

# **COURSE SYLLABUS**

## **ANTHROPOLOGY 545: *BIOARCHAEOLOGY***

**Semester:** Spring 2008

**Section:** 1 (5:00-7:45, M, SCI 273)

**Instructor:** Mark C. Griffin

**Office:** 395 Science

**Phone:** 338-7519

**E-mail:** mgriffin@sfsu.edu

**Office Hours:** MWF 1:00-2:00 or by appt.

### **DESCRIPTION:**

Archaeologists have only recently begun to explore the potential of human skeletal remains for reconstruction of past lifeways. This course focuses on this new direction in anthropology. The material builds on concepts introduced in the Human Osteology course and is focused at the population level of analysis rather than the individual level. Specifically, this course examines the reconstruction from skeletal populations of patterns of subsistence, diet, disease, demography, and physical activity. Completion of ANTH 530 (Human Osteology) or the approval of the instructor is required for this course.

### **COURSE REQUIREMENTS:**

There are three laboratory practical exams for this course. Cumulatively, these will contribute 15% toward your final grade. There are two scheduled exams: one mid-term and a non-cumulative final. Each exam contributes 25% toward your final grade. Each student will prepare (and give) a one-hour Powerpoint presentation and a research paper on one of the assigned topics in the course. These will contribute the final 35% toward your grade. Because of the seminar nature of this course, no incompletes will be given for this course.

### **TEXTBOOKS:**

LARSEN, CLARK SPENCER. 1997. *Bioarchaeology: Interpreting behavior from the human skeleton*. Cambridge, Massachusetts: Cambridge University Press.

*The remaining readings are available at PhotoDay - 3418 Geary Blvd. (across from the Coronet Theater and Mel's Diner).*

### **ATTENDANCE POLICY:**

**Be here.** I do not take attendance (being here is your responsibility), but the information covered in class is essential for your essays. Your grade will therefore be adversely affected if you do not come to class.

### **EXAMS AND EXAM POLICY:**

Each of the two scheduled exams will be take-home essay exams (to be handed out one week prior to the exam date and due at the scheduled exam time). All assignments for this course **will be** typed, double-spaced, and referenced using the style of *Current Anthropology*.

*You will be held responsible for all information presented in lectures, assigned readings, and any other media (i.e., films, video tapes, slides, etc.). The assigned readings are meant to compliment the material presented in class, not substitute for it (i.e., attend lectures if you plan to pass the course).*

Due to the nature of the assignments, they cannot be turned in late except in extremely dire circumstances and ***only with the prior approval*** of the instructor. Jammed printers, obstinate computers, incompetent computer users, recalcitrant cars, dead pets, irritating viruses, busy schedules, and general lack of prior planning **are not** valid excuses for late assignments. Documented catastrophic illness (bubonic plague, typhoid, malaria) or death (yours) *may* be considered.

**SCHEDULE:**

TOPIC	READING
Osteology Review: Cranial and Postcranial skeletal elements	White and Folkens 1-13
Osteology Review: Sex	White and Folkens 17
Osteology Review: Age-at-Death	White and Folkens 17 Johnston and Zimmer 1989 İşcan and Loth 1989 St. Hoyme and İşcan 1989
Overview of Bioarchaeology	<b>Larsen Chp. 1</b>
Growth and Development	<b>Larsen Chp. 2</b> Frisancho 1978
Growth Disruption	<b>Larsen Chp. 2</b> Goodman and Armelagos 1985 Hutchinson and Larsen 1990 Hummert and Van Gerven 1985
Paleodemography	<b>Larsen Chp. 10</b> Boddington 1987 Buikstra and Konigsberg 1985 Wood <i>et al.</i> 1992 Saunders <i>et al.</i> 1995
Population Distance	<b>Larsen Chp. 9</b> Saunders 1989 Berry and Berry 1967 Lukacs and Hemphill 1991 Szathmary 1993

Biomechanics	<b>Larsen Chp. 6, 7</b> Van Gerven 1982 Ruff and Larsen 1990 Larsen <i>et al.</i> 1991
Dental Infection	<b>Larsen Chp. 3</b> Larsen <i>et al.</i> 1991 Kelley <i>et al.</i> 1991
Skeletal Infection: Non-specific	<b>Larsen Chp. 3</b> Goodman <i>et al.</i> 1984 Stuart-Macadam 1985 Cook 1984
Skeletal Infection: Specific	<b>Larsen Chp. 3</b> Merbs 1992 Sullivan 1985 Buikstra and Cook 1981
Skeletal Trauma	<b>Larsen Chp. 4, 5</b> Lovejoy and Heiple 1981 Milner <i>et al.</i> 1991 Walker 1989 Jurmain 1991
Dietary Reconstruction	<b>Larsen Chp. 8</b> Schoeninger <i>et al.</i> 1990 Schwarcz and Schoeninger 1991 Crist 1995

---

## SELECTED BIBLIOGRAPHY

- BERRY, A. CAROLINE AND R.J. BERRY. 1967. Epigenetic variation in the human cranium. *Journal of Anatomy* 101:361-379.
- BODDINGTON, A. 1987. "From bones to population: The problem of numbers." in A. Boddington, A.N. Garland, and R.C. Janaway (eds.) *Death, Decay and Reconstruction*. pp. 180-197. Manchester: Manchester University Press.
- BUIKSTRA, JANE E. AND DELLA C. COOK. 1981. "Pre-Columbian Tuberculosis in West-Central Illinois: Prehistoric Disease in Biocultural Perspective," in *Prehistoric Tuberculosis in the Americas*. Edited by Jane E. Buikstra, pp. 115-139. Evanston, Illinois: Northwestern Archaeological Program.
- BUIKSTRA, JANE E. AND LYLE KONIGSBERG. 1985. Paleodemography: Critiques and controversies. *American Anthropologist* 87:316-333.
- BURR, D.B. 1980. The relationship among physical, geometrical, and mechanical properties of bone, with a note on the properties of nonhuman primate bone. *Yearbook of Physical Anthropology* 23:109-146.
- COOK, DELLA C. 1984. "Subsistence and health in the lower Illinois valley: Osteological evidence," in *Paleopathology at the Origins of Agriculture*. Edited by Mark N. Cohen and George J. Armelagos, pp. 235-269. Orlando, Florida: Academic Press.
- CRIST, THOMAS A.J. 1995. "Bone chemistry analysis and documentary archaeology: Dietary patterns of enslaved African Americans in the South Carolina low country," in *Bodies of Evidence: Reconstructing History Through Skeletal Analysis*. Edited by Anne L. Grauer, pp. 197-219. New York: Wiley-Liss.
- FAGAN, BRIAN. 1994. A case for cannibalism. *Archaeology* 47(1):11-16.
- FOX, CARLES LALUEZA, JORDI JUAN, AND ROSA M. ALBERT. 1996. Phytolith analysis on dental calculus, enamel surface, and burial soil: Information about diet and paleoenvironment. *American Journal of Physical Anthropology* 101:101-113.
- FRINSANCHO, A.R. 1978. Nutritional influences on human growth and maturation. *Yearbook of Physical Anthropology* 21:174-191.
- GOODMAN, A.H., J. LALLO, G.J. ARMELAGOS, AND J.C. ROSE. 1984. "Health change at Dickson Mounds, Illinois (A.D. 950-1300)," in *Paleopathology at the Origins of Agriculture*. Edited by Mark N. Cohen and George J. Armelagos, pp. 271-305. Orlando, Florida: Academic Press.
- GOODMAN, A.H. AND GEORGE J. ARMELAGOS. 1985. Factors affecting the distribution of enamel hypoplasias within the human permanent dentition. *American Journal of Physical Anthropology* 68:479-493.
- GRAUER, A.L. AND C.A. ROBERTS. 1996. Paleoepidemiology, healing, and possible treatment of trauma in the medieval cemetery population of St. Helen-on-the-Walls, York, England. *American Journal of Physical Anthropology* 100:531-544.
- GREENE, D.L., D.P. VAN GERVEN, AND G.J. ARMELAGOS. 1986. Life and death in ancient populations: Bones of contention in paleodemography. *Human Evolution* 1:193-207.
- GRIFFIN, MARK C. 1993. "Theory and Method," in *Dental Morphological Variation of the Late Precontact and Contact Period Guale*. Ph.D. Dissertation, Purdue University. Mark C. Griffin, pp. 54-94.
- HUGHES, C., D.J.A. HEYLINGS, AND C. POWER. 1996. Transverse (Harris) lines in Irish archaeological remains. *American Journal of Physical Anthropology* 101:115-131.

