

## **PhD Students sought to investigate the evolution of the human microbiome and its impact on modern human health using ancient DNA**

We are looking for 2 PhD students to join a dynamic, cutting edge research team in palaeomicrobiology within the Department of Anthropology at the Pennsylvania State University. Selected students will investigate the evolution of the human microbiome using ancient microbial DNA obtained from calcified dental plaque (calculus) and Next Generation Sequencing technologies. This female led research team is actively investigating the evolution of the human microbiome to understand how long-term changes in the microbiome impact health and disease. Using ancient samples obtained from around the world that date back to 48,000 years ago across six continents, we are asking how microorganisms establish themselves in the human body, how diverse bacterial communities are formed under different selection regimes (i.e. changes in environment, diet, culture, and disease), and how non-bacterial microbes co-evolved with humans. In addition, we will explore microbiota in diverse living populations today to understand how past changes may influence modern health and explore environmental microbiota to see how human microbes may have uniquely adapted compared to those in the environment. Our research team is also analyzing microbial genome evolution in real-time, investigating the selection pressures that drive bacterial evolution in diverse microbial communities. To read more about this research, please see our past articles ([Adler et al, 2013, Sequencing ancient calcified dental plaque shows changes in oral microbiota with dietary shifts of the Neolithic and Industrial revolutions. Nature Genetics 45:450-455](#) and [Weyrich, et al, 2017. Neandertal behavior, diet, and disease inferred from ancient DNA in dental calculus. Nature. 544:357-361](#)).

A background in molecular biology, microbiology, medicine, or molecular archaeology and previous research experience are preferred, although not required. Prospective students should demonstrate a desire to learn, work independently, multi-task, and self motivate. Full PhD stipends and tuition for successful applicants will be provided for up to five years. To apply for this position, please register your interest as soon as possible by sending a cover letter and CV via email to [lsw132@psu.edu](mailto:lsw132@psu.edu) before November 23, 2018. After initial review, strong applicants will be asked to apply through the PSU Graduate Student Applications portal before December 1, 2018.