BDt971##Summer Epigenetics for Anthropologists Workshop

Location: 339 Social Science Research Building, UCSD

The workshop will provide background information on epigenetic research questions of anthropological interest, training in laboratory safety, and hands-on experience with basic lab techniques for isolating DNA, amplifying specific gene regions, bisulfite conversion, and pyrosequencing to measure DNA methylation at certain regions of the genome. The workshop will also include a basic introduction to coding in R so students can visualize and analyze their findings. After completing the workshop, students will know the foundational aspects of molecular genetics lab work, and be prepared to join a lab with similar research opportunities. The workshop is free of charge, and requires no prerequisites. Students must be able to attend in person for the week-long workshop. We encourage students with underrepresented backgrounds in science to apply. Students do not have to be enrolled at UCSD, and are encouraged to apply from neighboring community colleges and other institutions.

Daily Schedule (9am-2pm)

1) **Day 1: Introduction to Lab techniques, safety, and DNA isolation**
   - A) Lectures: introduce students to basic concepts: e.g. DNA structure and terminology; epigenetics; intro to epigenetics research questions in anthropology; Biosafety Rules;
   - B) Lab Activity: Intro to pipetting, and Isolate DNA from hair and cheek swab.
   - C) Intro to R: download, assign intro tutorial; Students fill out Perceived Stress Scale questionnaire and demographic questionnaires
   - D) TA will run samples on the nanodrop at IGM to quantify (2 student volunteers can accompany her)
2) **Day 2: Bisulfite Conversion**
   - A) Lecture: Intro to bisulfite pyrosequencing
   - B) Lab Activity: Prepare bisulfite conversion treatment; incubate 4 hours; prepare agarose gel
   - C) Coding activity – load a practice file, create some practice plots and summary statistics on student data
3) **Day 3: Amplifying DNA**
   - A) Lectures: Intro to PCR to amplify *SLC6A4* – serotonin transporter gene
   - B) Lab Activity: Finish bisulfite treatment; Conduct PCR (runs overnight)
4) **Day 4: Quantifying and Imaging**
   - A) Lecture: Intro to electrophoresis for confirming and quantifying DNA
   - B) Lab Activity: Run agarose gel, imaging, quantify with ladder
   - C) Coding activity – run t-tests, ANOVA on student data
5) **Day 5: Pyrosequencing**
   - A) Lecture: intro to Pyrosequencing
   - B) Lab Activity: Conduct Pyrosequencing, interpret findings
   - C) Coding activity – run regression on student methylation data, adjusting for demographics.

Please apply by sending a CV and statement of interest to Dr. Non at alnon@ucsd.edu by May 2, 2025.