Keck School of Medicine of USC

Register Now - Spring 2021

TRGN 599 Special Topics:
Genomic Diversity and Human Disease

Units: 3
Type: Lecture and Discussion
Day(s): Wednesday and Friday
Time: Lecture: 12-1p.m. Discussion: 1-1:30p.m.
Location: Virtual Lecture
Instructor and Moderator: John D. Carpten, PhD, Professor and Chair carpten@usc.edu
Course Information: Heather Manojlovic, hmanojlo@usc.edu
Zoom Webinar Link: TBA

The human genome contains genetic information that defines a large part of human biology. Many human diseases including but limited to heart disease, diabetes, congenital pediatric disorders, and cancer are associated with either inherited or acquired variation in DNA. Since the release of the draft human genome sequence, among the early initiatives was assessing similarities and differences in the genomes of individuals from around the world. These and other studies have revealed that there is population based geographic ancestral genetic variation. Furthermore, studies now show that this genetic ancestral variation can be associated with risk of different diseases and conditions.

This course is intended for individuals who have a basic foundational understanding of biochemistry and genetics who are interested in understanding human population diversity and the role and relationship it plays in human diseases. We will discuss the genetic and genomic basis of various human diseases and how this information improves our understanding of disease risk and biology. Broadly, students will gain a knowledge of:

- How the human genome project has enhanced our understanding of population genetics
- Conceptualizing the complex social structure of race and ethnicity in the context of genetic ancestry and population genetics
- How genetic ancestry and race impact risk and biology of human disease

The course will include a combination of seminars from thought leaders in the field, didactic lectures, and discussion of original research articles.

Scheduled lecture webinars include:

January 15 John D. Carpten, PhD – University of Southern California
"Introduction to Diversity and Genomics"

January 20 John D. Carpten, PhD – University of Southern California
"Genetics/Genomics/Epigenomics"

January 22 Vence L. Bonham, J.D. – National Institutes of Health
"Moving Beyond the Social Construct of Race in Genomics Research"

January 27 David Craig, PhD – University of Southern California
"1000 Genomes: Defining Global Genetic Ancestry"

January 29 Charles Rotimi, PhD - National Institutes of Health
"Genetic Ancestry in African Populations"

February 3 Esteban González Burchard, MD, MPH - University of California, San Francisco
"Genetic Ancestry and Complex Human Diseases"

February 5 Rick Kittles, PhD – City of Hope
"African Ancestry and Inherited Disease"

February 10 Timothy R. Rebbeck, PhD – Harvard
"Genetic Ancestry and Cancer Genomics"

February 12 Christopher Haiman, ScD – University of Southern California
"Genetic Ancestry and Prostate Cancer"

February 17 Franklin W. Huang, MD, PhD - UCSF
"Genomics of prostate cancer in African Americans"

February 19 Zarko Manojlovic, PhD – University of Southern California
"Genomics of Multiple Myeloma in African Americans"

February 24 Clayton C. Yates, PhD - Tuskegee University
"African Ancestry in Triple Negative Breast Cancer"

February 26 Wendy Cozen, DO, MPH – University of California, Irvine
"Genetics of Multiple Myeloma in African Americans"

March 3 Jun J. Yang, PhD – St. Jude Children's Research Hospital
"Population Diversity and Risk of Leukemia Treatment Outcomes"

March 5 Nathan A. Ellis, PhD - University of Arizona Cancer Center
"Genetic diversity and colorectal cancer"

March 10 Folakemi T. Odedina, PhD - University of Florida
"Genetic Diversity in Africa and Caner Disparities"

March 17 Melissa Davis, PhD - Weill Cornell Medicine
"Duffy allele, Ancestry, and breast cancer"

March 19 Laura Fejerman, MSc, PhD – UC Davis
"Genetics of cancer in Latin Americans"

March 24 Kevin L. Gardner, MD, PhD – Columbia University
"Breast cancer disparities"

March 26 TBD

March 31 Chanita Hughes-Halbert, MS, PhD – Medical University of South Carolina
"Vitamin D and Allostatic Load"

April 2 TBD

April 9 Altovise T. Ewing, PhD, LCGC - Genentech
"Genetics, Ancestry, and Disease Risk – An Industry Perspective"

April 14 Veronica Wendy Setiawan, PhD - University of Southern California
"Genetic Diversity and Pancreatic Cancer"

April 16 Victoria L. Seewaldt MD – City of Hope
"Diversity and breast cancer"

April 21 Brid M. Ryan, PhD, MPH - National Institutes of Health
"Genetic Ancestry, Biology, and Lung Cancer in African Americans"

Student Presentations will take place April 23rd and 28th.