Classes were already in full swing when CAAM was dedicated last September. Fourteen students were enrolled in the freshman seminar “Food and Fire: Archaeology in the Laboratory,” the first course of its type offered by the Penn Museum and the College of Arts and Sciences.

“Food and Fire” followed the history of human technology from the simplest tools and materials used to gather food (stone and bone) to the use of fire to alter materials (cooking, firing pottery, making metal). After training in appropriate handling procedures, students examined artifacts from the American Southwest, Turkmenistan, and Peru, mastering basic skills of description, measurement, and recording. They learned about the technology of stone tools by making their own tools; then they used those tools to cut up meat (fresh chicken legs). Under the low power microscopes in the CAAM multipurpose lab, they examined the usewear they had caused on the edges of their...
tools, and later looked closely at the cutmarks and broken edges on the chicken bones. The students discovered that those newly manufactured stone flakes were now real artifacts. A few weeks later, Dr. Gretchen Hall of the Biomolecular Archaeology Laboratory visited to show how she studies organic residues clinging to ancient artifacts. She surprised the students with an infrared spectra of the residues recovered from one of their own stone tools. The greasy film on the tool produced a close match for the peaks expected for animal fats, an identification the students could confirm.

A signature feature of CAAM is the use of microscopes and other instruments to examine artifacts and other materials. During their unit on ancient plant remains, students used stereomicroscopes to identify charred seeds and wood (at 20x) and went on to examine slides of starch grains under polarized light (400x) with higher powered microscopes available in the Ceramics Laboratory. Later, students studied the microscopic properties of modern and ancient textile fibers, mapping the twist on threads in ancient textiles, and marveling over how they could distinguish the cotton fibers from the polyester fibers in a Penn sweatshirt.

After students learned about various kinds of archaeological materials and the artifacts curated by the Museum, they started working on their own projects. Their challenge was to choose an artifact from the Museum collection and practice new skills as well as develop a research plan. Students worked with Keepers...
to select an item from the Museum’s collections database, and “met” and studied this object in the Collections Study Room. Over several weeks, students carefully described features of each artifact: objects that included bronze amulets and mirrors, wooden masks, ivory implements, cylinder seals, and an ancient khipu (a yarn and knot recording keeping device from Peru). Students also considered the cultural significance of the artifact, the history of the archaeologist or collector who originally discovered or selected the piece, and hypothetical proposals for further scientific analysis of the object. As the students worked, they became enamored of “their” piece and how much information they could find on how it was made and had been used. On the day of final presentations, each student voted for their own piece as the most beautiful of all those studied. In addition to the project reports and presentations, every artifact received a page in the class’s artifact catalog with a drawing or photograph and description for an exhibit label.

Part of the excitement these first-year students felt came from feeling that they were on an “insider’s tour” of archaeological science, in addition to learning how to plan a research project. Students in the second level of CAAM training—the spring 2015 course “Living World in Archaeological Science”—were provided with the opportunity to conduct their own original research. In three modules, students wrote background papers and research plans for a newly identified skeleton from the Uruk period at Ur (in the Human Skeletal Laboratory), analyzed animal bone from Museum excavations in southern Italy in the 1970s (in the Zooarchaeology Laboratory), and used the microscopes in the Multipurpose Laboratory to identify charred seeds and nutshell from prehistoric mound centers in Mississippi, material that was excavated by faculty member Dr. Meg Kassabaum only last year. One year after CAAM’s opening, we continue to devise ways to involve students in Museum research as we bring new equipment (e.g. the x-ray suite and the Scanning Electron Microscope) into classroom presentations. Our students have just begun to explore what they can learn in the new CAAM Labs.