- HUMMERT, J.R. AND D.P. VAN GERVEN. 1985. Observations on the formation and persistence of radiopaque transverse lines. *American Journal of Physical Anthropology* 66:297-306.
- HUTCHINSON, DALE L. AND CLARK SPENCER LARSEN. 1990. "Stress and lifeway change: The evidence from enamel hypoplasias," in *The Archaeology of Mission Santa Catalina de Guale: 2. Biocultural Interpretations of a Population in Transition*. Anthropological Papers of the American Museum of Natural History, Vol. 68. Edited by Clark Spencer Larsen, pp. 50-65.
- İŞCAN, MEHMET YAŞAR AND SUSAN R. LOTH. 1989. "Osteological manifestations of age in the adult," in *Reconstruction of Life from the Skeleton*. Edited by Mehmet Yaşar İşcan, and Kenneth A. R. Kennedy, pp. 23-40. New York: Wiley-Liss.
- JOHNSTON, FRANCIS E. AND LOUISE O. ZIMMER. 1989. "Assessment of growth and age in the immature skeleton," in *Reconstruction of Life from the Skeleton*. Edited by Mehmet Yaşar İşcan, and Kenneth A. R. Kennedy, pp. 11-21. New York: Wiley-Liss.
- JURMAIN, ROBERT D. 1991. "Paleoepidemiology of trauma in a prehistoric central California population," in *Human Paleopathology: Current Syntheses and Future Options*. Edited by Donald J. Ortner and Arthur C. Aufderheide, pp. 241-248. Washington, D.C.: Smithsonian Institution Press.
- KATZENBERG, M. ANNE, D. ANN HERRING, AND SHELLEY R. SAUNDERS. 1996. Weaning and infant mortality: Evaluating the skeletal evidence. *American Journal of Physical Anthropology* 39:177-199.
- KELLEY, MARC A., DIANNE R. LEVESQUE, AND ERIC WEIDL. 1991. "Contrasting patterns of dental disease in five early northern Chilean groups," in *Advances in Dental Anthropology*. Edited by Marc A. Kelley and Clark Spencer Larsen, pp. 203-214. New York: Wiley-Liss, Inc.
- KROGMAN, WILTON MARION AND MEHEMET YASAR İSCAN. 1986. *The Human Skeleton in Forensic Medicine*. Springfield, Illinois: Charles C. Thomas.
- LAMPL, MICHELLE AND FRANCIS E. JOHNSTON. 1996. Problems in the aging of skeletal juveniles: Perspectives from maturation assessments of living children. *American Journal of Physical Anthropology* 101(3):345-356.
- LARSEN, CLARK SPENCER. 1987. "Bioarchaeological Interpretations of Subsistence Economy and Behavior from Human Skeletal Remains," *Advances in Archaeological Method and Theory, Volume 10*. Edited by Michael B. Schiffer. pp. 339-445. Orlando: Academic Press.
- LARSEN, CLARK SPENCER AND GEORGE R. MILNER (eds.). 1993. *In the Wake of Contact: Biological Responses to Conquest*. New York: Wiley-Liss.
- LARSEN, CLARK SPENCER, CHRISTOPHER B. RUFF, AND MARK C. GRIFFIN. 1996. "Implications of changing biomechanical and nutritional environments for activity and lifeway in the eastern Spanish borderlands," in *Bioarchaeology of Native American Adaptation in the Spanish Borderlands*. Edited by Brenda J. Baker and Lisa L. Kealhofer, pp. 95-125. Gainesville, Florida: University of Florida Press.
- LARSEN, CLARK SPENCER, REBECCA SHAVIT, AND MARK C. GRIFFIN. 1991. "Dental caries evidence for dietary change: An archaeological context," in *Advances in Dental Anthropology*. Edited by Marc A. Kelley and Clark Spencer Larsen, pp. 179-202. New York: Wiley-Liss, Inc.
- LOVEJOY, C. OWEN AND K.G. HEIPLE. 1981. The analysis of fractures in skeletal populations with an example from the Libben Site, Ottawa County, Ohio. *American Journal of Physical Anthropology* 55:529-541.
- LUKACS, JOHN R. 1985. Tooth size variation in prehistoric India. *American Anthropologist* 87:811-825.

- LUKACS, JOHN R. AND BRIAN E. HEMPHILL. 1991. "The dental anthropology of prehistoric Baluchistan: A morphometric approach to the peopling of South Asia," in *Advances in Dental Anthropology*. Edited by Marc A. Kelley and Clark Spencer Larsen, pp. 77-119. New York: Wiley-Liss, Inc.
- MENOZZI, P., A. PIAZZA, AND L.L. CAVALLI-SFORZA. 1978. Synthetic maps of human gene frequencies in Europeans. *Science* 201:786-792.
- MERBS, CHARLES F. 1992. A new world of infectious disease. *Yearbook of Physical Anthropology* 35:3-42.
- MERBS, CHARLES F. 1996. Spondylolysis of the sacrum in Alaskan and Canadian Inuit skeletons. *American Journal of Physical Anthropology* 101(3):357-368.
- MILNER, GEORGE R., E. ANDERSON, AND V.G. SMITH. 1991. Warfare in late prehistoric west-central Illinois. *American Antiquity* 56:581-603.
- O'LOUGHLIN, VALERIE DEAN. 1996. Comparative endocranial vascular changes due to craniosynostosis and artificial cranial deformation. *American Journal of Physical Anthropology* 101(3):369-386.
- ORTNER, DONALD J. AND WALTER G. PUTSCHAR. 1985. *Identification of Pathological Conditions in Human Skeletal Remains*. Washington, D.C.: Smithsonian Institution Press.
- ROSE, J.C., K.W. CONDON, AND A.H. GOODMAN. 1985. "Diet and dentition: Developmental disturbances." in R.I. Gilbert and J.H. Meilke (eds.) *The Analysis of Prehistoric Diets*. pp. 281-305. Orlando, Florida: Academic Press.
- ROTHSCHILD, BRUCE M. AND CHRISTINE ROTHSCCHILD. 1996. Treponemal disease in the new world. *Current Anthropology* 37(3):555-561.
- ROTHSCHILD, BRUCE M., ISRAEL HERSHKOVITZ, O. DUTOUR, BRUCE LATIMER, CHRISTINE ROTHSCCHILD, AND L.M. JELLEMA. 1997. Recognition of leukemia in skeletal remains: Report and comparison of two cases. *American Journal of Physical Anthropology* 102(4):481-496.
- RUFF, CHRISTOPHER B. AND CLARK SPENCER LARSEN. 1990. "Postcranial biomechanical adaptations to subsistence strategy changes on the Georgia coast." in *The Archaeology of Mission Santa Catalina de Guale: 2. Biocultural Interpretations of a Population in Transition*. Anthropological Papers of the American Museum of Natural History, Number 68. Edited by Clark Spencer Larsen, pp. 94-120.
- RUSSELL, M.D. 1985. The supraorbital torus: "A most remarkable peculiarity." *Current Anthropology* 26:337-360.
- ST. HOYME, LUCILE E. AND MEHMET YAŞAR İŞCAN. 1989. "Determination of sex and race: Accuracy and assumptions," in *Reconstruction of Life from the Skeleton*. Edited by Mehmet Yaşar İşcan, and Kenneth A. R. Kennedy, pp. 53-93. New York: Wiley-Liss.
- SARACENI, JESSICA E. 1997. What's on line? Digging into the World Wide Web. *Archaeology* 50(1):74-83.
- SAUNDERS, SHELLEY RAE. 1989. "Nonmetric skeletal variation," in *Reconstruction of Life from the Skeleton*. Edited by Mehmet Yaşar İşcan, and Kenneth A. R. Kennedy, pp. 95-108. New York: Wiley-Liss.
- SAUNDERS, SHELLEY RAE, D. ANN HERRING, AND GERALD BOYCE. 1995. "Can skeletal samples accurately represent the living populations they come from? The St. Thomas' cemetery site, Belleville, Ontario. in *Bodies of Evidence: Reconstructing History Through Skeletal Analysis*. Edited by Anne L. Grauer, pp. 69-89. New York: Wiley-Liss.
- SAUNDERS, SHELLEY R. AND M. ANNE KATZENBERG. 1992. *Skeletal Biology of Past Peoples: Research Methods*. New York: Wiley-Liss.

