. Psychology Practicum.

1-3 hours. In-depth study of areas of specific interest. Practical experience in supervised settings. May be repeated for credit.

# 5040. Psychological and Applied Aspects of Health: A Behavioral Medicine Approach.

3 hours. Conceptual frameworks for understanding factors that

influence patterns of health behavior in persons from different cultures. Presents a behavioral medicine perspective of health and disease and illustrates their unique and common elements in sociopolitial and environmental contexts.

#### 5070. Medical and Behavioral Disorders.

4 hours. Focuses on those physical disorders for which behavioral variables are most relevant in terms of etiology, treatment and prevention; i.e. arthritis, hypertension, diabetes, migraine headaches, back pain, etc. Laboratory work includes an introduction to the assessment and primary and secondary treatment of these disorders through such behavioral, nonmedical procedurs as diet, medical history, physical examination, exercise, health education, and religious affiliation; includes such stress management procedures as therapy, hypnosis, relaxation, biofeedback and meditation.

#### 5200. Psychology of Women: An Analysis of Dynamics, Stress. 3

hours. Designed to give the future educator, counselor and mental health professional a better understanding of the specific psychological, environmental and biological problems facing women. Specific and current methods of advising are covered. Prerequisite: minimum of 6 SCH of undergraduate psychology.

#### 5310. Crisis and Adjustment Demands.

3 hours. Concerned with crisis topics relevant to today's culture: i.e., rape, problem pregnancy, divorce suicide and commitment to mental institutions. For practicing lawyers, psychologists and master's or doctoral student sin education, psychology, nursing and other disciplines involved in treatment intervention.

# 5340. Life-Span Developmental Psychology.

3 hours. An examination of developmental behavioral change across the human life span. Special concern is given to the conceptual and empirical bases for such change, with an emphasis on measurement and antecedents. More specific treatments of content areas (e.g., learning, memory, intelligence, personality, stress and coping, mental illness, and death and dying) constitute an integral part of the course.

#### 5350. Counseling for Sexual Dysfunction and Other Psychosexual Disorders.

3 hours. A study of the origins and treatment of sexual dysfunctions and other psychosexual disorders. The study includes physical and psychological considerations in etiology, diagnosis and treatment.

# 5700. Advanced Quantitative Methods in Psychology.

4 hours. Includes a review of probability theory and elementary sampling statistics, a discussion of correlational theory and the application of several correlational techniques, a study of several methods appropriate for testing hypotheses about differences among several means, factorial designs in analysis of variance and some consideration of non-parametric procedures. Prerequisite: an introductory course in statistics.

# 5710. Psychological Responses to Ecological and Nutrient Influences.

3 hours. An examination of a range of environmental stimuli that may be toxic to the human condition and an interpretation of the relationship between psycho-nutritional deficits and behavior. Prerequisite: a graduate course in assessment.

#### 5720. Principles and Techniques of Behavior Modification.

4 hours. Principles and current literature. Laboratory work, application of specific techniques to changing both normal and deviant behavior in education, counseling and psychotherapy.

#### 5780. Advanced Psychopathology.

3 hours. A critical analysis of the classificatory systems, etiology and treatment of psychopathological behavior, with a view toward a sophisticated appreciation of the contemporary status and prospectus of this subject domain. Prerequisites: PSYC 4610 and PSYC 5010 or equivalents.

#### 5840. Psychometric Theory.

3 hours. Systematic treatment of the logic of measurement, including such topics as scaling models, validity, variance and covariance, reliability, theories of measurement error and test construction. Prerequisite: PSYC 5700.

#### 5860. Seminar on the Psychology of Aging.

3 hours. Theoretical and research literature concerned with the psychological aspects of aging. Age-related change sin sensation, perception, learning, cognition and personality are considered from both a conceptual and methodological perspective as they bear on adjustment to late adulthood. Prerequisite: PSYC 5010 or advanced study in developmental psychology. May be repeated for credit as topics vary.

# 5890. Psychological Counseling for Late Maturity and Old Age.

3 hours. Study of the predictable and normal dependencies of aging; techniques of individual, family and group counseling applied to later life, with emphasis on problems of retirement, health and bereavement.

#### 5900-5910. Special Problems.

1-4 hours each. Open to graduate students who are capable of developing a problem independently. Problems chosen by the student and approved in advance by the instructor. Open only to resident students.

## 6110. Professional Issues in Behavioral Medicine Consultation.

3 hours. Issues facing health psychologists practicing in behavioral medicine settings. Themes focus on malpractice risks related to health services, including managed health care; privacy, consent and access to hospital records; quality assurance, quality control and mechanisms of review; interdisciplinary relationships, hospital privileges, multiple codes of ethics/legal constraints and hierarchical levels of professional responsibility for medical regimes; medical liaison consultation with underserved populations; and anticipating issues for the health/ psychology/behavioral medicine practitioner.

#### 6130. Assessment and Treatment of Substance Abuse.

3 hours. History of alcohol and drug use across cultures and the emergence of distinctions, sanctions and prohibitions. The major categories of psychotropic substances are reviewed, along with their chemical and behavioral effects. Characteristics of users and abusers are discussed. Various treatment approaches and their effectiveness are evaluated.

**6400. Research Methodology Applications.** 3 hours. Introduction to research methodology in psychology. Includes measurement theory, latent construct theory, experimental and quasi-experimental design, overview of data analytic strategies and power analysis. Focus on individual student projects..

### PUBLIC ADMINISTRATION (PADM)

#### 5060. Seminar in Intergovernmental Relations.

3 hours. Analysis of political, administrative and fiscal relationships among governments in the American political system. May be repeated for credit as topics vary.

#### 5200. Public Personnel Management.

3 hours. Managing human resources in national, state and local governments.

#### 5300. Introduction to Planning.

3 hours. This course examines state, regional and local government planning. It explores planning theory, the planning process, managing planning, implementing plans, and citizen participation.

#### 5400. Governmental Budgeting.

3 hours. Principles of the budgetary process and innovations in budget preparation including performance budgeting, program budgeting and zero-base budgeting. Emphasis is given to the role of the budget process as a tool for financial control, improving program performance and policy making.

#### 5430. Financial Accountability in Government.

3 hours. An introduction to financial control in government including fund accounting, financial reporting, internal controls and auditing. Particular emphasis is given to the public manager's use of accounting information in such contexts as budget decision making, pricing government services, cash planning and municipal bond ratings.

#### 5500. Seminar in Program Evaluation.

3 hours. Evaluation, performance measurement and monitoring in the management of government programs using the methods of social science to evaluate the effectiveness of government services. Prerequisite(s): PADM 5510 or equivalent.

#### 5550. Seminar in Program Evaluation.

3 hours. Evaluation, performance measurement and monitoring in the management of government programs using the methods of social science to evaluate the effectiveness of government services. Prerequisite: PADM 5510 or equivalent.

#### 5700. Seminar in Public Administration.

3 hours. Concepts, problems and processes of public administration. May be repeated for credit as topics vary. Topics recommended for MPH students are Public Health and Emergency Administration and Financing Public Health. Public Health and Emergency Administration explores the linkage between emergency planning and public health, particularly the impact of emergencies and disasters on the community health system. Financing Public Health examines the unique issues in financing public health including financial control and reporting, state and federal funding policies, and budget adoption and control.

#### **REHABILITATION (RHAB)**

#### 5230. Psychosocial Aspects of Rehabilitation.

hours. The course reviews the psychological and social aspects of individual and family adjustment to disability and chronic illness, including findings of research on the adjustment process and on the relationship of psychophysiological and social variables to the acquisition and maintenance of health and illness/disability. The course also reviews some of the current theories and methods for assisting individuals and families through the process of adjustment to disability and chronic illness.

