

Prehistoric Archaeology of Africa with emphasis on the Turkana Basin

Tools changed early humans from one among many African primates to the equivalent of a global geological force. Stone tools and other technologies enabled early hominins to be come the first organisms that could purposefully change their environment to suit their needs. This course traces the development of human technology where it first appears, in Eastern Africa, more than 3 million years ago. Course topics include the cognitive abilities of early humans implied by their technologies, early human adaptation and social behavior, and the inter-relationships between stone tool technology, paleoecology, and hominin biological evolution. Lectures and practical exercises teach students how to document the archaeological record and how to use it to test hypotheses about early human behavior. Field excursions teach archaeological survey and excavation techniques. Students conduct research and report their findings in writing and in oral presentations.

Instructor: Dr. Sonia Harmand sonia.harmand@stonybrook.edu
Office & Phone: Soc. Behav. Sci. N-525, 631-632-7605
Will be generally available to students for office hours during the module.

Teaching Assistants: There will be one graduate student TA and one undergraduate student TA available at the facility for the duration of the semester.

Class Meetings: Monday - Saturday, 8:00 am - 12:00 pm, and 2:30 - 5:30 pm

Week	Day	Lecture	Seminar	Discussion	Lab	Field	Other	Total
1	Mon	2			2			4
1	Tues	2			4			6
1	Wed	3			3			6
1	Thur					6		6
1	Fri					6		6
1	Sat		2			2		4
2	Mon	3			3			6
2	Tues	3			3			6
2	Wed	6						6
2	Thur				6			6
2	Fri		6					6
2	Sat						6 exm	6
Total Hours		20	6		22	15	N/A	72
Contact Hours		20	9		11	5		45

Text: There is no assigned textbook for this course; assigned readings will be given digitally to the students at the beginning of the course. The readings will be useful for clarifying concepts discussed in class and for supplying additional examples from those presented in lecture. Students will find that reading the material before attending lecture will make the lecture easier to follow. Other documents, review sheets, class announcements, etc, will be downloadable from the class Blackboard site (<https://blackboard.stonybrook.edu>).

COURSE LEARNING OBJECTIVES

The objectives of this course are to teach you:

- what** archaeologists do.
- the **methods** of archaeological reasoning.
- why** the past matters.
- how** to interpret the archaeological data that informs the current state of research.
- an **understanding** of the prehistoric cultures of Africa.
- how the **applications** of new interdisciplinary and scientific techniques are helping to illuminate the early societies of Africa.

This course satisfies the following requirements of the **DEC:**

Category F: Social and Behavioral Sciences

This course satisfies the following requirements of the **SBC:**

Pursue Deeper Understanding in Social and Behavioral Sciences (SBS+):

1. Students must use the skills expected from their Versatility courses to study and practice them in greater depth, with further study applied to the area in which they are certified.

Standards

1. Certified courses must expect students to practice the skills they learned in their Versatility courses in greater depth. These courses must have prerequisites from among the Versatility categories and will typically be at the 200-400 level.

-This course covers the major concepts and phenomena that form the basis of archaeology and how we analyze archaeological material and develop and test hypotheses about past human behavior. Students will learn how to form educated opinions about archaeological and behavioral issues, and to be able to interpret and critically engage with opinions from other sources. The structure and content of this course aims to build on the previous 4 TBI Origins FS courses (by definition prerequisites) by practicing the skills learned in the labs and developing critical thinking skills in seminars. Students move to a higher level of class format (labs, advanced fieldwork) and critical approaches (hands-on practical final exam, etc).

and

Speak Effectively before an Audience (SPK):

1. Research a topic, develop an oral argument and organize supporting details.
2. Deliver a proficient and substantial oral presentation for the intended audience using appropriate media.
3. Evaluate oral presentations of others according to specific criteria.

-The research activities outlined above give students the raw materials for a 20-minute presentation to the class at the end of the semester. Students are instructed in how to use

Powerpoint and presented with various examples of successful and unsuccessful organization and layout, and are further referred to other campus resources. Students will be given rubrics to use to evaluate their classmates' presentations and provide critical feedback.

PREREQUISITES

This course is part of a 5-course themed cluster (field school) and there are no prerequisites except permission from the instructor and/or study abroad office. Lectures will cover the basic concepts that are required to understand the material. A science background is not necessary for the successful completion of the course.

COURSE REQUIREMENTS

Grading:

- Participation (10%): Students are expected to actively participate in the data collection in the field and in class discussion and debates.
- Presentation in class (40%): Students will carry out a research project based on one of the topics of the class. The research project will be presented to the class on the next-to-last day of the module. Presentations will be in groups of two and each student will have about 10 minutes.
- Final exam (50%): The final exam will include material from the entire course.

COURSE POLICES

Classroom etiquette:

While students are in class, they are expected to give their full attention to the lecture. Reading, talking, eating, texting or browsing on cell phones, leaving or packing up to leave before the professor has dismissed the class are inappropriate classroom behaviors and disruptive to other students. Also, please make sure that your watch alarms, pagers, and cell phones do not go off during class.

