Fall 2018
Undergraduate Research Apprenticeship Positions

-Areas/Concentrations for Research-

Applied Mathematics for the Life/Social Sciences

Archaeology

Bioarchaeology

Environmental Social Science

Evolutionary Anthropology

Global Health and Medical Anthropology

Linguistic Anthropology

Museum Studies

Physical Anthropology

Sociocultural Anthropology

Other

Multiple Areas/Concentrations

Students should be certain to check the Multiple Areas/Concentrations section as many opportunities are combined with one or more other concentrations or disciplines.
**Research project or internship title:**
Comparative Analysis of Baboon Sociality Project: Maternal Effects on Infant Development

**Academic discipline: (Check all that apply)**
- [ ] Applied Mathematics for the Life and Social Sciences
- [ ] Archaeology
- [ ] Bioarchaeology
- [ ] Environmental Social Science
- [x] Evolutionary Anthropology
- [ ] Global Health and Medical Anthropology
- [ ] Physical Anthropology
- [ ] Museum Studies
- [ ] Other:

**Project description:**
This apprenticeship is part of the Comparative Analysis of Baboon Sociality Project (CABS) and a PhD dissertation project. The CABS studies the form and function of social bonds across closely related primate species to gain a deeper understanding of how evolution has shaped social strategies. The dissertation project examines how maternal behavioral and physiological signals predict infant developmental trajectories in wild olive baboons. The components of development measured for this project include infant body growth, activity budgets, and physiology.

**Student's duties:**
Students will enter baboon demographic and ecological data into excel spreadsheets and label body size photographs of baboons.

**Required qualifications or pre-requisites:**
Basic experience with excel spreadsheets.

**Project/internship location:**
SHESC but students can work remotely.

**Hours per week or days and times needed:**
Negotiable

**Project supervisor:**
Sam Patterson

**Supervising faculty:**
Joan Silk

**Contact information:**
skpatter7@gmail.com
Research project or internship title: Culture, Health, and Environment Laboratory Intern

Academic discipline (double click box to check—check all that apply):
- Physical Anthropology
- Archaeology
- Sociocultural Anthropology
- Global Health
- Applied Math
- Bioarchaeology
- Museums
- Other

Project description:
The Culture, Health, and Environment Laboratory (CHEL) has several ongoing projects each semester that combine methods and theory from anthropology, public/global health, and sustainability. Primarily, our work focuses on the Global Ethnohydrology Study (GES), a transdisciplinary, multi-year, multi-site research project that examines cross-cultural perceptions of water issues in the context of globalization, urbanization, and climate change. Our work this semester will primarily focus on water sharing as a form of disaster response.

CHEL’s internship program operates each semester with approximately 15 undergraduate interns who work collaboratively with each other and graduate students in data management, analysis, and tool design. The program is designed to encourage students to return in subsequent semesters to develop more advanced research skills.

Student’s duties:
As a result of our many projects, students’ duties will vary. Each student will likely participate on more than one project within the lab. First time interns will begin with data entry and data quality management of the 2018 GES. Returning interns will be working on qualitative data coding of GES surveys. Other duties and projects may develop throughout the semester.

Required qualifications or pre-requisites:
There are no requirements or pre-reqs; we welcome interns at all stages of undergrad study.
*Please indicate if you are fluent in languages other than English on your application.
*Please indicate if you have any experience with analytic software (e.g., R, SPSS, SAS, MAXQDA, NVivo, UClnet)
** Please indicate if you are a returning intern on your application.

Project/internship location: SHESC 265

Hours per week or days and times needed:
3 hours per week minimum (preferably in one time block). Exact times will be set around selected interns.

Project supervisor:
Amber Wutich

Supervising faculty:
Amber Wutich and Alexandra Brewis

Contact information:
amber.wutich@asu.edu
**Research project or internship title:** Premolar Molarization in Haplorhine primates

**Academic discipline:** (Check all that apply)
- ☐ Applied Mathematics for the Life and Social Sciences
- ☐ Archaeology
- ☐ Bioarchaeology
- ☐ Environmental Social Science
- ☒ Evolutionary Anthropology
- ☐ Global Health and Medical Anthropology
- ☒ Physical Anthropology
- ☐ Museum Studies
- ☐ Other:

**Project description:**
Among fossil hominins, premolar form varies considerably, but is extreme in the robust australopiths, being highly molarized, approaching the molars in size and shape. This project investigates the relationship between premolar form and diet in primates with the goal of understanding this morphology in the fossil record. To do so, dental molds have been collected from over 500 individuals from 21 primate species. Premolar form will be quantified from three-dimensional models of casts created from these dental molds. Students involved in this project will assist in the creation and analysis of these 3D dental models. The student will gain experience using several programs utilized in the processing and analyzing of 3D models (e.g., Amira, MeshLab, R). The skills gained by participating in this project are useful not only for those who wish to continue in biological/evolutionary anthropology or bioarchaeology studying anatomical form, but also for those interested in pursuing various medical and allied health fields.

**Student's duties:**
Student will be responsible for creating three-dimensional virtual models of the postcanine (premolars and molars) dentition by scanning casts taken from a number of primate species. The student will also be responsible for data entry and research, and will gain experience with processing and analyzing 3D dental models.

**Required qualifications or pre-requisites:**
Students should demonstrate an interest in the project, possess attention to detail, be highly organized, and be able to follow instructions. Experience operating a computer is required (MAC and/or Windows operating systems, preferred).
Preferred: GPA >3.0, introductory evolutionary anthropology course work (e.g., ASM104)

**Project/internship location:**
SHESC 365

**Hours per week or days and times needed:**
Approximately 5-10 hours per week. Schedule is initially flexible, but must be consistent once coordinated with the project supervisor.

**Project supervisor:**
E. Susanne Daly

**Supervising faculty:**
Gary T. Schwartz

**Contact information:**
Elizabeth.daly@asu.edu
Research project or internship title: 3D Dental Topography and Tooth Wear of Primate Molars

Academic discipline: (Check all that apply)

☐ Applied Mathematics for the Life and Social Sciences
☐ Archaeology
☒ Bioarchaeology
☐ Environmental Social Science
☒ Evolutionary Anthropology
☐ Global Health and Medical Anthropology
☒ Physical Anthropology
☐ Museum Studies
☐ Other:

Project description:

How do primate teeth maintain their function as teeth become increasingly worn? Does molar tooth wear affect all primates equally or do tooth shape and diet play important roles? Can 3D scanning improve our understanding of how the shape of teeth changes over the course of an animal’s lifespan?

This project seeks to answer these questions by using a blue-light surface scanner (Identica Hybrid) to create 3D models of primate upper and lower molar teeth and using these models to measure surfaces of teeth associated with shearing, crushing, and grinding functions. Changes in these functional surfaces will be measured across teeth at varying stages of wear to determine whether primates maintain certain tooth functions throughout their lives, and whether the functions that are maintained differ in species with varying diets.

The sample for this project focuses on the Old World monkeys and apes, which share a last common ancestor 30 million years ago and have evolved very different dietary strategies and dental morphologies. This project will scan the teeth from a sample of the living species, as well as a sample of fossil ancestors of Old World monkeys and apes that were collected from sites in East Africa dating between 28 and 15 million years ago.

Student’s duties:

The student will be trained in how to use the Identica Hybrid 3D surface scanner to create models of teeth. They will also be trained in how to crop and edit these files in the visualization software Amira. For interested students, training can also be given in how to take 3D measurements from teeth using the programs Amira, Meshlab and GRASS GIS. These programs are used in many fields, including archaeology, geography, geology, and design. A basic understanding of how to use 3D visualization programs can be a useful skill for students with a wide variety of interests.

