

**NARCH  
Summer  
Undergraduate  
Research  
Program**

*Today's Research for Tomorrow's Cure*



## **OVERVIEW**

The University of Oklahoma's Health Sciences Center (OUHSC) is one of only four comprehensive health centers in the nation. With six health professional Colleges and the Graduate College, it is the State of Oklahoma's major health professions educational institution, training physicians, dentists, nurses, pharmacists, public health specialists, biomedical researchers and a wide range of allied health personnel. The Graduate College is the center of advanced study, research, and creative activity with over 500 students enrolled in more than 50 graduate degrees in the areas of Allied Health Sciences, Biochemistry & Molecular Biology, Biostatistics & Epidemiology, Cell Biology, Communication Sciences & Disorders, Genetic Counseling, Health Administration & Policy, Health Promotion Sciences, Microbiology &

Immunology, Neuroscience, Nursing, Nutritional Sciences, Occupational & Environmental Health, Orthodontics, Pathology, Periodontics, Pharmaceutical Sciences, Physiology, Radiological Sciences, and Rehabilitation Sciences.

## **NARCH**

The Graduate College at the University of Oklahoma Health Sciences Center has developed and hosts a number of summer undergraduate research programs. The Native American Research Center for Health (NARCH) Student Development Program, funded through a grant from the National Institutes of Health (NIH), National Institute of General Medical Sciences (NIGMS) in collaboration with the Indian Health Service (IHS), is designed to better prepare



and encourage undergraduate students to pursue careers in biomedical research or related health sciences. Studies show that undergraduate research programs are beneficial to the success of applying to and completion of a graduate degree program. This program offers outstanding undergraduate students intensive, hands-on research opportunities in the laboratories of select OUHSC biomedical faculty mentors.

A significant dimension of this program is to introduce students to the rigorous academic preparation required for biomedical research careers and to acquaint them with graduate education at OUHSC

### **ORIENTATION**

The NARCH summer program lasts nine weeks from late May to late July and the participants will be expected to devote a minimum of 40 hours per week to the program. Participants arrive in Oklahoma City on the weekend preceding the start of their program where they will begin orientation sessions that will include training for laboratory safety, radiation safety, library resources, etc.

### **RESEARCH**

Students spend most of their time engaged in laboratory research where they are immersed in the total intellectual environment of the laboratory and included in all lab meetings.

Mentors, graduate students and laboratory personnel work closely with the students to teach methods and techniques that will allow the students to assume responsibility for their research projects. Attempts will be made to match each participant to their mentoring research professor for their skills training; however, the main consideration will be to match each participant with a research project in which their skills can best be developed.



[http://www.ouhsc.edu/graduate/Summer\\_Programs.htm](http://www.ouhsc.edu/graduate/Summer_Programs.htm)

## **ENRICHMENT**

During the course of the program, weekly educational enrichment meetings will be held to discuss research-related skills and to familiarize the students with the areas of research at the OU Health Sciences Center beyond their assigned laboratory. Enrichment topics will also include career opportunities, preparation activities for graduate school, financial aid advising, etc. Students also will have opportunities to learn about all graduate programs at OUHSC and to visit laboratories in participating departments. These enrichment activities provide students scheduled times to be together and give students a broad picture of research at the graduate level.



Additionally, social activities are scheduled for the evenings and weekends to enhance the overall experience of the students. Past events have included pool parties, barbecues, Oklahoma Redhawks baseball games, and trips to Frontier City amusement park.

## **SCIENTIFIC SESSIONS**

At the conclusion of the nine-week program, participants submit scientific abstracts and present his or her findings at a closing poster session, which includes a keynote speaker and a reception. The poster session, displayed at the OUHSC, is another excellent opportunity to reinforce the importance of graduate education and the research opportunities available at the University of Oklahoma Health Sciences Center.

## **PARTICIPATION**

All participants are expected to remain on the OUHSC campus for the complete program.

## **COLLEGE CREDIT**

Participants will have the opportunity to enroll in three semester hours of undergraduate credit in *Advanced Studies in Biomedical Research*. Tuition will be waived; however, students will be responsible for all applicable fees.

## **HOUSING AND TRANSPORTATION**

Housing accommodations will be provided within a 15-minute drive of the OUHSC campus. Students will be responsible for transportation to and from Oklahoma City as well as the daily commute to the campus. Public transportation or car-pool options are available for the daily commute.

