

**Course Title:** *Biological Anthropology of the Pacific* [Fall 2003]

**Course Description:** This lecture/seminar course focuses on the biological diversity of Pacific Island populations, past and present. The course is presented in five parts. First, we lay the foundation for evaluating human diversity through a review of the physical environment, archaeology, linguistics, cultural anthropology and human biology of the circum-Pacific and Pacific region. Second, we discuss anthropological classifications of Pacific peoples and the human settlement of the Pacific. Third, we explore the cultural and evolutionary processes that have produced the biological diversity within the Pacific region. Next, we examine the biomedical effects of acculturation on 'Pacific peoples.' In conclusion, we re-assess the processes that account for biological diversity among the populations within the Pacific.

**Course Content:**

- Week 1: Introduction to the course  
Introduction to the Pacific and Circum-Pacific region
- Week 2: Pacific prehistory: geological, geographic, archaeological, linguistic and socio-cultural considerations
- Week 3: Classification of Pacific Island populations; the biological concept of race; problems with the concept of race; past and present classifications, and alternative approaches to human diversity
- Week 4: Diversity I:  
Human biology, studies based on somatological, physiological, biochemical data
- Week 5: Diversity II:  
Human osteology and odontology, studies based on dental and skeletal evidence
- Week 6: Diversity III:  
Human genetics: studies based classic genetic marker data [ABO, rh, Gm, etc.] and molecular genetic evidence [mt-DNA, Y-chromosome]
- Week 7: Evolutionary biology: evidence of genetic drift, gene flow and natural selection among the peoples of the Pacific [assumptions, observations and inferences]
- Week 8: Origins I:  
First inhabitants of Australia and New Guinea  
Evolutionary origins in the voyaging corridor
- Week 9: Origins II:  
Houghton's cold adaptation hypothesis  
Fast trains, slow boats and Polynesians

- Week 10: Biomedical anthropology I:  
Introduction, precontact health and disease  
Case studies illustrating inter-relationships between traditional cultural practices, demographic changes and disease patterning: kuru and malaria
- Week 11: Biomedical anthropology II:  
Health and disease at contact.  
The impact of European colonization.
- Week 12: Biomedical anthropology III:  
Migration and modernization
- Week 13: Student presentations
- Week 14: Student presentations
- Week 15: Student presentations
- Week 16: Re-assessing human diversity in the Pacific

**Course format:** Class sessions will consist of a lecture by the instructor, followed by a seminar session. Students will rotate primary and secondary responsibilities for seminar preparation and leadership. Assigned readings will be abstracted by selected participants in advance of the seminar, and copies made available to the other students and instructor. All students will be expected to do background readings. Each student is expected to participate fully during each seminar. The Instructor will serve as a discussant and moderator during the seminars.

**Class size:** An ideal class size will be 10-15 students.

**Prerequisite:** Junior standing or higher or consent of instructor.

**Course Objectives:** Learning objectives include mastery of an introductory-level appreciation of human biological diversity and relationships of Pacific Island populations. Furthermore, an appreciation of how microevolutionary processes have contributed to the patterning of biological variation will be gained. For future researchers and clinicians, the most valuable aspect of the course will be our focus on the host of ecological, historical and evolutionary factors that have affected and continue to impact upon the biological constitutions and well-being of Pacific Islanders.

**Methods of Evaluation:** Students will be evaluated on the basis of seminar participations, the results of two exams and one project culminating in a presentation to the class.

**Required And Recommended Texts and Readings:**

**Required:**

Houghton, P. 1996. *People of the Great Ocean: Aspects of Human Biology of the Early Pacific*. Cambridge: Cambridge University Press.

**Required Readings Available on Reserve at the University Library:**

- Bindon, JR. 1995. Polynesian responses to modernization: Overweight and obesity in the South Pacific. In I de Garine and NJ Pollock (eds) *Social Aspects of Obesity*. London: Gordon & Breach, pp. 227-251.
- Clark, JT and KM Kelly. 1993. Human genetics, paleoenvironments, and malaria: relationships and implications for the settlement of Oceania. *American Anthropologist*. 95:613-631.
- Flint, J, AVS Hill, DK Bowden, SJ Oppenheimer, PR Sill, et al. 1986. High frequencies of alpha-thalassemia are the result of natural selection by malaria. *Nature* 321:744-750.
- Gadjusek DC. 1977. Unconventional viruses and the origin and disappearance of Kuru. *Science* 197:943-960.
- Gibbons, A. 2001 The peopling of the Pacific. *Science* 289:1735-1737.
- Giles, E. 1973. Population analyses in Oceania. In MH Crawford and PL Workman (eds.) *Methods of Theories of Anthropological Genetics*, pp. 389-401. Albuquerque: University of New Mexico Press.
- Houghton, P. 1990. The adaptive significance of Polynesian body form. *Annals of Human Biology* 17:19-32.
- Houghton P. 1991. Grim fairy tale: Comments on some matters raised in The Hansel and Gretel Syndrome by N. van Dijk. *New Zealand Journal of Archaeology* 13:91-99.
- Howells, WW. 1979. Physical Anthropology. In JD Jennings (ed.) *The Prehistory of Polynesia*, pp. 271-285. Canberra: Australian National University Press.
- Howells, WW. 1997. Oceania. In F Spencer (ed.) *History of Physical Anthropology. Vol. 2: M-Z*. New York: Garland Publishing, Inc., pp. 762-775.
- Kayser, M, S Brauer, G Weiss, PA Underhill, et al. 2000. Melanesian origin of Polynesian Y chromosomes. *Current Biology* 10:1237-1246. [With Correction published in *Current Biology* Vol. 11. No. 2]
- Kelly, KM (1999) Malaria and immunoglobulins in Pacific prehistory. *American Anthropologist*. 101: 806-809.
- Kelly, KM (1996) The end of the trail: the genetic bases for deriving the Polynesian peoples from Austronesian-speaking paleopopulations of Melanesian Near Oceania. In: J Davidson, G Irwin, BF Leach, A Pawley and D Brown (eds.), *Oceanic Culture History, Essays in Honour of Roger Green*. New Zealand Journal of Archaeology Special Publication, pp. 355-364.
- Kirk, RL. 1989. Population genetic studies in the Pacific. In AVS Hill and SW Serjeantson (eds.). *The Colonization of the Pacific*. Oxford: Oxford Science Publication, pp. 60-119.
- Lindenbaum, S. 2001. Kuru, prions, and human affairs: Thinking about epidemics. *Annual Review of Anthropology* 30:363-385.
- Lum, JK, RL Cann, JJ Martinson and LB Jorde. 1998. Mitochondrial and nuclear genetic relationships among Pacific Island and Asian Populations. *American Journal of Human Genetics* 63:613-624.

- