



PONTIFICIA UNIVERSIDAD CATÓLICA DEL PERÚ - PUCP
FIELD SCHOOL PROGRAM IN PERU
BIOARCHAEOLOGY IN SAN JOSÉ DE MORO: HUMAN OSTEOLOGY PROGRAM
ADVANCED
2016 SEASON

GENERAL INFORMATION

Course:	Bioarchaeology in San José de Moro - Advanced
Location:	Chepén, La Libertad, Perú
Time period:	One month/4 weeks
Number of hours:	180 hours.
Professors:	Prof. Elsa Tomasto (PUCP)
Associated Professor:	Dr. Luis Jaime Castillo (PUCP) Mag. Luis Muro (Stanford University)
Professor's Assistants:	Mellisa Lund Valle
Coordinator:	Julio Saldaña (<i>jmsaldana@pucp.pe</i>)

SUMMARY

San Jose de Moro is a small village located on the Jequetepeque valley of the north coast of Peru. The modern town sits on top of one of the most important Pre Columbian cemeteries and ceremonial centers of the Moche or Mochica culture.

Since 1991, an international group of field archaeologists and bio archaeologists from PUCP and other universities from all around the world have been conducting excavations in San José de Moro and other sites of the region. These investigations, led by Dr. Luis Jaime Castillo, have recovered one of the largest collections of burials in Peru, which allow us to learn about the

customs and traditions of the Moches, as well as their political and social complexity. The most outstanding discoveries of San José de Moro Archaeological Program (SJMAP) have been a series of elite chamber tombs containing the remains of Mochica priestesses. In the monumental fortresses of Cerro Chepén and San Ildefonso, and in settlements and ceremonial centers dating from the same Late Moche period as SJM, research focuses on mapping and excavations of standing architecture, 3D modeling using advanced photogrammetry methods, paleoethnobotanical studies, etc.

As part of the PASJM Field School, the Bioarchaeology Field School students will live a unique experience of taking part of the research process at one of the most complex and important archaeological sites on the Peruvian north coast. The routine bioarchaeological work begins with the careful recording of skeletons at the field, but this is only the initial part of the process. A bioarchaeologist spends a lot of time at the laboratory, reconstructing, describing and recording the traits on the bones that will give information about the biological profile and osteobiography of each individual, in order to understand the whole population. According to this, in this field school the advanced students will improve their knowledge and skills for the interpretation of archaeological and forensic bones through a dynamic combination of laboratory practices, field archaeological work and lectures. The training is personalized, so that the participation of the students in each of these activities will depend on their personal skills, previous experience and improvements throughout the season.

OUTCOMES

By the end of the program the BFS will be able to:

1. Carry out the preventive conservation of human bone
2. Construct reliable biological profiles from bone and report it
3. Describe morphological traits of the bone related to normal variation, pathologies and activities
4. Make a good registering of human skeletons in the field

REQUIREMENTS

The program accepts graduate and undergraduate students in the fields of anthropology, archaeology, biological sciences, medicine and related fields. No previous field work experience is required but previous knowledge of human bone is a must. To participate in the advanced

group a CV showing courses or previous experience with human bones is required. In order to be admitted in the advance program, all students will have to pass an evaluation test (Quiz 0)

All pedagogic material will be provided by the program; nevertheless students can bring their textbooks and tools if they want to. A laptop will be needed for the preparation of reports. No knowledge of Spanish is required since all educational materials and activities will be conducted in English.

METHODOLOGY

During the first weeks we will work mainly at the laboratory, located near the excavations. Our work will be concentrated in the recording and description of skeletons excavated in previous seasons. The students will participate in all the steps required to construct biological profiles and osteobiographies. The process will start with the gathering of contextual information regarding each skeleton to be analyzed. Then actions oriented to the preventive conservation of the human bones will be taken, which will include careful cleaning and reconstructing parts of bones if needed. Each skeleton will be recorded using a standard set of forms to collect information regarding sex, age, stature, cranial modification, dental and skeletal pathologies and skeletal markers of activities. All this information will be entered in a database and a written report of each skeleton have to be generated

In the next weeks and depending on the advances and needs of the excavation areas, the bio-advanced students will participate actively in the recording and recovering of human remains, under the supervision of the leaders of each excavation unit.

Throughout the season a series of lectures will be offered, according to the schedule described in the next page. The advanced students are kindly invited to attend them, but this is optional and depending on their previous knowledge and personal interests.

Evaluation will be continuous from the very beginning. There will be four quizzes orientated to the identification of bone fragments. A final written report will be required. Since bioarchaeologist have to work in continuous dialogue with other specialists, the general attitude and ability to work under pressure will also be evaluated.

The information recovered and elaborated by the BFS students will become part of the archives and publications of the PASJM. This learning experience will be guided by leading Peruvian professionals from the Pontificia Universidad Católica del Perú who have ample experience in archaeological and forensic investigation in Peru and also have participated in international forensic missions.

SCHEDULE OF ACTIVITIES

The following schedule is a general guide. The lectures of preventive conservation and excavation techniques are mandatory. Advanced students that wish to strengthen their knowledge of any subject will be allowed to attend basic level lectures and workshops.