#### 5350. Medical and Psychiatric Aspects of Rehabilitation.

3 hours. Advanced studies in common medical and psychiatric conditions most frequently encountered by the rehabilitation professional. A detailed study of the medical resources employed by the rehabilitation professional in service to people with disabilities.

#### SOCIAL WORK (SOWK)

#### 5890. Seminar in Social Work, Current Issues.

3 hours. Issues and topics in contemporary social work of interest to students in various graduate programs but not covered by course offerings. May be repeated for credit as topics vary.

# SOCIOLOGY (SOCI)

#### 5200. Seminar in Research Methods and Design.

3 hours. Research designs; techniques of sampling and scaling; problems of reliability and validity; consideration of appropriate measures of association and tests of significance.

#### 5210. Introduction to Social Statistics.

hours. Probability theory, descriptive statistics, nonparametric statistics and the general linear model, including multiple regression analysis, and their application in sociologial research. Prerequisite: SOCI 4880 or equivalent.

# 5260. Seminar on Sociology of Mental Health and Mental Illness.

3 hours. This course will examine the social epidemiology of mental health and mental illness, including the effects of social stresses and social integration on the mental health of various sex, age, ethnic and other groups within society; mental health care system and problems of access to care within that system.

#### 5400. Seminar on the Sociology of Health.

3 hours. Analysis of sociological factors in health and illness; organization of health care and the health professions.

#### 5450. Population and Society.

3 hours. Evaluation of demographic concepts and methods for the study of society; comparative analysis of population characteristics in various stages of socioeconomic development.

# 5773. Qualitative Research Methods. (Federation course)

3 hours. Methodologies in social research which emphasize qualitative dimensions of inquiry. Topics covered at alternate times include: methodological foundations, ethnomethodology, field research techniques, sociobiology, qualitative research applications. May be repeated for credit with different emphases.

# 6200. Seminar Courses.

3 hours. Topics may vary and can be repeated when topic changes: multivariate analysis, demographic techniques, research methods.

# 6500. Seminar on Social Organization and Disorganization.

3 hours. An intensive analysis of selected topics in such areas as social institutions and deviant behavior. Prerequisites: minimum of 18 SCH in sociology, or equivalent. May be repeated for credit. T E N Faculty and Health Science Center Officers



#### Neeraj Agarwal, Ph.D

The Post-graduate Institute of Medical Education and Research; Assistant Professor,

Department of Anatomy and Cell Biology Cellular and molecular mechanisms of retinal degenerations using rds (retinal dystrophic slow) mutant mice and RCS p+ mutant rats bearing rdy locus. The retinal dystrophies result in loss of photoreceptors, and result in blindness in animals as well as humans. In spite of the recent progress made in the identification of the mutations involved in various retinal dystrophies, the mechanism of these mutations resulting in photoreceptor cell death is largely unknown. Although recently it has been established that the mode of photoreceptor cell death is apoptosis, it is still not understood why the photoreceptor cells undergo apoptosis. Current research focuses on the basic question of the mechanism(s) of photoreceptor cell death in retinal dystrophies. Other research interest is to study the molecular mechanism of the interaction of retinal pigment epithelium (RPE) and photoreceptors. Toward that goal, there is in interest to identify and clone the factor/factors responsible for interaction and phagocytosis of rod outer segments by RPE. A novel recombinant DNA strategy of subtraction hybridization and expression cDNA cloning is employed to isolate the RPE specific cDNA clones. The characterization of these clones should provide insight into the extraordinary structural and functional relationship that exists between RPE and photoreceptors. Further interest in finding differentially expressed genes from glaucomatous vs normal trabecular meshwork cells.

# Rafael Alvarez-Gonzalez, Ph.D.

University of North Texas; Associate Professor and Acting Chair, Department of Microbiology and Immunology

This laboratory focuses on the characterization of the structure and function of

the eucaryotic chromosome. Emphasis is placed in the modulation of DNAreplication, gene expression (transcription), cell growth (cell cycle progression), and carcinogenesis (DNA damage and repair) by DNA-dependent proteinpoly(ADP-ribosyl)ation. The protein poly(ADP-ribosyl)ation pathway is a dynamic chromosomal process that is enzymatically regulated by two polynucleotide metabolizing enzymes, poly(ADPribose) polymerase (PARP) and poly(ADP-ribose) glycohydrolase (PARG). Specific projects currently in progress include the characterization of the structure and function of DNA-binding proteins (histones and DNAmetabolizing enzymes), the evaluation of the role of protein-protein interactions in the architecture of the human chromosome, the modulation of transcription and gene expression in normal and cancer cells by post-translational modification, the development of a diagnostic assay to identify patients with autoimmune diseases such as systemic lupus erythematosus, and the enzymatic characterization of PARP and PARG with regards to kinetic, chemical, molecular, and regulatory mechanisms. Methods and laboratory techniques utilized include, amongst others, tissue culture of human cells (normal and transformed), purification and fractionation of subpopulations of immune cells, cell fractionation, chromosomal fractionation, and protein purification, transcription and enzyme assays. immunoassays, radiochemical and fluorescent assays, affinity chromatography, polyacrylamide gel electrophoresis, autoradiography, and western blotting, affinity chromatography and HPLC, and mobility shift and DNA-"footprinting" assays.

John Aschenbrenner, Ph.D. Baylor University; Associate Professor, Department of Anatomy and Cell Biology A collaborative research project on the effects of hyperbaric oxygen in ameliorating the effects of atherosclerosis is presently under study. Current and future studies will also involve both light and electron microscopic studies of central nervous system tissue under the influence of glioblastoma transplantation. Morphology studies involving the rescue of retinal photoreceptor cells by RPE cells of the retina have also been conducted in the microscopy core facility.

#### Barbara Barron, Ph.D.

University of Nebraska Medical Center; Assistant Professor,

Department of Integrative Physiology Both in vivo and in vitro experiments are conducted to study hormonal and neurotransmitter interactions in the autonomic and cardiovascular systems and their relations to each other and cardiovascular diseases such as hypertension, shock and cardiomegaly. Research centers on the interaction of endogenous opioid peptides and catecholamines in the peripheral autonomic nervous system and the cardiovascular system. Specific projects currently supported involve the analysis of enkephalins in heart tissue and plasma after various manipulations to either decrease or increase autonomic stimulation to the heart (i.e. changes due to physiological stress of the cardiovascular system: exercise, hypertension, shock, etc.). In addition, the ability of heart tissue to release enkephalins in vitro is being evaluated by superfusion studies. Future work will involve the analysis of opioid peptides and their receptors in the heart, adrenal gland and peripheral nerves in association with hypertension, exercise, shock, aging and drug abuse. Both anesthetized and conscious animal models will be used to better determine the physiological mechanisms served by opioid peptides in the cardiovascular and peripheral autonomic systems.

# Michelle Bidaut-Russell, Ph.D., M.P.H.

St. Louis University M.P.E., Washington University Assistant Professor Department of Public Health and Preventive Medicine

Development of new psychiatric diagnostic instruments that both take into account the cognitive abilities of young children and address cultural differences between children of various backgrounds. Of particular interest is testing a screener for emotional and behavioral disorders in minority children. Research is also planned to do secondary data analyses of a large community sample of adult twins from Australia. This data base will provide the opportunity to study hypotheses about associations between paternal alcoholism and maternal depression, alcohol disorders and psychiatric functioning among female adult children of alcoholics (ACOAS).