Required qualifications or pre-requisites:

Previous experience with 3D scanning or GIS is preferred but by no means is a requirement.

Project/internship location: SHESC Room 365

Hours per week or days and times needed:

3 days per week (flexible), 2 – 3 hours per scanning session

Project supervisor: Ellis Locke

Supervising Faculty: Dr. Gary Schwartz

Contact information:
Ellis Locke
ellis.locke@asu.edu
203-536-5761
Research project or internship title: Techniques of 3D scanning and basic data analysis extracted from 3D scan data

Academic discipline: (Check all that apply)
- [ ] Applied Mathematics for the Life and Social Sciences
- [ ] Archaeology
- [x] Bioarchaeology
- [ ] Environmental Social Science
- [ ] Evolutionary Anthropology
- [ ] Global Health and Medical Anthropology
- [ ] Physical Anthropology
- [ ] Museum Studies
- [ ] Other:

Project description: Researchers use information from teeth to make inferences about relationships between population and different species. One assumption of this research is that the size and shape of one’s teeth is strongly controlled by genes. This project tests this assumption and tries to understand how the visible aspects of one’s teeth reflect an interplay of genetic and non-genetic factors during development.

Student's duties: The student will be learn the techniques of 3D scanning and basic data analysis extracted from 3D scan data.

Required qualifications or pre-requisites: Successfully having completed and passed ASM 452: Dental Anthropology, prior experience with scanning or photogrammetry is desired. Experience with human osteology databases is desired. Photography skills are highly desired.

Project/internship location: SHESC 302

Hours per week or days and times needed: flexible, roughly ten hours per week is optimal.

Project supervisor: Chris Stojanowski

Supervising faculty: Chris Stojanowski

Contact information: cstojano@asu.edu
Research project or internship title: Las Colinas Archaeological Database and Mapping Project

Academic discipline: (Check all that apply)
- □ Applied Mathematics for the Life and Social Sciences
- ■ Archaeology
- □ Bioarchaeology
- □ Environmental Social Science
- □ Evolutionary Anthropology
- □ Global Health and Medical Anthropology
- □ Physical Anthropology
- ■ Museum Studies
- □ Other:

Project description:
We are seeking two student researchers to assist with the creation of an archaeological ceramics database and digital map for the site of Las Colinas. Las Colinas is a large and important Hohokam site in the Phoenix Basin, where large-scale excavations were conducted in both the 1960s and 1980s. Today, data from these excavations exist only as paper records.

This project is aimed at creating a new and usable digital database of the archaeological ceramics at Las Colinas, and creating a digital map of the site and its features, synthesizing information from both excavations.

Preferred applicants should possess basic computer skills and an interest in archaeology and archaeological data. Experience with spreadsheets, databases, data entry, and working with a GIS would be a plus, though students lacking this experience should not be discouraged. Students will be trained in all necessary tasks. Students would also have the opportunity to use project data for research (term paper, thesis, or conference presentations) alone or in collaboration with the project supervisors.

Student’s duties:
This project encompasses two main tasks:
1) Working from archival records to build a database of archaeological ceramics from the Las Colinas excavations. (Scanning documents, data entry, database management)
2) Working from archival records to digitize site features in a GIS. (scanning maps, digitizing features)

Required qualifications or pre-requisites:
Preferred applicants should possess basic computer skills and an interest in archaeology and archaeological data. Experience with spreadsheets, databases, data entry, and working with a GIS would be a plus, though students lacking this experience should not be discouraged. Students will be trained in all necessary tasks.

Project/internship location: SHESC 154, ASU Tempe Campus

Hours per week or days and times needed: 3-6 hours/week, negotiable.