Date	Quiz	Lecture	Field Trip / Others
Wed 1	0	General introduction Bone and related tissues The skull: parts, sutures, frontal, parietal bones, occipital, temporal bones Preventive conservation of human remains	Assignment of skeletons for study (lab)
Thu 2		The sphenoid, small bones of the skull and face, maxilla, mandible and zygomatic bone	
Fri 3		The human dentition	
Sat 4	1		Delivery of reports
Mon 6		The ribs and vertebrae, the sternum	
Tue 7		The scapular and pelvic girdles	
Wed 8			Visit to Cerro Chépén
Thu 9		The limbs	
Fri 10		Excavation techniques	
Sat 11	2		Delivery of reports
Mon 13		Sex estimation, stature	
Tue 14		Age estimation	
Wed 15			Visit to San Ildefonso
Thu 16		Paleopathology and trauma	
Fri 17			
Sat 18	3		Delivery of reports
Mon 20		Biological distance	
Tue 21		Forensic anthropology	

Wed 22		The study of mummies	
Thu 23		DNA, Chemical studies in bone	
Fri 24	4		Delivery of final reports
Mon 27		End of Field Season	

EVALUATION

Final Grade for the Course is based on 100 points. Grading scale: A (90-100%); B (80-89%); C (70-79%); D (60-69%); F (0-59%).

Assignment	Point Value	Course Percentage
Quizzes	40	40%
Ability to work under pressure	10	10%
Final report	50	50%

BIBLIOGRAPHY

AUFDERHIDE AND RODRIGUEZ MARTIN

1998 **The Cambridge Encyclopedia of Human paleopathology.** Cambridge University Press

BROWN, Terry

2011 **Biomolecular archaeology: an introduction.** University of Manchester

BUIKSTRA, Jane E. y Douglas UBELAKER (Eds.).

1994 **Standards for Data Collection From Human Skeletal Remains.** Fayetteville, Arkansas.

CAPASSO, Luigi, Kenneth KENNEDY y Cynthia WILCZAK

1999 **Atlas of occupational markers on human remains.** Edigrafital S.P.A, Terrano

DIGANGI Elizabeth, Jonathan D. BETHARD, Erin H. KIMMERLE y Lyle W. KONIGSBERG

2009 A New Method for Estimating Age-At-Death From the First Rib. **American Journal of Physical Anthropology** 138:164-176

DUDAY, Henry

1997 Antropología biológica “de campo” , tafonomía y arqueología de la muerte. En **El cuerpo humano y su tratamiento mortuorio.** Elsa Malvido, Gregory Pereyra y Vera Tiesler, coordinadores. Centro Francés de Estudios Mexicanos y Centroamericanos.

GALLOWAY, Allison

1999 **Broken bones. Anthropological analysis of blunt force trauma** Charles C. Thomas, III

GENOVÉS, Santiago

1967 Proportionality of the Long Bones and their Relation to Stature among Mesoamericans. **American Journal of Physical Anthropology** 26: 67-78

- HAWKEY, Diane y Charles MERBS
1995 Activity-induced Musculoskeletal Stress Markers (MSM) and Subsistence Strategy Changes among Ancient Hudson Bay Eskimos. **International Journal of Osteoarchaeology** 5: 324-338
- HILLSON, Simon.
1996 **Dental Anthropology**. Cambridge University Press
- ISCAN, M.Y., S.R. LOTH y R.K. WRIGTH
1984 Age estimation from the rib by phase analysis: white males. **Journal of forensic sciences** 29: 1094-1104
- LOVEJOY, Owen, Richard MEINDL, R. PRYZBECK y Robert MENSFORTH
1985 Chronological Methamorphosis of the Auricular Surface of the Ilium: a New Method for the Determination of Adult Skeletal Age at Death. **American Journal of Physical Anthropology**. 68:15-28
- ORTNER, Donald J.
2003 **Identification of Pathological Conditions in Human Skeletal Remains**. 2nd Edition Smithsonian Institution Press, Washington.
- OWINGS, Patricia A. y Judy M. SUCHEY.
1985 Epiphyseal Union of the Anterior Iliac Crest and Medial Clavicle in a Modern Multiracial Sample of American Males and Females. **American Journal of Physical Anthropology**. 68:457-466.
- SCHEUER, Louis y Sue BLACK
2004 **The juvenile osteology**, Elsevier Ltd.
- SMITH, Holly.
1991 Standards of Human Tooth Formation and Dental Age Assessment. **Advances in Dental Anthropology**. 143-168. Wiley-Liss, Inc., NY
- VEGA, María del Carmen
2009 **Estimación de edad en subadultos: estudio dental y métrico en poblaciones andinas peruanas**. Tesis de maestría. Escuela de Posgrado PUCP
- WALDRON, Tony
2009 **Paleopathology**. Cambridge manuals in archaeology, Cambridge University Press
- WHITE, Tim y Pieter FOLKENS
2005 **The human bone manual**, Elsevier Inc.