# James L. Caffrey, Ph.D.

University of Virginia; Professor,

Department of Integrative Physiology Endocrine and neuroendocrine

responses which enable the organism to cope with circulatory stress. This program concentrates on interactions between the sympathetic nervous system and endogenous opioids in the regulation of the heart and peripheral vasculature. Stress results in profound activation of the pituitary-adrenal and sympatho-adrenal axes and the rapid release of steroids, catecholamines and opioids (dynorphins, enkephalins and endorphins). Significant Opioid concentrations identified in the myocardium have been found to respond to changes in the functional autonomic circulatory environment. Studies suggest that cardiac opioids may be important to our understanding the cardiovascular adaptions to exercise, heart failure, silent myocardial ischemia, ventricular fibrillation, circulatory shock and drug abuse.

#### Patrick Cammarata, Ph.D.

Hunter College, City University of New York;

Professor,

Department of Anatomy and Cell Biology Mechanism(s) of ocular diabetic

complications, including sugar cataract development. Inositol lipid metabolism, myo-inositol transport and regulation, phosphoinositide turnover and second messenger release, protein kinase C activation. Molecular cloning, promotes characterization and transcriptional reegulation of the sodium/myoinositol cotransporter gene.

#### Michael Chaitin, Ph.D.

Florida State University; Associate Professor,

Department of Anatomy and Cell Biology Retinal photoreceptor and pigment epithelial cell cytoskeletons. Photoreceptor differentiation and renewal mechanisms, and retinal degenerations. Studies utilize electron microscopy, immunoelectron microscopy, biochemical and *in situ* hybridization techniques.

#### Michael Chaitin, Ph.D.

Florida State University; Associate Professor, Department of Anatomy and Cell Biology

Research interests include photoreceptor differentiation and renewal mechanisms and retinal degenerative diseases. Determination of the distribution and function of Cytoskeletal components within the retina is a primary goal of this laboratory. Previously, this laboratory identified an actin filament network within the photoreceptor cilium and outer segment. Studies on developing and mature photoreceptors indicate that these actin filaments mediate outer segment disc morphogenesis. In the retinal pigment epithelium, actin filaments mediate phagocytosis of shed outer segments discs during the photoreceptor renewal process. Other interests include cell adhesion molecules within the retina. In particular, CD44 has been studied in

developing and mature normal retinas, and in retinas from eyes with retinal degenerative diseases. CD44 is localized to glial cells in the retina and may mediate cell-matrix interactions during differentiation and degeneration, as well as attachment of the neural retina to the back of the eye. These studies utilize light and electron microscope immunocytochemistry, biochemical techniques and, more recently, molecular biology techniques.

#### Samuel T. Coleridge, D.O.

University of Health Sciences; Professor and Chair, Department of Family Medicine Emergency medical systems operating in urban, suburban and rural areas. Studies of violence from a multidisciplinary perspective.

#### Hriday K. Das, Ph.D.

University of Nebraska-Lincoln; Associate Professor, Department of Pharmacology

Plasma levels of LDL cholesterol and apolipoprotein B (apoB) correlate directly with atherosclerosis susceptibility in humans. Therefore, apoB gene plays a central role in the development of coronary artery disease. Interaction of cisacting elements in the promoter of the apoB gene with trans-acting protein factors mediates liver specific expression of the aopB gene. Purification and characterization of these trans-acting proteins will enable us to clone genes encoding these factors. Availability of these genes will help understand the roles of these trans-acting genes in the development of atherosclerosis and in the design of drugs to cure heart disease. Since apoB gene is a member of the multi gene family involved in cholesterol transport, factors regulating apoB gene may also be involved in the regulation of other apolipoprotein genes namely apoE4 gene, a risk factor for Alzheimer's disease.

#### Glenn H. Dillon, Ph.D.

University of Illinois at Urbana-Champaign; Assistant Professor, Department of Pharmacology

Neurotransmitter Receptor/Ion Channel Function. Research interests are directed toward understanding how neurotoxins and other agents (both endogenous and exogenous) affect ion channel function. Specifically, this laboratory uses the patch-clamp technique to assess how these ligands alter the activity of both recombinant and native GABA<sub>A</sub> receptors, and how receptor structure may influence the actions of these ligands. A separate research program examines the role of hypothalamic GABA<sub>A</sub> receptors in the development of hypertension.

#### S. Dan Dimitrijevich, Ph.D.

University of Bath; Research Associate Professor, Department of Biochemistry and Molecular Biology

Development and characterization human skin and ocular tissue equivalents. Applications to studies of cell-cell and cell-matrix interactions in normal epithelia and endothelia, during wound healing and aging. Effect of reduced gravity on tissue development (skin). The role of hyperbaric oxygen, inflammatory cytokines and growth factors (FGF) in wound healing (gene activation and expression, and message kinetics) (cornea, conjunctiva and skin). Wound contraction and scarring (cornea). Tissue engineering strategies in tissue and cell replacement therapies (blood vessel, skin and cornea).

#### Ladislav Dory, Ph.D.

McGill University; Associate Professor and Acting Chair, Department of Biochemistry and Molecular Biology

Regulation of expression of apolipoproteins in cultured cells. Emphasis placed on the post-transcriptional regulation of apoE expression in macrophages, hepatocytes and adrenal cells. Role of second messengers (cAMP and inositol phosphates) in these processes is emphasized. The role of coordinate regulation of apoE expression and cholesterol efflux in peripheral tissues, in the prevention of atherosclerosis is actively pursued. Other studies examine the relationship of apoE to the etiology of Alzheimer's disease. Recombinant isoforms of human apoE are used to investigate their effect on the rate amyloid fibril formation and assess their role in neuronal cell maintenance.

#### H. Fred Downey, Ph.D.

University of Illinois at Urbana-Champaigne; Professor, Department of Integrative Physiology

Mechanisms controlling coronary blood flow in the normal and diseased heart. Of particular interest are the differential effects of lack of oxygen (hypoxia) and lack of blood flow (ischemia) on the coronary circulation and on heart function and metabolism. The laboratory also investigates cardiovascular responses to nicotine and tobacco products.

#### Richard A. Easom, Ph.D.

University of Glasgow; Associate Professor, Department of Biochemistry and Molecular Biology

Regulation of insulin secretion. The understanding of the cellular mechanisms regulating insulin secretion from islets of Langerhans is fundamental to the comprehension and future treatment or cure of Type II diabetes mellitus. D-glucose is the predominant physiological regulator of insulin secretion but this response is modulated by other hormones including the neurotransmitter, acetylcholine and enteric peptides. Current research focus on the role of the Ca2+/Calmodulindependent enzymes, myosin light chain kinase and the multifunctional protein kinase II, in glucose induced insulin secretion and the role of the cytoskeleton in this process. Experimental models

include isolated pancreatic islets and clonal B-cell cultures.

#### Arthur Eisenberg, Ph.D.

State University of New York at Albany; Director of DNA Repository, Associate Professor, Department of Pathology

Application of DNA probe methodologies for human identification in both paternity and forensic cases. PCR methodologies for human infectious disease diagnostics and inheritable genetic disorders including Attention Deficit Hyperactivity Disorder (ADHD). In association with local medical centers, the development of rapid and sensitive DNAbased cancer tests.

# Michael W. Emmett-Oglesby, Ph.D.

State University of New York at Buffalo; Professor, Department of Pharmacology

Drug tolerance and withdrawal. An animal model has been developed that is useful for investigation of subjective events that occur during drug withdrawal. Additional studies focus on the mechanisms of development of tolerance after chronic use. The research involves training animals to detect the stimulus properties of drugs (i.e., the presence or absence of a perceived drug effect). This laboratory also investigates the fundamental variables that control the detection of drug stimuli.

