

Center for Archaeological Materials/Center for Materials Research in Archaeology and Ethnology

The mission of the Center for Materials Research in Archaeology and Ethnology (CMRAE), a consortium of eight Boston-area educational and cultural institutions, is to advance our understanding of prehistoric and nonindustrial societies through analysis of the structure and properties of materials associated with human activity. Plant and animal food remains and human skeletal material, as well as metal, ceramic, stone, bone, and fiber artifacts, are the objects of study, along with the environments within which these materials were produced and used. At the Center for Archaeological Materials (CAM) at MIT, investigators concentrate on the materials-processing technologies that transform natural materials into cultural objects.

CAM is administered by the Office of the Provost. In 1998–1999, the Department of Materials Science and Engineering (DMSE) established an undergraduate major in archaeology and materials, Course 3-C, as well as an interdisciplinary doctoral degree program in archaeological materials. These are the only academic degree programs of their kind in the United States. The graduate students enrolled in the PhD program and the undergraduate Course 3-C majors all participate in the Undergraduate Research Opportunities Program and carry out their dissertation research in the CMRAE laboratory facilities.

Eight students have graduated from the 3-C program and one PhD degree in archaeological materials has been awarded by DMSE. By June 2010, DMSE/CMRAE recruited two new students: one who entered the PhD program and the other as a Course 3-C major.

In AY2010, CMRAE's annual two-term graduate subject was 3.984 Materials in Ancient Societies: Metal. Students enrolled from MIT, Harvard, Boston University, and the University of Massachusetts. The fall term was devoted to study of physical metallurgy, with emphasis on the properties of metals and alloys most frequently managed by early societies. The Peabody Museum of Archaeology and Ethnology at Harvard contributed artifacts for investigation from Vietnam and central Europe. Archaeologists currently carrying out excavations in northern Ecuador and in southern Bolivia also lent artifacts from the ancient sites where they are working. Students carried out metallographic analyses of samples removed from these artifacts in order to determine the composition of the metal/alloy and to reconstruct the fabrication histories of the artifacts. The center expects to submit their analytical results for publication in a major journal of archaeological science.

Archaeological Science, the CMRAE/CAM undergraduate subject offered jointly by DMSE, the Department of Chemistry, and the Department of Earth, Atmospheric, and Planetary Sciences continues to enjoy high popularity among students from CMRAE institutions. Of the 22 students enrolled, 20 were from MIT, and two from Harvard University. Thirteen faculty members from five CMRAE institutions lectured in the subject.

During the spring term, 30 undergraduate students in subject 3.094 Materials in Human Experience were engaged in lecture and laboratory sessions that explored the development of metallurgy among Andean societies in prehistory and the varieties of cementitious materials used in the ancient Mediterranean area for monumental constructions. Of 15 first-year students in the class, 10 declared Course 3, Materials Science and Engineering, as their major.

CMRAE, together with the Cyprus Institute's Science and Technology in Archaeology Center (STARC), is planning to establish a series of undergraduate summer courses that CMRAE will offer at STARC on the materials science and engineering of archaeological objects. The first of these courses is scheduled for June 2012. CMRAE is working closely with STARC in designing a state-of-the-art materials research and teaching laboratory for the Cyprus Institute. Heather Lechtman is co-chair of the STARC Science Advisory Committee.

Heather Lechtman

Director

Professor of Archaeology and Ancient Technology

More information about the Center for Archaeological Materials/Center for Materials Research in Archaeology and Ethnology can be found at <http://web.mit.edu/cmrae/>.