Project supervisor: Caitlin A. Wichlacz and Christopher Schwartz

Supervising faculty: Dr. David R. Abbott

Contact information: caitlin.wichlacz@asu.edu
Research project or internship title: “The Teotihuacan Mapping Project”

Academic discipline (double click box to check—check all that apply):

- XX Archaeology
- XX Other – Museums and public outreach

Project description:
ASU runs an archaeological laboratory at Teotihuacan, one of the largest and most important ancient cities of the New World. Dr. Michael E. Smith is currently Director of the lab. We have groups of undergraduates carrying out a variety of tasks, here at ASU and in Mexico in the summer. Most activities center on the Teotihuacan Mapping Project, one of the major archaeological projects in Mexican archaeology. Once the map of Teotihuacan was completed (1973), much of the work of this project remained incomplete. We are organizing paper and electronic files, entering data, checking major artifact categories, working on GIS studies of the map, and making sure that key information is recorded before uploading the data to tDAR to archive it permanently. We also have undergraduate research activities based on data from the Teo Mapping Project, including studies of burial offerings, research on housing, and work on figurines and craft production. We are also looking for help with communications, public outreach and social media. See our website: [https://teo.asu.edu/](https://teo.asu.edu/). See some of the videos about the ASU lab: [https://asunow.asu.edu/20160826-discoveries-asu-teotihuacan-research-lab-mexico](https://asunow.asu.edu/20160826-discoveries-asu-teotihuacan-research-lab-mexico)

Student duties, (1) Teotihuacan Mapping Project data rescue and archiving
- Data entry into computer databases, and to scan paper forms to pdf.
- Perform basic analyses of artifact categories, such as mapping the spatial distributions of figurines, or tallying the traits of other artifact categories
- Once familiar with the site and datasets, students may develop individual research projects.

Student's duties, (2) Misc research projects:
- Work on architecture and spatial patterns of Teotihuacan housing categories and wealth
- Contribute to an ongoing project of analyzing the burials of Teotihuacan. See: [https://asunow.asu.edu/20171122-asu-students-learn-dead-teotihuacan](https://asunow.asu.edu/20171122-asu-students-learn-dead-teotihuacan)
- Contribute to our GIS analyses of the Teotihuacan map.

Student's duties, (3) Communications & outreach:
- Help develop our social media activities on Twitter, Instagram, and other platforms.
- Organize publicity materials for the Teotihuacan website and work with the webmaster

Required qualifications or pre-requisites:
- Classwork or fieldwork experience in archaeology, or a related field such as history
- GPA > 3.0

Recommended qualifications:
- Experience working with archaeological data, and/or museum outreach activity
- Good writing and editing skills; web design; computer graphics
- Reading knowledge of Spanish is a plus.

Project/internship location:
- Mesoamerican Archaeology Laboratory, SHESC-104

Hours per week or days and times needed:
- 3 to 12 hours per week. Times depend on the schedules of other project members.

Project supervisor:
- Dr. Angela Huster: Angela.Huster@asu.edu
- Dr. Michael E. Smith: mesmith9@asu.edu
Research project or internship title: What can Twitter Teach us About Hazards Risk?

Academic discipline (double click box to check—check all that apply):
- Physical Anthropology
- Archaeology
- X Sociocultural Anthropology
- X Global Health
- Applied Math
- Bioarchaeology
- Museums
- X Other (environmental social science)

Project description:
We are interested in using data from Twitter to better understand how people talk about the risks of natural hazards. Specifically, we will be identifying “risk signals” for sociotechnical and natural hazards including: hurricanes, wildfires, tornados, power failure, and extreme heat using Twitter data from Jan 1 2016 – present. This data was collected as part of the Socio-Environmental Data Explorer project sponsored by the National Socio-Environmental Synthesis Center (SESYNC).

Using text analysis and machine learning we will categorize Tweets for each hazard as relevant or non-relevant. In addition we will qualitatively code several hundred Tweets as either informative (sharing ‘objective’ descriptive information) or interpretive (sharing ‘subjective’, speculative, or opinionated information). Once we have these Tweets coded by a human we will use those results to train a computer to do the same thing. Ultimately, we want to see if it will be possible to train the computer to do this with an acceptable degree of accuracy.