#### Michael J. Forster, Ph.D.

Bowling Green State University; Associate Professor, Department of Pharmacology

Mechanisms of brain aging and the associated declines of cognitive, sensory and motor functions. Longitudinal and cross-sectional studies of aging mice are focused on identification of biological factors responsible for brain aging using behavioral testing techniques applied across the life span. A focal hypothesis is that oxidative molecular damage is an important factor in age-related functional losses. This hypothesis is being tested by examining molecular damage as a correlate of behavioral dysfunction, and by examination of functional aging in mice following experimental interventions that impact concurrently upon life-span and the degree of age-related oxidative molecular damage. These interventions include lifelong dietary restriction, antioxidant treatment, and genetic manipulations.

#### Thomas V. Fungwe, Ph.D.

Texas Tech University; Research Assistant Professor, Department of Biochemistry and Molecular Biology

Cholesterol metabolism; regulation of lipoprotein and apolipoprotein secretion, and protein expression. Research focuses in two areas: 1) the study of nutritional factors mediating regulation of synthesis, assembly and secretion of lipoproteins; 2) regulation of the expression of apolipoprotein E, apoA-I and lecithin cholesterol acyltransferase at the transcriptional and post-transcriptional level.

#### Margaret H. Garner, Ph.D. Indiana University;

Associate Professor,

Department of Anatomy and Cell Biology The focus of current research is to

characterize membrane transporter function under conditions of hyperglycemia and hyperinsulinemia as well as under conditions where glucose and insulin are elevated and lowered in a pulsatile fashion. Transporters to be studied include the Na, K-ATPase, the Ca-ATPases, the bicarbonate chloride exchanger and the Na-K-Cl cotransporter. Understanding the differences between pulsatile verses chronic hyperglycemia and hyperinsulinemia in the regulation of membrane transporters is essential to the development of treatment regimen for diabetes mellitus

#### John F. Gaugl, Ph.D.

University of California at Berkeley; Associate Professor, Department of Integrative Physiology

Description of factors that control right coronary arterial circulation. This laboratory characterizes changes in right coronary flow and right ventricular oxygen extraction during increases in right ventricular work imposed by augmented heart rate, and right ventricular preload and afterload and how changes in physiological conditions, such as oxygen supply and degree of autonomic tone, modify the normal right coronary and ventricular responses to augmented ventricular work. A secondary area of interest is the involvement of endogenous opioids in cardiac and peripheral vascular control.

#### Adela N. Gonzalez, M.P.A.

Southwest Texas State University; Acting Director, Public Health Program

Research interests include populationbased research on community health concerns, substance abuse, violence, primary care and health policy.

#### Robert W. Gracy, Ph.D.

University of California at Riverside; Professor, Department of Biochemistry and Molecular Biology

Aging: Biochemical and molecular biological basis and physiological consequences. Four primary areas are being explored. First, the molecular basis for the accumulation of abnormal protein in aging cells is being examined by a comparison of the structural and functional properties of selected enzymes. The second program deals with cytogerontology and impaired immune function with age. The third program deals with wound healing in the elderly. This program examines why elderly individuals exhibit impaired ability to repair wounds such as decubitus ulcers and bones. The study explores the use of growth factors and selected enzymes for

possible use in treatment of wounds. The fourth project is designed to assess vision impairment in the aging process. Cataracts, glaucoma and diabetic retinopathy account for severe disabilities of our aging population. The biochemical basis for changes in the eye during aging are being explored. All four of the above research programs have considerable overlap with regard to methods and span a wide range from very basic biochemical studies to applied clinical studies. A variety of interventions and new products are being examined as part of an ongoing Applied Enzymology program in Biotechnology.

#### Stephen R. Grant, Ph.D.

University of Tennessee, Assistant Professor, Department of Biochemistry and Molecular Biology

Research focuses on molecular mechanisms controlling contractile protein gene expression during cardiovascular hypertrophy. Recent research efforts have identified a new calcium sensitive nuclear signaling pathway. When active this pathway transcriptionally silences cardiac embryonic gene expression in the heart. Maintenance of this signaling pathway controls hypertrophy in the mammalian cardiovascular system. The research plan includes identifying cardiac calcium sensitive enzymes involved in contractile protein gene silencing, identifying a new transcriptional repression model operative in the adult cardiomyocyte, transcriptional control of vascular hypertrophy in arterial resistance vessels during chronic exercise, and cardiac repression as a mechanism for maintenance of a differentiated cardiomyocyte phenotype.

#### Patricia A. Gwirtz, Ph.D.

Thomas Jefferson University; Professor,

Department of Integrative Physiology Research emphasizes neural control of cardiac contractile function and coronary blood flow. Chronically instrumented conscious dog model is used to examine neural control mechanisms at rest, during exercise, transient myocardial ischemia, peripheral vascular insufficiency and hypertension. Additional studies examine the cardiac and coronary vascular adaptations that occur as a result of exercise training.

#### Elizabeth Harris, Ph.D.

UT Southwestern Medical Center at Dallas; Associate Professor, Department of Microbiology and Immunology

The effect of hyperbaric oxygen (HBO) on the immune system and isolated lymphocytes in a specially developed high pressure chamber for tissue culture incubation are studied. Studies include: the mechanism of HBo protection against lethal endotoxin shock in guinea pigs, effect on the tumor necrosis factor cascade, and effects on related lymphocyte and macrofage functions. Lymphocyte functions of special interest include natural killer activity and antigen induced lymphokines in relationship to stress. emotions, hormones and drug or alcohol effects. Infections caused by slime production Staphylococcus epidermidis are being studied in a joint project with Alcon Laboratories, Inc.

#### Ben G. Harris, Ph.D.

Oklahoma State University; Professor, Department of Biochemistry and Molecular Biology

Biochemistry of parasitic helminths. Research interests are in the area of regulation of carbohydrate metabolism in parasitic helminths. The parasite primarily studied is the roundworm, *Ascaris suum*. Projects involve physico-chemical, kinetic and structural characterization of regulatory enzymes governing the utilization of carbohydrates in the essentially anaerobic parasites. Some of the enzymes being studied are phosphofructokinase and malic enzyme. Current projects involve x-ray crystallographic studies of malic enzyme, sequence studies on both malic enzyme and phosphofructokinase, and structural studies on both enzymes.

# Mark E. Hart, Ph.D.

Mississippi State University; Assistant Professor, Department of Microbiology and Immunology

Characterization and regulation of in vivo-expressed genes of Staphylococcus aureus. Despite numerous antimicrobial regimens and improved public health, Staphylococcus aureus remains an important bacterial pathogen responsible for a number of disease syndromes in both humans and animals. In vitro, this organism is known to make greater than thirty extracellular and cell-wall associated proteins, many of which have been implicated in the disease process. Definition of the role of most of these proteins as virulence factors has been dependent upon our rather limited ability to mimic the host environment in the laboratory. Research conducted is concerned with the identification, characterization, and regulation of S. aureus genes expressed specifically in the host environment. Ultimately, these studies will lead to the identification of factors critical to the disease process which will serve as potential candidates for vaccine and antimicrobial drug development.

#### Miao-Xiang He, M.D.

Shianghai Medical University; Research Assistant Professor, Department of Integrative Physiology

Identification of mechanisms underlying downregulation of myocardial contractile function during moderate ischemia. Understanding the intrinsic energetic adaptation of myocardium to ischemia using Nuclear Magnetic Resonance spectroscopy.

#### Robert Kaman, Ph.D.

Virginia Polytechnic Institute; Associate Professor, Department of Public Health and Preventive Medicine

Exercise physiology. Athletic performance may be enhanced by food supplements that enable exercise training to be conducted at a higher intensity, thereby leading to an enhanced training effect. The focus of these studies is the effect of Chinese herbal products on glycogen and fatty acid metabolism. Worksite health promotion may be the best way to attack the problem of rising employee health care costs. As this expense rises, companies find themselves struggling to maintain employee health benefits without losing profitability. Health promotion which provides programs to encourage healthy behaviors has been shown to be effective in lowering risk for illness among participants, improving productivity, and reducing illness-related absenteeism. Research is designed to quantify those outcomes by studying company records for health care expenditures, absenteeism and productivity.

