**Internship Focus:** Darkhad Medieval Silk Textile Recovery and Conservation Project

**Collaborating Institutions:**
- Department of Anthropology, Yale University
- National Museum of Natural History (NMNH), Smithsonian Institution
- Museum Conservation Institute (MCI), Smithsonian Institution

**Advisors:**
- Dr. William Honeychurch, Associate Professor of Anthropology, Yale University
- Dr. William Fitzhugh, Senior Scientist, Department of Anthropology, NMNH, Smithsonian Institution
- Dr. Caroline Solazzo, Physical Scientist, Museum Conservation Institute, Smithsonian Institution

**Description:**

Undergraduate students having interest and, ideally, experience in archaeological fieldwork or material science are invited to participate in a Mongolian textile analysis and conservation project in the laboratories of the Smithsonian’s Museum Conservation Institute (MCI). A wide range of textiles dating to the period of the Mongolian Empire have been recently recovered from a badly looted cemetery site in northern Mongolia. This site, known as the Khorig cemetery, was surveyed by Mongolian archaeologists from the National Museum of Mongolian History, who discovered that looters seeking burial goods had unearthed more than 100 medieval grave mounds. In the process, the looters cast aside human bone, and less desired artifacts including burial garments, most of which were made of silk imported from China, and fashioned into Mongolian styles by their owners. The Mongolian team salvaged a large collection of silk-based garments that are in urgent need of stabilization and conservation. The collection ranges from small fragments to nearly complete garments, many of which retain their original strength, weaving characteristics, and decorative patterns. This collection will be arriving in Washington D.C. during late spring 2019 and conservation work will be carried out in June and in August.

Once the textiles have arrived at the Smithsonian, a Yale student will assist laboratory staff in conducting a complete inventory and photo-documentation of the textiles including brief descriptions of the technical and design characteristics of the garments. This inventory will help in identifying fiber types and other constituent materials (metal threads, dyes) and select samples for analytical work for the characterization and provenance of the materials. The student will be expected to work closely with textile and preventive conservators during all parts of this analytical and conservation process. In addition, the student will obtain hands-on experience using digital imaging and digital 3D-microscopy to study the weaving techniques and structures of the textiles, scanning electron microscopy (SEM) to analyze fiber type and preservation, and
X-ray fluorescence (XRF) to determine the elemental composition of materials (dyes and mordants, and metal threads). The student will be expected to contribute to the final report on analytical results and this report will be placed on file at the Yale Department of Anthropology, the Department of Anthropology of the Smithsonian’s National Museum of Natural History, and at the Mongolian National Museum of History in Ulaanbaatar. Publications and presentation resulting from this project have potential to include the undergraduate participant as a co-author.

**Learning Objectives:**

Over the course of eight weeks, the student will learn to:

- Identify and catalog ancient textiles including acquiring an advanced knowledge of East Asian textile types and technologies;
- Work with a range of laboratory analytical techniques including but not limited to 3D-microscopy, scanning electron microscopy, and X-ray fluorescence;
- Prepare and send radiocarbon samples for AMS dating;
- Update a collections database and properly catalog newly analyzed pieces;
- Adhere to basic lab procedures, etiquette, and protocol;
- Write up analytical reports including collating archaeological information on the site context, maps, plans, collection methods, and other pertinent details;
- Examine academic sources on medieval Mongolian history and archaeology in order to achieve an informed understanding of the cultural and symbolic roles textiles played among the Imperial Mongols.

**Length:** 8 weeks in the summer  
**Stipend:** $5,500

Interested students should send a brief cover letter detailing relevant experience, a resume, and two references that we may contact by April 21, 2019 to Dr. William Honeychurch (William.honeychurch@yale.edu).