Student’s duties:
Primarily the student will help code Tweets for different risks as relevant or not, and interpretive or informative. In addition, the student will have opportunities to learn both qualitative and quantitative techniques including, how to create code definitions in a codebook, and how to automate content analysis using basic machine learning. The student will also be supported in pursuing their own research questions using social media and risk event data.

Required qualifications or pre-requisites:
No previous experience or expertise is required.

Project/internship location:
ASU Tempe campus, with the option of doing most work remotely.

Hours per week or days and times needed:
Flexible, can participate for a commitment of anywhere from 3-20 hours per week. Can be discussed and decided in advance with the research supervisor.

Project supervisor:
Paul Chakalian

Supervising faculty:
Dr. David Hondula

Contact information:
paul.chakalian@asu.edu (please include study title in subject line)
Research Project Title: Zygomatic arch position in relation to diet in living and fossil primates

Academic discipline:
- [ ] Physical Anthropology
- [ ] Archaeology
- [ ] Sociocultural Anthropology
- [ ] Global Health
- [ ] Applied Math
- [ ] Bioarchaeology
- [ ] Museums
- [ ] Other:

Project description:
Our project involves collecting a series of various types of data to investigate questions related to skull morphology across living non-human primates and fossil hominins in relation to their diet type. More specifically, this project examines the morphology and spatial placement of the zygomatic arch, and its relationship to feeding biomechanics in these taxa.

Student's duties:
The student will collect dietary data and morphological data from the literature and enter these data in a collective spreadsheet to be shared with the other project participants. Depending on time, progress with data, and availability of the lab equipment, the student may also be trained on how to render 3D models of skulls and collect data from these models as well.

Required qualifications or pre-requisites:
We prefer students who have taken ASM 104, however that is not required. Ideally the student will have had some recent science or anthropology course here at ASU.

Project/internship location:
Two primary locations: SHESC visualization lab and Center for Evolution and Medicine

Hours per week or days and times needed:
Hours, days, and times can be flexible given the nature of the data collection. We anticipate requiring at least 6 a week, but can be flexible given the student's school and/or work schedule. We do have research meetings each week (lasting 1 hour) and would like the student to be present for two meetings a month.

Project supervisor: Hallie Edmonds, Susanne Daly, Irene Smail

Supervising faculty:
Hallie Edmonds (postdoctoral researcher Center for Evolution and Medicine)

Contact information:
Hallie Edmonds: hedmonds@asu.edu
Research project or internship title: The Evolution of Human Cooperation: The Role of Third Party Monitoring in Sustaining Pairwise Cooperation

Academic discipline:
- Other: Evolutionary Anthropology

Project description:
This position is well-suited for anyone with strong interests in the evolution of human cooperation, human subjects research, human cognition, and experimental economics. The position involves coding, organizing, and analyzing part of an existing data set from a study which was designed to test a key theoretical question in the evolution of human cooperation. These data were collected from human subjects in a laboratory setting by SHESC faculty members Drs. Hillary Lenfesty, Sarah Mathew, and Robert Boyd.

The student will be under direct supervision of Dr. Lenfesty. The student RA will be mentored by Dr. Lenfesty in cooperation theory and in quantitative and qualitative data analyses related to the specific project. The student will have the opportunity to provide creative input to the approaches to data organization and analyses.

Student’s duties:
- Organizing and analyzing quantitative data within Excel, including anonymized demographic data and psychological inventory data
- Coding and analyzing qualitative data within MAXQDA software or similar (student will be trained on how to use the software on a basic level)

Required qualifications or pre-requisites:
- Basic proficiency with Excel spreadsheets
  *Please indicate if you have any other experience with analytic software (R, SPSS, etc.)
- At least some experience having worked previously with large data sets, either in a classroom or research setting
- Meticulous and organized working style
- Courses:
  - Required: ASM 246 Human Origins

Project/internship location:
SHESC 350B and/or Matthews Hall 222

Hours per week or days and times needed:
Negotiable; average 6 hrs/week max. Days and times flexible and TBD between supervisor and student.