## **STIPEND**

All summer programs provide stipends of at least \$3,000, which is subject to federal and state withholding tax. The stipend is paid in three installments throughout the summer.

## **APPLICATION & DEADLINES**

Additional details about the **NARCH** program, including the application materials, can be found online at [http://w3.ouhsc.edu/graduate/Summer\\_Programs.htm](http://w3.ouhsc.edu/graduate/Summer_Programs.htm). Application deadlines for the **NARCH** program is March 12.

## **NARCH QUALIFICATIONS**

•Applicants must be a member of any Oklahoma tribe; preference will be given to Cherokee, Chickasaw, Choctaw, Creek and Seminole tribal members.

•Applicants must have completed two years of undergraduate study at an institution in the United States and must be enrolled currently and in good standing.

•A record of high academic achievement in science course work and experience in laboratory research or health sciences is desired.

•Two letters of recommendation from faculty mentors or instructors are required and should highlight the applicant's achievements in course work, laboratory experiences and an evaluation of his or her desire for a biomedical research or health science related career.

•A statement of career goals is required that includes a brief discussion of the applicant's interest and future goals.



## **PARTICIPATING PROGRAMS AND RESEARCH AREAS**

### ***Allied Health Sciences***

Communication sciences disorders, nutritional sciences, rehabilitation sciences, speech language pathology

### ***Biochemistry & Molecular Biology***

Macromolecular structure, glycobiology, human genetics, transcription regulation, vascular biology, signal transduction and intracellular trafficking

### ***Biological Psychology***

Behavioral neuroscience, psychopharmacology, psychophysiology, neuropsychology and cognition

### ***Biostatistics & Epidemiology***

Neuroepidemiology, cardiovascular disease, atherosclerosis in native diabetics, statistical methods in genetics, venous thromboembolism, perinatal epidemiology, tobacco prevention and control, infectious diseases, schistosoma japonicum and cysticercosis

### ***Cell Biology***

Developmental biology, retinal biochemistry, gene regulation, neurobiology of sensory systems, autonomic and cardiovascular pharmacology, nerve regeneration, wound regeneration, cell differentiation, vascular biology and cell-signaling mechanisms

### ***Health Administration and Policy***

Health care quality, health information technology, public health policy and administration, child health, mental health, substance abuse and domestic violence

### ***Health Promotion Sciences***

Gerontological health, Native American health, diabetes mellitus, vascular dementia and Alzheimer's disease

### ***Occupational & Environmental Health***

Expedient engineering controls for infectious patient isolation, Tar Creek remediation air monitoring study, characterization of lead dust contamination, cohort mortality study of workers potentially exposed to chloroprene

### ***Microbiology & Immunology***

Microbial infectious diseases, molecular and cellular immunology, microbial genomics/proteomics, structural biology and virology

### ***Neuroscience***

Molecular neuroscience, systems neurobiology and functional neuroscience

### ***Nursing***

Gerontological Nursing, Oncological Nursing, Genetics and Primary Care, Neonatal Nursing, and Palliative Care

### ***Pathology***

Vascular cell biology, hemostasis, inflammation, immunopathology, blood brain barrier systems in Alzheimer's disease and aging, neuropathology, intracellular trafficking, autoimmunity, breast cancer biology and tumor biology

### ***Pharmaceutical Sciences***

Drug kinetics, antibiotic resistance, neuro-toxicity of cocaine/methamphetamine, alcoholic liver injury, breast cancer, cystic fibrosis, noise-induced hearing loss and wound healing

### ***Physiology***

Neuronal control of cardiopulmonary function and pain transmission, cellular and molecular physiology, smooth muscle physiology, ion channel physiology and molecular mechanisms for neurodegeneration

### ***Oklahoma Medical Research Foundation***

Arthritis and immunology, cardiovascular biology, crystallography, developmental biology, free radical biology and aging, immunobiology and cancer, molecular and cell biology, molecular immunogenetics and protein studies

Detailed information for each of the areas above can be found at [http://w3.ouhsc.edu/graduate/Graduate\\_Programs.htm](http://w3.ouhsc.edu/graduate/Graduate_Programs.htm).