#### Bhalchandra J. Kudchodkar, Ph.D.

University of Saskatchewan; Research Associate Professor, Department of Biochemistry and Molecular Biology

Lipid and lipoprotein metabolism. Elevated blood cholesterol and other lipids are transported as components of plasma lipoproteins. Increased amounts of low density lipoproteins (LDL) and low levels of high density lipoproteins (HDL) are major risk factors for CHD. Both LDL and HDL are composed of a number of discrete subpopulations. The physiological and pathological role(s) of these lipoprotein subfractions is the focus of our investigation.

#### Gopal Kulkarni, Ph.D.

Indian Institute of Science; Research Assistant Professor, Department of Biochemistry and Molecular Biology

Molecular biology of parasitic helminths. Current research focuses on the molecular cloning functional expression and genetic analysis of key regulatory enzymes involved in the carbohydrate metabolism in the parasitic nematode *Ascaris suum.* As a basis for the study of molecular architecture of these enzymes to aid in rational drug design, sitedirected mutagenesis and biochemical characterization of mutant enzyme forms are proposed.

#### Andras G. Lacko, Ph.D.

University of Washington; Professor, Department of Biochemistry and Molecular Biology

Plasma lipoprotein metabolism. Research interests include the regulation of plasma lipid transport in humans and in rats. Studies are focused on the rate limiting steps of the reverse cholesterol transport pathway: the lecithin: cholesterol acyltransferase (LCAT) reaction. Research is currently conducted in the following areas: 1) Structure/function recombinant wild type and mutant forms of LCAT; 2) Factors influencing the rate of reverse cholesterol transport in human subjects.

#### Harbans Lal, Ph.D.

University of Chicago; Professor and Chair, Department of Pharmacology

Studies are aimed at identifying drugs that are efficacious in the treatment or prevention of the loss of cognitive dysfunction associated with aging. Additional studies are directed at identifying drugs that are efficacious in the treatment of acute withdrawal and protracted recovery phases of alcoholism. Gender differences in alcohol withdrawal and responses to useful treatment modalities are especially emphasized. Rodent models of anxiety and the acquisition and retention of learned behaviors are used in these studies. This research has relevance in that, in the one case, it may lead to drugs that are effective in treating memory impairment associated with aging or Alzheimer's disease and, in the second, may provide preclinical data that will be relative to the treatment of alcoholism and the prevention of continuous alcohol abuse in humans.

#### John C. Licciardone, D.O.

Kirksville College of Osteopathic Medicine, M.S., Ohio State University College of Medicine, M.B.A., Texas Christian University; Assistant Professor, Department of Public Health and Preventive Medicine

Epidemiologic and clinical research in areas such as health services, clinical outcomes, patient satisfaction, quality of health care nad preventive medical services. Current efforts are being focused on developing practice-based research in primary care medicine. Other fields of research nclude collegiate drug and alcohol programs, occupational health and safety, and the health of international travelers.

# Robert R. Luedtke, Ph.D.

University of Pennsylvania; Assistant Professor, Department of Pharmacology

Antipsychotic drugs that are used to treat neuropsychiatric illness, including schizophrenia, have been found to be high affinity antagonists for dopamine receptors. Recent studies have established that there are multiple subtypes of dopamine receptors. Pharmacologic, Immunologic and Molecular Genetic approaches are being used to study the extent of genetic polymorphism of dopamine receptor genes, to develop a panel of anti-receptor antibodies that are specific for each of the dopamine receptor subtypes, to genetically engineer cell lines for the expression of a homogeneous population receptors using the baculovirus expression system, to study the molecular mechanisms responsible for dopamine receptor expression and regulation, and to understand the molecular basis for the interaction between antipsychotic drugs and dopamine receptors.

#### Sue G. Lurie, Ph.D.

University of Oklahoma; Assistant Professor, Department of Medical Humanities

Community health assessment for rural community-oriented primary care project (Family Medicine), assessment of public school and community support for children and families (Tarrant County Youth Collaboration), and research on Physicians' Assistants' professional career paths. Research interests include bioethical decision processes, comparative health and mental health policy and programs, health and social needs of adolescents and the elderly.

#### Robert T. Mallet, Ph.D.

George Washington University; Assistant Professor,

Department of Integrative Physiology Metabolis basis of cardiac performance. The working myocardium has a high rate of energy expenditure and is heavily dependent on oxidative metabolism of exogenous fuels. The primary goals of this laboratory are to delineate cellular mechanisms for enhancement of cardiac performance by energy-yielding fuels, define metabolic mechanisms for regulating glucose metabolism in heart muscle, characterize metabolic adaptations of heart muscle in response to endurance exercise training, and to develop experimental interventions for improving cardiac performance following ischemia. Methodologies include both in vivo and isolated perfused heart models as well as state-of-the-art analytic techniques.

#### Muriel A. Marshall, D.O.

Michigan State University College of Osteopathic Medicine; M.P.H & T.M., Dr.P.H., Tulane University School of Public Health and Tropical Medicine; Associate Professor, Departments of Family Medicine and Public Health and Preventive Medicine

Areas of research interest include travel medicine, tropical medicine, clinical preventive medicine and international health. Effect of Ramadan fasting on pregnancy outcomes in the United Arab Emirates. Prenatal care use, patterns and correlates of anemia during pregnancy, and associations between low birth weight and maternal socio-demographic and reproductive characteristics in the United Arab Emirates.

#### Michael W. Martin, Ph.D.

University of Texas at Houston; Assistant Professor, Department of Pharmacology

Molecular mechanisms of neurotransmitter, hormone and growth factor transduction. The research applies biochemical and molecular approaches to investigate adaptative changes that occur in membrane receptors and their coupling to signal transduction apparatus using animal models and cultured cell systems. The aim of these studies is to understand how cells, especially neurons, modulate their sensitivity to extracellular chemical

signals. These fundamental regulatory processes are important not only for normal cellular activity, but also may be the underlying mechanisms responsible for the development of tolerance/ dependence to benzodiazepines, alcohol, cocaine and other drugs of abuse in humans.

### Walter J. McConathy, Ph.D.

University of Oklahoma School of Medicine; Associate Professor, Department of Internal Medicine Structure and function of human

apolipoproteins/lipoproteins in health and

vascular disease. Currently, the focus is on the interactions of Lp(a) [lipoprotein (a)] and with the subendothelial extracellular matrix using biochemical, molecular and cell biology techniques. Other areas of interest include interactions of apolipoproteins C-II, C-III, and E with lipoprotein (LPL); development and application of analytical microprocedures to monitor events at the molecular level; role of immunoglobulins in lipid metabolism; Alzheimer's disease; phylogeny and ontogeny of the plasma lipid transport system; and the relationships between plasma lipids, nutrition and various pathological states.

#### Stephen J. Moorman, Ph.D.

Colorado State University; Assistant Professor, Department of Anatomy and Cell Biology

Developmental neurobiology and spinal cord regeneration. Research focuses on transduction of environmental signals into meaningful behaviors of the neuronal growth cone and the oligodendrocyte leading edge during development.

#### M. Susan Motheral, Ph.D.

Duke University, M.B.A., Southern Methodist University; Assistant Professor, Department of Medical Education

Scientific recordkeeping. The impact of health care reform on health care delivery systems, and on work force needs for health care professionals and biomedical scientists. Determinants of medical practice characteristics and scientific decision making.