Project supervisor:
Dr. Hillary Lenfesty

Supervising faculty:
Drs. Robert Boyd, Sarah Mathew, & Hillary Lenfesty

Contact information:
lenfesty@asu.edu
Research project or internship title: Fat Talk: Indirect complaint responses across same and mixed-sex vignettes

Academic discipline:
- XX Sociocultural Anthropology
- XX Other: Linguistics/Linguistic Anthropology

Project description:
Data Coding.
The Fat Talk Project includes vignette-based discourse completion surveys which require respondents to write responses to fat talk utterances. To date we have collected over 500 surveys. They have already been digitized. The next step is to analyze and assign a code to each initial written response to the utterance.
Student’s duties:
Student will
1. learn the data (become familiar with it);
2. practice assigning codes to data segments;
3. code data;
4. learn to execute interrater reliability calculations

Required qualifications or pre-requisites:
Current ASU student.
Introductory understanding of spreadsheets (how to open them, navigate the cells)

Project/internship location:
Two locations: May work remotely if ASU Online Degree Seeker CHEL located in SHESC building on ASU Tempe campus

Hours per week or days and times needed:
Depending on units requested.

Project supervisor:
Cindi SturtzSreetharan and Charlayne Mithcell

Supervising faculty:
Cindi SturtzSreetharan

Contact information:
csturtzs@asu.edu
Research project or internship title: Comparative Ethnobotany

Academic discipline: (Check all that apply)
- [ ] Physical Anthropology
- [x] Archaeology
- [ ] Sociocultural Anthropology
- [x] Environmental Social Science
- [ ] Global Health
- [ ] Applied Math
- [ ] Bioarchaeology
- [x] Museum Studies
- [ ] Other

Project description:
This project is centered on the analysis and compilation of archaeological data from several recently studied archaeological sites in central Mexico. Students will be assisting in processing archaeological data in systematic databases, integrating spatial data into a geographic information system, managing archaeological photography and maps, as well as participating in the study and interpretation of archaeological data.

Student’s duties:
1. Databasing pottery, figurines, stone tool, etc. data into an integrated relational database
2. Managing and organizing archaeological excavation and artifact photos
3. Creating digitized drawings of excavation data, such as ancient buildings and houses, as well as artifacts
4. Entering archaeological inventory data from field sheets into database formats.
5. This research can lead to publications, theses, and other opportunities

Required qualifications or pre-requisites:
Ideally introductory classes in anthropology and archaeology. These are not essential.

Project/internship location:
SHESC 143

Hours per week or days and times needed:
Negotiable

Project supervisor:
Chris Morehart

Supervising faculty:
Chris Morehart

Contact information:
Christopher.morehart@asu.edu
Research project or internship title: **Comparative Ethnobotany**

Academic discipline: (Check all that apply)
- [ ] Physical Anthropology
- [ ] Archaeology
- [ ] Sociocultural Anthropology
- [ ] Environmental Social Science
- [ ] Global Health
- [ ] Applied Math
- [ ] Bioarchaeology
- [ ] Museum Studies
- [ ] Other

Project description:

This project has two components: 1: Analyzing ancient botanical remains from archaeological sites to reconstruct past subsistence activities and environments. Data will come from major archaeological sites in Mexico, Belize, and Guatemala. 2: Students will compile comparative ethnobotanical data from published literature to systematically record plants used for food, medicine, ritual, etc.

Student's duties:

1. Microscopic analysis of ancient plant remains. Students will receive training in basic microscopy, basic plant anatomy and taxonomy, data management.
2. Students will contribute data from the published literature into a comprehensive database on the ethnobotany of Middle America
3. This research can lead to publications, theses, and other opportunities

Required qualifications or pre-requisites:

Ideally introductory classes in anthropology, archaeology, and biology. These are not essential.