Attendance and preparation of assignments:

Students are expected to attend all classes; if you expect to miss one or two classes, please email your TA, who will inform to me. Unexcused absences will lower your grade. Computer glitches (such as computers that die, hard disks that crash, flash drives that are lost, etc) will not be accepted as excuses for failure to do assignments on time, to study for exams, etc.

Policy Regarding Missed Exams:

Generally, makeup examinations are not given (and the score for the missed exam is entered as zero "0"). If you would like to be considered for a makeup examination, the following conditions must be met: 1. You should have a legitimate excuse for having missed the original exam, e.g., illness, family emergency. 2. You must inform me within 48 hrs before or after the scheduled exam date that you cannot take the exam. If the above conditions apply, then you will be allowed to do a makeup exam.

Americans with Disabilities Act:

If you have a physical, psychiatric/emotional, medical or learning disability that may impact on your ability to carry out assigned course work, please contact the Disability Support Services office in the Educational Communications Center (ECC) Building, room 128 (632-6748). DSS

will review your concerns and determine, with you, what accommodations are necessary and appropriate. All information and documentation of disability is confidential.

Academic Integrity:

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

Critical Incident Management:

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

Syllabus

Day 1- Introduction

Morning: Africa's place in Prehistory; Potential actors in the archaeological record
What makes us human? Aspects of living primate tool behavior
Afternoon: *Practical*- Collect of palm nuts and nut scraping activity

Day 2- Cultural Beginnings I

Morning: The Oldowan- Terminology, methods & techniques in lithic analysis
Practical – Tool reference material and drawing (cores & flakes)
Afternoon: *Practical*- The site of Ayangiyeng: practice surface plotting of artefacts

Day 3- Cultural Beginnings II

Morning: Early Acheulean and Acheulean; Terminology, methods & techniques in lithic analysis; The West Turkana Archaeological Project
Afternoon: *Lab*- Practical class on tool reference material (handaxes and hammerstones)

Day 4- Field Trip

Morning: departure to Nariokotome
Afternoon: Visit to the early oldowan site of Lokalalei 2C, surface plotting of artefacts; Visit to the Nariokotome Boy site

1st NIGHT IN NARIOKOTOME

Day 5- Field Trip

Morning: visit to the Kokiselei sites (Kokiselei 4, oldest Acheulean) Surface plotting and collect of artefacts

Afternoon: Excavation practice at the oldowan site of Kokiselei 6

2nd NIGHT IN NARIOKOTOME

Day 6- Coming Home

Morning: Return to TBI

Afternoon: Readings for in class presentation

Day 7- Rest Day

Day 8- Middle Stone Age

Morning: Middle Stone Age; Terminology, methods & techniques in lithic analysis

Afternoon: *Lab*- Practical class on tool reference material (drawing bone harpoons)

Day 9- Later Stone Age

Morning: Later Stone Age; Terminology, methods & techniques in lithic analysis

Afternoon: *Practical*- Field lithic identification at Napaget (Holocene)

Day 10- Knapping vs. Napping

Morning: Archaeological site formation and behavioral models for early hominids (carnivory, land use and subsistence patterns)

Afternoon: *The Cutting Edge* (film); Standardised African Site Enumeration System

Day 11- Breaking Rocks in the Hot Sun

Morning: *Lab*- Individual experimental knapping

Afternoon: *Lab* - Butchering a goat, cutmarks & use-wear analysis

Day 12- Showing What You Learned

Morning: Student presentations

Afternoon: Student presentations

Day 13- Exam

Morning: Study time

Afternoon: Exam

Day 14- Class Over: Rest Day Before Next Module

Readings

Note: Many of these readings are listed in order to guide you to further reading for particular topics. Those that will be particularly important for you to read during the course are marked.

Day 1 – Introduction

Toth, N. & Schick, K. 2009. The Oldowan: The Tool Making of Early Hominins and Chimpanzees Compared. *Annu. Rev. Anthropol.* 38: 289–305.

Mercader, J., Panger, M., & Boesch, C. 2002. Excavation of a Chimpanzee Stone Tool Site in the African Rainforest. *Science*, 296: 1452-1455.

Mercader, J. et al. 2007. 4,300-Year-old chimpanzee sites and the origins of percussive stone technology. *PNAS* 104(9): 3043–3048.

McGrew, W.C. 2010. Chimpanzee Technology. *Science* 328: 579-580.

Hayashi, M., Mizuno, Y. & Matsuzawa, T. 2005. How does stone-tool use emerge? Introduction of stones and nuts to naïve chimpanzees in captivity. *Primates* 46: 91–102.

Carvalho, S., Cunha, E., Sousa, C. & Matsuzawa, T. 2008. Chaînes opératoires and resource-exploitation strategies in chimpanzee (*Pan troglodytes*) nut cracking. *J. Hum. Evol.* 55: 148-163

Biro, D., Haslam, M. & Rutz, C. 2013. Tool use as adaptation. *Phil. Trans. R. Soc. B* 368: 1-8.