- SCHWARCZ, HENRY P. AND MARGARET J. SCHOENINGER. 1991. Stable isotope analyses in human nutritional ecology. *Yearbook of Physical Anthropology* 34:283-321.
- SCHOENINGER, MARGARET J., NIKOLAAS J. VAN DER MERWE, KATHERINE MOORE, JULIA LEE-THORP, AND CLARK SPENCER LARSEN. 1990. "Decrease in diet quality between the prehistoric and contact periods," in *The Archaeology of Mission Santa Catalina de Guale: 2. Biocultural Interpretations of a Population in Transition*. Anthropological Papers of the American Museum of Natural History, Vol. 68. Edited by Clark Spencer Larsen, pp. 78-93.
- SCHURR, MARK R. 1997. Stable nitrogen isotopes as evidence for the age of weaning at the Angel Site: A comparison of isotopic and demographic measures of weaning age. *Journal of Archaeological Science* 24:919-927.
- STUART-MACADAM, P. 1985. Porotic hyperostosis: Representative of a childhood condition. *American Journal of Physical Anthropology* 66:391-398.
- SULLIVAN, N.C. 1985. Tuberculosis in a late woodland effigy mound population. *Wisconsin Archaeology* 66:71-76.
- SZATHMARY, EMOKE J.E. 1993. Genetics of aboriginal North Americans. *Evolutionary Anthropology* 1:202-220.
- TURNER, CHRISTY G. II, CHRISTIAN R. NICHOL, AND G. RICHARD SCOTT. 1991. "Scoring procedures for key morphological traits of the permanent dentition: The Arizona State University dental anthropology system," in *Advances in Dental Anthropology*. Edited by Marc Kelley and Clark Spencer Larsen, pp. 13-31. New York: Wiley-Liss, Inc.
- VAN GERVEN, D.P. 1982. The contribution of time and local geography to craniofacial variation in Nubia's Batn el Hajar. *American Journal of Physical Anthropology* 59:307-316.
- VAN GERVEN, D.P. AND GEORGE J. ARMELAGOS. 1983. "Farewell to Paleodemography?" Rumors of its death have been greatly exaggerated. *Journal of Human Evolution* 12:353-360.
- WALKER, P. L. 1989. Cranial injuries as evidence of violence in prehistoric California. *American Journal of Physical Anthropology* 80:313-323.
- WHITE, TIM D. AND PIETER A. FOLKENS. 1991. *Human Osteology*. San Diego: Academic Press.
- WOOD, JAMES W., GEORGE R. MILNER, HENRY C. HARPENDING, AND KENNETH M. WEISS. 1992. The osteological paradox: Problems of inferring prehistoric health from skeletal samples. *Current Anthropology* 33(4):343-370.