Project/internship location:

SHESC 143 and 110a

Hours per week or days and times needed:

Negotiable

Project supervisor:
Chris Morehart

Supervising faculty:
Chris Morehart

Contact information:
[Christopher.morehart@asu.edu](mailto:Christopher.morehart@asu.edu)
Research project or internship title: Predictive modeling of isotope and abiotic variables for understanding human adaptations to environmental change

Academic discipline:
- Archaeology
- Global Health
- Bioarchaeology
- Other: Hydrological and Climate Modeling/ GIS/ Remote Sensing

Project description:
The APU (Andean Paleomobility Unification) Project is a two-year examination of isotopic values and environmental conditions throughout the complex hydro-geological systems of the Andes. Baseline isotopic values of strontium and oxygen are being compiled for water, soils, flora, and fauna in the natural environment and from cultural features such as puquios (wells) to develop predictive models that will allow us to probabilistically assign archaeological skeletons or artifacts to likely places of origin. In addition to facilitating sample geolocation, the isotope data will be used in conjunction with climate and paleoclimate data to understand how prehistoric Andean societies adapted to periods of intense flood and drought cycles that may have impacted their water and food security.

The project has several components: 1) meta-analysis/ mapping all bioarchaeological and environmental isotope data in the region; 2) development and testing of a cloud-based mobile field data collection system through the QGIS Field App; 3) field data collection; 4) isotopic analysis in the ACL and Keck Labs; and 5) development of a password-protected website where users can upload their own data and download APU data and models. In year 1, we are focusing on plotting and analyzing the isotopic pilot data already collected, as well as meta-analysis and field data collection. This project is a collaboration between the Archaeological Chemistry Laboratory and PI Beth K. Scaffidi, pursuant to support from the National Science Foundation.

Student’s duties:
The project needs 1-2 students with some experience in GIS or remote sensing to assist with data compilation, hydrological and ecosystem modeling, and geostatistical modeling. The APU project maintains raster and vector data on elevation and environmental variables in the Peruvian Andes, which now needs to be scaled up to include the entire range, at various spatial resolutions. The project has recently been granted access to 10,000 km² of high-resolution time-series RGB/ NIR data through the Planet’s Research and Educational Program, and the apprentice will be assisting with data organization, procurement, and pre-processing of this and other new data sources. Students will also be plotting isotope data and x, y coordinates from publications within and beyond anthropological sources. They will also help with testing the field data collection app and gain some experience in preparing and analyzing isotope samples, if desired. Finally, there will be opportunities for presenting research results at conferences, assisting with peer-review journal submissions, and field data collection during the summer 2019 season.

Required qualifications or pre-requisites:
Students should have a working knowledge of GIS and/or Remote Sensing principles, either in QGIS, ESRI (ArcMap, etc.), ENVI or similar software packages, gained either through an introduction to GIS class or through intensive field or lab work. Beth Scaffidi has taught several Intro to GIS classes and will be training students on advanced methods, but students should know enough fundamentals of GIS/ RS to be able to work independently if needed.

Students should have a broad interest in understanding how societies adapt to challenging environments, and how changing climates can impact social structure, cultural practices, migration, and health. Students are encouraged to apply their own expertise and interests to the project, so students with prior coursework in hydrology, geosciences, biogeochemistry, climate change, ecology, global health, and computer-based modeling would be particularly well-suited to maximize the experience.
**Project/internship location:**
SHESC building, office 318/ Archaeological Chemistry Lab. After the assignments have been explained, apprentices can complete the work from other locations.

**Hours per week or days and times needed:**
5+ hours/week, at least 3 of which must be at SHESC on T, W, or R. Additional hours can be completed from other campus locations or times as appropriate.

**Project supervisor:**
Beth K. Scaffidi

**Supervising faculty:**
Kelly Knudson

**Contact information:**
beth.scaffidi@asu.edu