Day 2 – Cultural Beginnings I

McPherron, S.P. et al. 2010 Evidence for stone-tool-assisted consumption of animal tissues before 3.39 million years ago at Dikika, Ethiopia. *Nature* 466: 857-60.

de la Torre, I. 2011. The origins of stone tool technology in Africa: a historical perspective. *Phil. Trans. R. Soc. B.* 366: 1028-1037.

Semaw, S. et al. 2003. 2.6-Million-year-old stone tools and associated bones from OGS-6 and OGS-7, Gona, Afar, Ethiopia. *J. Hum. Evol.* 45: 169-77.

Stout, D., Quade, J., Semaw, S., Rogers, M. J., Levin, N. E. 2005. Raw material selectivity of the earliest stone toolmakers at Gona, Afar, Ethiopia. *J. Hum. Evol.* 48: 365-380.

Lewin, R. 1984. Bone Tools from Olduvai Gorge. *Science* XX: 429.

Day 3- Cultural Beginnings II

Lepre, C. J. et al. 2011. An earlier origin for the Acheulean. *Nature* 477: 82-85.

McPherron, S. P. 2000. Handaxes as a Measure of the Mental Capabilities of Early Hominids. *J. Archaeol. Sci.* 27: 655–663.

Faisal, A., Stout, D., Apel, J. & Bradley, B. 2010. The Manipulative Complexity of Lower Paleolithic Stone Toolmaking. *PLOS One* 5(11): e13718.

Day 4-6- Field Trip

Robbins, L. H. 1972. Archeology in the Turkana District, Kenya. *Science* 176(4033): 359-366.

Day 8- Middle Stone Age

Brandt, S. A. 1986. The Upper Pleistocene and early Holocene prehistory of the Horn of Africa. *Afric. Archaeol. Rev.* 4: 41-82.

Klein, R. G. 2008. Out of Africa and the Evolution of Human Behavior. *Evol. Anthropol.* 17: 267-281.

McBrearty, S. & Brooks, A. 2000. The Revolution that Wasn't: a new interpretation of the origin of modern human behavior. *J. Hum. Evol.* 39: 453–563.

Chazan, M. & Horwitz, L. K. 2009. Milestones in the development of symbolic behaviour: a case study from Wonderwerk Cave, South Africa, *World Archaeology*, 41(4): 521-539. DOI: 10.1080/00438240903374506

d'Errico, F., Henshilwood, C. S., Vanhaeren, M. & van Niekerk, K. 2005. *Nassarius kraussianus* shell beads from Blombos Cave: evidence for symbolic behaviour in the Middle Stone Age. *J. Hum. Evol.* 48: 3-24.

d'Errico, F. & Henshilwood, C. S. 2007. Additional evidence for bone technology in the southern African Middle Stone Age. *J. Hum. Evol.* 52: 142-163.

Bouzouggar, A. 2007. 82,000-year-old shell beads from North Africa and implications for the origins of modern human behavior. *PNAS* 104(24): 9964–9969.

Day 9- Later Stone Age

Chazan, M. et al. 1995. The Language Hypothesis for the Middle-to-Upper Paleolithic Transition: An Examination Based on a Multiregional Lithic Analysis. *Curr. Anthropol.* 36(5): 749-768.

Marshall, F. 1990. Origins of Specialized Pastoral Production in East Africa. *Amer. Anthropol.* 92: 873-894.

Ambrose, S. H. 1998. Chronology of the Later Stone Age and Food Production in East Africa. *J. Archaeol. Sci.* 25: 377–392.

Marshall, F. & Hildebrand, E. 2002. Cattle Before Crops: The Beginnings of Food Production in Africa. *J. World Prehist.* 16(2): 99-143.

Mitchell, P. 2013. Southern African Hunter-Gatherers of the Last 25,000 Years. Chapter 33...

Watts, I. 2010. The pigments from Pinnacle Point Cave 13B, Western Cape, South Africa. *J. Hum. Evol.* 59: 392-411.

Hildebrand, E., Shea, J. J. & Grillo, K. M. 2011. Four middle Holocene pillar sites in West Turkana, Kenya. *J. Field Archaeol.* 36(3): 181-200.

Grillo, K. M. & Hildebrand, E. 2013. The context of early megalithic architecture in eastern Africa: the Turkana Basin c. 5000-4000 BP, *Azania: Archaeological Research in Africa* 48(2): 193-217. DOI: 10.1080/0067270X.2013.789188

Robbins, L. H. 2006. Lake Turkana Archaeology: The Holocene. *Ethnohistory* 53(1): 71-93.

Day 10- Knapping vs. Napping

Nelson, C. M. 1971. A Standardized Site Enumeration System for the Continent of Africa. *Nyame Akuma*, 40: 62-67.

Kabiru, A. 2008. Digital Curation? The State of the Archaeology Collection at the National Museums of Kenya. *Annual Conference of CIDOC Athens, September 15 – 18, 2008*.