#### Edward Orr, Ph.D.

University of California at Berkeley; Associate Professor,

Department of Anatomy and Cell Biology Areas of research broadly relate to neuroimmunology, neurochemistry and neuropathology. Specifically involved in research on the significance and roles of meningeal mast cells and their products in regulating the blood-brain and cerebrospinal fluid-blood barriers under normal and pathological conditions including nervous system trauma and experimental autoimmune diseases of nervous tissues. This laboratory recently developed a novel model system to study the responses of the nervous systems and associated tissues to mild head injury. Research continues on the neurobiology of histamine as a neurotransmitter.

### Stephen L. Putthoff, D.O.

University of Health Sciences; Associate Professor and Chair, Department of Pathology

DNA probes, concepts and conclusions; forensic evidence; Human Genomes.

#### Eugene Quist, Ph.D.

University of British Columbia; Associate Professor, Department of Pharmacology

Roles of neurologic and endocrine hormones in myocardial adaptation. The heart is capable of adapting or remodeling in response to aging, exercise training, hypertension and numerous other hemodynamic stresses by altering protein synthesis. Goals are to define how hormones influence intracellular messages transmitted by6 phospholipase C, protein kinase C and adenylate cyclase to modulate protein synthesis in myocardial tissue or in primary cultues of cardiomyocytes from adult heart. Emphasis is on regulation of remodeling with aging and exercise training.

#### G.S. Jagannatha Rao, Ph.D.

Indian Institute of Science; Research Assistant Professor, Department of Biochemistry and Molecular Biology

Biochemistry of parasitic helminths. Research interests are in the area of enzymology and protein chemistry, with particular emphasis on enzyme mechanisms, allosteric regulation, x-ray crystallography, protein phosphorylation and dephosphorylation. Studies include Aspartate transcarbamylase, a key regulatory enzyme of the pyrimidine biosynthetic pathway, phosphofructokinase, a key allosteric enzyme of carbohydrate metabolism, and NAD-malic enzyme, involved in energy production in *Ascaris suum*, Calcineurin, a calmodulindependent protein phosphatase and Oacetylserinesulfhydralase from *Salmonella typhimurium*. These enzymes have been purified and characterized by kinetics, chemical modification, physiochemical studies including fluorescence, circular dichroism and x-ray crystallography.

#### Peter B. Raven, Ph.D.

University of Oregon; Professor and Chair, Department of Integrative Physiology

Cardiovascular regulation of the human during exercise and orthostasis. Aerobic fitness, weight training and aging have all been shown to affect regulation of blood pressure during exercise and orthostasis. Indeed orthostatic hypotension is a clinical syndrome which affects 25% of the population over the age of 65 years. By using invasive and non-invasive procedures integrative physiological mechanisms of cardiovascular regulation of the human are investigated during dynamic exercise and gravitational stress in both young and elderly individuals with varying levels of aerobic fitness.

# Tony Romeo, Ph.D.

University of Florida;

Associate Professor, Department of Microbiology and Immunology

Molecular biology and regulation of stationary phase metabolism. As bacteria enter the stationary phase, alterations in the global pattern of gene expression profoundly alter cell physiology and metabolism. The glycogen biosynthesis pathway in *Escherichia coli* is being studied by genetic and molecular biological approaches to identify general regulators of stationary phase metabolism. The mechanisms by which these regulatory factors control glycogen biosynthesis and other stationary phase processes are also being studied.

#### Rouel Roque, M.D.

University of the Philippines; Assistant Professor, Department of Anatomy and Cell Biology

The main focus of research is glial cell biology-understanding the structure and function of glial cells in the central nervous system, especially in the retina. Specific interest lies in investigating the role of glial cells (specifically microglial cells and retinal Muller cells) in various diseases of the central nervous system involving neuronal or vascular degeneration, breakdown of the blood-brain barrier, retinal neovascularization, or carcinogenesis. The role of glial cells in programmed cell death or retinal angiogenesis during development are also of prime interests. Ongoing studies are now directed towards characterization and purification of several novel growth factors and cytokines which have been shown to induce neuronal or endothelial cell death, proliferation of endothelial cells, or inhibition of tumor cell growth.

#### Bernard Rubin, D.O.

Chicago College of Osteopathic Medicine; Professor, Department of Medicine

Clinical research involving innovative techniques for the treatment of osteoporosis, rheumatoid arthritis, osteoarthritis and fibromyalgia syndrome. Therapeutic protocols involve combinations of pharmaceutical products and nontraditional medical therapies with outcomes measured by biological markers and quality of life assessments.

#### Victoria Rudick, Ph.D.

Ohio State University; Associate Professor, Department of Anatomy and Cell Biology

Mechanism(s) of targeting secretory proteins in canine kidney epithelial (MDCK) cells and regulation of organelle

biosynthesis: Endomembranous organelles respond to change in measurable ways that contribute to the expression of cell phenotype. For example, the Golgi complex plays a key role in the cell. functioning to direct vesicles and proteins to a variety of cell destinations and therefore affecting numerous other organelles in the process. Thus, its own morphology and functions must be flexible to maintain cellular homeostasis. By introducing genes that code for exogenous secretory proteins into MDCK cells we are able to study what happens to the particular protein as it is routed through the secretory pathway and, also, to examine the effects that the protein has on the cell. For example, expression of the human growth hormone gene is being used to examine the nature and consequences of hypertrophy of Golgi elements, while expression of the apolipoprotein A-I gene allows investigation of apoA-I processing and trafficking. Study of the later protein has direct medical relevance since plasma concentration of HDL, of which apoA-I is the main protein component, has been correlated with reduced risk of cardiovascular disease.

#### Konrad W. Scheel, Ph.D.

University of Mississippi School of Medicine; Professor, Department of Integrative Physiology

Research centers around the effects of heart failure on blood pressure, blood flow, and heart function. A related area of interest is the investigation of how blood vessels form and grow after coronary occlusion and resupply the ischemic myocardium. Computer modeling of biological systems is also an integral part of our research.

#### Harold Sheedlo, Ph.D.

Memphis State University; Research Assistant Professor, Department of Anatomy and Cell Biology The isolation, purification and amino

acid sequence analysis of factors secreted by transformed neonatal rat (tnr) retinal pigment epithelial (RPE) cells in vitro which have demonstrated retina-promoting activities. RPE cells exist as a monolaver, immediately adjacent to the neural retina, thus in a unique position to influence retinal development, particularly photoreceptors, by trophic interactions. Retinal explant cultures exposed to conditioned media (CM) from tnrRPE cultures showed neurites and the production, survival, proliferation and differentiation of retinal progenitor cells, while injection of tnrRPE-CM into the vitreous of neonatal rats affected retinal development. RPE proteins purified by gel elution will be tested separately in these systems. In addition, an antiserum raised against proteins of tnrRPE-CM was localized to RPE and ganglion cells in rat and human retinas and nullified the effects of tnrRPE-CM in retinal explant cultures. Antibodies produced against each individual RPE protein will be similarly localized and tested in vitro. Furthermore, amino acid sequence data will be used to determine the unique character and specific protein family(ies) of these RPE factors.

#### J. Mark Sherman, Ph.D.

University of North Texas Adjunct Assistant Professor Associate Director of DNA Repository Department of Pathology

Application of DNA probe methodologies for human identification in both paternity and forensic cases. PCR methodologies for human infectious disease diagnostics and inheritable genetic disorders including Attention Deficit Hyperactivity Disorder (ADHD). In association with local medical centers, the development of rapid and sensitive DNAbased cancer tests.

#### Xiangrong Shi, Ph.D.

Yale University; Assistant Professor, Department of Integrative Physiology Arterial and cardiopulmonary baroreflexes and their interaction in the regulation of blood pressure; Body fluid and volume-regulating hormonal responses to physical exercise and various environmental challenges; Aging-related adaptations of body fluid and cardiovascular regulation; Impact of acute exercise and chronic training on blood volume and cardiovascular function.

