Overview

The Summer Institute for South Texas Public Health Research was established in the summer of 2013 to provide a graduate level research experience in public health research to undergraduate and graduate students under the direct mentoring of established University of Texas Health Science Center researchers. The eight-week program begins the first week of June (June 3rd) and runs through the last week of July (July 26th). During this time, interns work one-on-one with faculty on research projects in their field of interest. In addition, interns will have an opportunity to be involved in community health projects that provide an additional insight to public health on the South Texas Border.

Projects for the summer of 2019

Joseph B. McCormick, M.D., M.S. He has more than 40 years of experience in the study of infectious diseases, particularly viral such as Ebola and Lassa fever; epidemiology and bioterrorism; as well as other health issues in international settings. Dr. McCormick has received several awards from institutions such as The Texas Department of Health, Duke University Medical School, and Florida Southern College. He has held numerous positions such as Director of the Platforme d’Epidemiologie in Lyon France and Vice President for South Texas Programs at UTHSC-San Antonio. Dr. McCormick has also served as a consultant for various organizations including the World Health Organization (WHO) and the Institute Pasteur. In addition, he has collaborated in over 200 publications and has been a reviewer for major journals such as the Journal of Infectious Diseases, the Journal of Virology, and the Lancet.

Dr. McCormick’s Projects:

- **Project on Neglected Tropical Diseases (NTDs).** We are doing a study of a range of neglected tropical disease including serology and PCR. The student will help with the coordination of this program particularly with projects aimed at looking for infections in children and in potential reservoirs (dogs). These data may also form the basis of a paper.
• **Heart Disease**
  Review of our EKG data from the cohort and entry of key digital data that are captured by the EKG but did not get into the database:
  Heart rate,
  QRS interval
  QT interval
  Ischemia
  Atrial rhythm
  Abnormal axis
  Bundle Branch Block
  Diagnosis by the auto EKG reading

  So the student will learn a lot about heart disease including coronary artery disease, heart failure, rhythm disturbances. The student will also be able to summarize this information using an Excel spreadsheet as their report at the end of the time.

• **Causes of Death in Hispanic Cohort**

  Review of the death certificates obtained from CDC and matching them with deceased or lost to follow up CCHC participants and creating a spreadsheet with causes of death.

  This is critical information in order for us to be able to better understand the causes of death in our population but also to be able to develop an approach to estimating risk factors for some causes.

  The student will enter the data from the death certificate and the information from the cohort onto an excel datasheet.

  The student will learn about major causes of death, how they are reported and will explore potential risk factors. They will summarize their data using Excel and present it at the end as well as make a report.
• Familial clustering of Infectious Diseases

The student will work with our existing data on families and on the serological studies of virus and potentially helminthic infections to create a spreadsheet with family members in the cohort and antibodies to the infections. The question is do these tend to cluster in families. The student will be able to compare the antibody frequency in families to see if there is a high probability of having more than one infection in families or if the infections are randomly distributed across our families. Many other variables will be available to assess SES status and other issues around family clustering. The student will learn about these infections and will learn concepts in epidemiology around risk of infection calculation of prevalence and immune responses to these infections.

Susan Fisher-Hoch, M.D. is a faculty member in the Epidemiology, Human Genetics & Environmental Sciences department at the University of Texas Health Science Center at Houston, School of Public Health. Her research interests include microbiology, molecular epidemiology, and virology. She has earned numerous grants from various organizations including the National Institute of Allergy and Infectious Diseases and the Cancer Prevention Research Institute. Dr. Fisher-Hoch is also a supervisor of the Cameron County Hispanic Cohort and the Clinical Research Unit.

Dr. Fisher-Hoch’s Projects:

• Hispanic Liver Cancer Cohort (clinical): The LRGV has the highest rates of liver cancer in the nation, driven chiefly by diabetes and obesity. The intern will work with liver cancer team in the Clinical Research Unit to recruit patients with liver cancer and advanced fibrosis and their first and second degree relatives. Patients and participants are interviewed and examined extensively, including elastography of their liver to determine extent of fibrosis, etc. **This project requires fluent Spanish.** This project will teach recruitment, data collection and clinical skills. Assist with analysis of field data and with preparation of papers.

Miryoung Lee, Ph.D. is a faculty member in the Epidemiology, Human Genetics & Environmental Sciences department at the University of Texas Health Science Center at Houston, School of Public Health. Dr. Lee’s research interests include
telomere genetics and epigenetic modifications in cardiometabolic disorders. Dr. Lee plans to use data from the Fels Longitudinal Study cohort and Cameron County Hispanic Cohort to conduct her future studies in South Texas.

Dr. Miryoung Lee’s Project:
- **Telomere Genetics and Cardiometabolic Disease Risk Factors:** Telomere length, a biomarker of cellular aging, is associated with human aging, obesity and chronic diseases such as cardiovascular disease. Using the longitudinal data collected in the Fels Longitudinal Study, students will have the opportunities to investigate following research topics: 1) the influence of obesity (total body and abdominal obesity) on human aging and telomere length and 2) the localization of genes influencing telomere length variation. Students will use statistical analysis tools to examine the research topics. The purpose of this project is to understand how telomere biology is linked to obesity, aging, and cardiometabolic disease epidemiology.