# Jerry W. Simecka, Ph.D.

University of Alabama at Birmingham; Assistant Professor, Department of Microbiology

Respiratory disease is a major health problem, particularly in the young and elderly. There is a need to understand the role of host responses to infectious agents in the pathogenesis and resistance to disease. This information will contribute to the development of new vaccines and approaches to therapy. This laboratory is characterizing the development of immune and inflammatory responses during the development and recovery from bacterial and viral respiratory diseases. In addition, new approaches to vaccination against respiratory infection are being studied.

#### Michael L. Smith, Ph.D.,

North Texas State University; Associate Professor,

Department of Integrative Physiology Research efforts focus on the neural control of cardiovascular function. Two lines of research relate to factors which precipitate sudden cardiac death: 1) autonomic neural responses during ventricular dysrhythmias, and 2) neural responses during recovery from exercise and the effects of training on these responses. Two other lines of research relate to abnormal control mechanisms provoked in sleep disorders: 1) mechanisms of the association between obstructive sleep apnea and hypertension, and 2) effects of sleep deprivation on normal cardiovascular control.

#### Paul A. Stern, D.O.

University of Health Sciences; Professor and Chair, Department of Anesthesiology

Research has included clinical demonstration of total intravenous anesthesia; Monitoring intraoperative anesthesia; Electron spin resonance determining mechanism of general anesthesia; Effect of total parenteral nutrition on the blood:gas partition coefficient of volatile anesthetic agents.

#### James E. Turner, Ph.D.

University of Tennessee; Professor and Chair, Department of Anatomy and Cell Biology

Research interests include the actions of retinal pigment epithelial cells (RPE) in retina health and disease. Specific interest is in the use of RPE transplantation techniques in helping to cure eye disease conditions. Through RPE transplantation techniques developed in the laboratory, the loss of photoreceptor cells was halted, and the eye disease in an animal model of inherited retinal dystrophy cured. Research also involves the study of retina directed trophic factors produced by RPE cells which influence the development and survival of retinal tissue and may have therapeutic value in the treatment of eye diseases. Current studies focus on the characterization of these factors and their use in in vitro and in vivo models. Techniques used in these investigations include: light and electron microscopy, tissue culture, immunocytochemistry, neurochemistry, biochemistry and molecular biology.

#### Cleatus J. Wallis, Ph.D.,

University of Florida, J. Hillis Miller Medical Center; Research Assistant Professor, Department of Pharmacology

Behavioral and biochemical mechanisms of nervous system function. Current work focuses on development and behavioral testing of medications to treat anxiety and other symptoms produced by

ethanol and/or nicotine withdrawal. Other work includes studies of gender differences in neural mechanisms underlying anxiety and reward properties of stimuli and in situ electrochemical detection of dopamine. Previous work has included development of assay techniques (HPLC, radioimmunoassay, radio-ligand binding, and radioenzymatic assays) for neurally active substances, investigations of teratological actions of drugs of abuse and naturally occurring hormones, calcium binding properties of cytoskeletal proteins (including flow dialysis and equilibrium dialysis), and steroidal hormone involvement in neural function.

#### Judy R. Wilson, Ph.D.,

Kent State University; Research Assistant Professor, Department of Integrative Physiology

The effect of hyperbaric oxygen (HBO) on the immune system and isolated lymphocytes in a high pressure chamber developed for tissue culture incubation are studied. Use of a human skin equivalent as an *in vitro* model to study wound healing under HBO conditions. Animal work involves studies to determine the mechanisms of HBO protection against lethal endotoxin shock in guinea pigs and to determine the mechanism of retardation of atherosclerosis in rabbits fed a high cholesterol diet and treated with HBO.

#### Robert Wordinger, Ph.D.

Clemson University; Associate Professor,

Department of Anatomy and Cell Biology

Role of growth factors in the development of glaucoma. Glaucoma is a leading cause of blindness and is characterized by a defect in the ability of aqueous humor to drain efficiently through the human trabecular meshwork. This leads to an intraocular pressure higher than the eye can tolerate and blindness through death of retinal ganglion cells. The primary hypothesis of this laboratory is that gene

expression and mRNA levels of specific growth factors or their high affinity receptor is altered in glaucomatous trabecular meshwork cells. Recent studies have utilized in vitro culture of normal and glaucomatous trabecular meshwork cells and molecular biology techniques including reverse transcriptase-polymerase chain reaction and Northern and Southern blotting techniques. The members of this laboratory are also interested in steroid induced glaucoma and study this by exposing trabecular meshwork cells to the glucocorticoid dexamethasone. This approach should further our knowledge of the biologic characteristics of healthy and glaucomatous human trabecular meshwork cells and will be critical to discover new and innovative avenues for the diagnosis, management and treatment of glaucoma.

#### Ming-Chi Wu, Ph.D.

University of Wisconsin; Professor, Department of Biochemistry and Molecular Biology

Regulation of blood cell differentiation. Major research projects conducted in this laboratory are centered on the hematopoietic growth factors and their roles in the regulation of myelopoiesis. Current studies include: (a) regulation of M-CSF gene expression; (b) molecular cloning and expression of a new leukenia cell differentiation factor; (c) role of M-CSF in neuronal developemnt; (d) characterization of bovine carilage powder for wound healing.

# Thomas Yorio, Ph.D.

Mt. Sinai School of Medicine; Professor, Department of Pharmacology Dean, Graduate School of Biomedical Sciences

Characterization of mechanisms whereby epithelial cells regulate their membrane permeability to electrolytes and water, particularly, the processes involved in the cycling of water channels in the actions of antidiuretic hormone (vasopressin) and aldosterone in renal epithelia. Another major area is understanding the cellular mechanisms that may be coupled to the regulation of intraocular pressure and factors defining and contributing to the development of glaucomawith the intent on designing better drugs for the clinical management of glaucoma.

Graduate faculty of the Robert B. Toulouse School of Graduate Studies at the University of North Texas campus in Denton are also members of the graduate faculty at UNT Health Science Center at Fort Worth and thus can serve as mentors or committee members of health science center graduate students, appropriate to their graduate appointments. See the UNT graduate catalog for UNT graduate faculty listings.

# **Emeritus Faculty**

**Coy, Marion E., D.O., F.A.C.G.P.** Professor Emeritus, Manipulative Medicine; B.S. Eureka College, D.O. Kirksville College of Osteopathic Medicine

Jenkins, William R., D.O., F.A.C.O.S. Professor Emeritus, Surgery; B.S. Texas Wesleyan University, D.O. Kirksville College of Osteopathic Medicine

#### Korr, Irvin M., Ph.D.

Professor Emeritus, Manipulative Medicine; B.A. and M.A. University of Pennsylvania, Ph.D. Princeton University

Ogilvie, Charles D., D.O., F.A.O.C.R., F.A.C.O.S.

Professor Emeritus, Medical Humanities; D.O. Kirksville College of Osteopathic Medicine

Wilkins, Frederick M., D.O., F.A.O.C.R. Professor Emeritus, Radiology; B.S. Elizabethtown College, D.O. Philadelphia College of Osteopathic Medicine

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# Professional Library Faculty/Staff

**Brooks, Ann, M.L.S., M.B.A.** Associate Director, Public Services; Assistant Professor, Medical Education; B.S. California Polytechnic University, M.L.S. University of Pittsburgh, M.B.A. Texas Christian University

#### Carter, Bobby R., M.S.

Director, Library Services; Associate Professor, Medical Education; B.S. University of Houston, M.S. Louisiana State University

# Elam, Craig S., M.L.S., A.H.I.P.

Associate Director, Technical Services; Assistant Professor, Medical Education; A.B. Stanford University, M.L.S. University of California at Berkeley

#### Lee, Regina, M.L.S.

Coordinator of Public Access Services; Instructor, Medical Education; B.A. Angelo State University, M.L.S. University of Texas at Austin Martin, Dohn H., M.S., M.S.L.S. Systems Librarian; Instructor, Medical Education; M.S. and M.S.L.S. University of North Carolina, Chapel Hill

#### Mason, Timothy D., M.L.S.

Technical Services Librarian; Instructor, Medical Education; B.A. University of Cincinnati, M.L.S. University of North Texas

### McInroy, Moira, M.A., M.L.S.

Learning Resource Center Librarian; Assistant Professor, Medical Education; B.Ed. Nottingham University, M.A. Glasgow University, M.L.S. University of North Texas

Porter, Sherry, M.L.S.

Serials Librarian; Instructor, Medical Education; B.A. Southwest Texas State University, M.L.S. University of Texas at Austin

#### Raymond, Sue, M.L.S.

Coordinator of Instructional Services; Instructor, Medical Education; B.A. Georgetown College, M.L.S. University of Missouri at Columbia

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Information current as of March 1, 1996

# Index

Absence for Religious Holidays	20
Academic Calendars	
Academic Misconduct	20
Accreditation	20
Activity Center, Founders'	72
Adding Courses	22
Administration	104
Admission to Graduate School	104
Application Deadlines	15
Application Fee	15 (0
Continuing Student Admission	15, 08
English Screening Examination	16
Coporal Admission Densi	1/
CPF	s 15
International Admini	16
Neg days the initial of the initial	17
Non-degree Admission	17
Readmission	16
Americans with Disabilities Act	106
Anatomy and Cell Biology,	
Department of	32, 76
Appeal Processes	20
Application Deadlines	15
Attendance	22
Auditing	21
Biochemistry and Molecular	
Biology Department of	3/1 77
Biomedical Communications	12
Biomedical Sciences	12
Department of	12 75
Black Graduate Student Association	43, 75
black Graduate Student Association	13
Campus Map	107
Commencement Exercises	22
Concurrent Enrollment	22
Continuous Enrollment	30
Cooperative Dual Programs	66
Core Curriculum Requirements	27 45
Core Courses	27 45
Course Changes	27, 10
Course Descriptions	75
Course Duplications	24
Courses of Instruction	24
sources of mistruction	44
Degree Plan	30
Dissertation Requirement	30
Diversity, Respect for	106
Doctoral Program Requirements	30
DO/PhD Student Association	72
Dropping Courses	22
Incollment Cartification	22
Invironmental Health	42
indemiology	4/
pidemiology	49

Family Health Final Examinations Financial Aid	51 23 70
Financial Policies	70
General Requirements 25 Grade Changes Grade Reports	5, 27, 29 24 24
Grading System	23
Grade Point Average	23
Graduate Council	104
Graduate Degree, Application for Graduate Student Association	21 72
Health Behavior	53
Health Economics	55
Health Insurance Program	72
Health Services Administration	57
Health Services Research	59
Identification Card Regulations	72
Information Technology Services	12
Integrative Physiology,	
Department of	37, 78
Joint Degrees	64
Level of Work Required 25, 27 Library, Gibson D. Lewis	, 29, 45
Living Accommodations	12
Living Accommodations	12
Master of Science Requirements Master of Public Health Requireme Microbiology and Immunology,	28 nts 46
Department of	39, 79
Mission Statement	8, 9
Motor Vehicle Regulations	72
Multicultural Alfairs, Office of	15
Occupational Health	61
Open Records Policy	24
Organizations Policy	12
Pass/No Pass Grading	24
Pharmacology, Department of	41, 81
Policies	25
Probation	24
Public Health Program	81, 45
Qualifying Examination Quality of Work Required	30 23
Refunds	25 69
Regents, Board of	104
Removal of Incomplete Grade	24
Research and Biotechnology,	11
Onice of	11

Residency Regulations	68
Residency Requirement	29
Sexual Harrassment	106
Special Centers of Excellence	10
Student Affairs	72
Student Load	25
Summons	25
Suspension	24
Time Limitations	28, 29, 45
Transfer and Extension Credit	28, 29, 45
Tuition and Mandatory Fees	68
With daganal from Cl	

# **Respect for Diversity**

The Nondiscrimination/Equal Employment Opportunity and Affirmative Action policy affirms the requirement for every member of the UNT Health Science Center community to comply with existing federal and state equal opportunity laws and regulations.

The UNT Health Science Center is committed to the philosophy of a multicultural environment. The institution prohibits harassment based on race, gender, disability, age, national origin, religion, veteran status or lifestyle.

The health science center has long been an open, tolerant and democratic institution, proud of its commitment to personal and academic excellence but unpretentious in the atmosphere of its campus in its willingness to accept all members of the health science center community on their value as human beings.

The increasing diversity of the UNT Health Science Center community is one of the institution's greatest strengths. Differences of race, religion, age, gender, culture, physical ability, language, nationality and lifestyle make it a microcosm of the nation as a whole, reflecting the values of our pluralistic society.

As an educational institution, the UNT Health Science Center is committed to advancing the ideas of human worth and dignity by teaching respect for human beliefs and values and encouraging open discussions. Hatred or prejudice and harassment of any kind are inconsistent with the center's educational purpose.

The UNT Health Science Center is strongly committed to the ethical principle that every member of the community enjoys certain human and constitutional rights, including the right to free speech. As a community of scholars, the health science center also is dedicated to maintaining a learning environment that is nurturing, fosters respect, and encourages growth among cultures and individuals represented here. Individuals who work, study, live and teach within this community are expected to refrain from behaviors that threaten the freedom and respect every individual deserves.

# Sexual Harassment

A primary objective of the UNT Health. Science Center is to provide an environment in which faculty, staff and students may pursue their careers and studies with a maximum of productivity and enjoyment.

Harassment of students on the basis of gender is a violation of Section 106.31 of Title IX of the Education Amendments of 1972. Harassment of health science center employees on the basis of gender is a violation of Section 703 of Title VII of the Civil Rights Act of 1964 and the Texas Commission on Human Rights Act. Sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature constitutes sexual harassment.

It is the policy of the health science center to maintain a workplace and a learning environment free of sexual harassment and intimidation. Behavior or conduct that interferes with this goal is not condoned or tolerated.

# Americans with Disabilities Act

The UNT Health Science Center does not discriminate on the basis of an individual's disability and complies with Section 504 and Public Law 101-336 (Americans with Disabilities Act) in its admissions, accessibility, treatment and employment of individuals in its programs and activities.

The UNT Health Science Center provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law, who are otherwise qualified to meet the institution's academic and employment requirements. For assistance contact the Equal Employment Opportunity Office at the health science



# Campus Access Map
## Information Guide

UNT Health Science Center Switchboard	817-735-2000
<b>Graduate School of Biomedical Sciences</b> Admissions Office, ME1-804 <i>Admissions information, applications and</i> <i>status reports for new and former students</i>	817-735-2560
Public Health Program, ME1-840	817-735-2401
<b>Basic Science Departments</b> Anatomy and Cell Biology, ME2-202 Biochemistry and Molecular Biology, ME2-402 Integrative Physiology, ME2-302 Microbiology and Immunology, ME2-428 Pharmacology, ME2-334	817-735-2045 817-735-2141 817-735-2080 817-735-2112 817-735-2056
Central Clinic, 999 Montgomery	817-735-2228
Accounting (Student Receivables), ME1-832B	817-735-2548
Financial Aid, ME1-116	817-735-2520
Registrar, ME1-502	817-735-2201
Student Affairs, ME1-116	817-735-2505

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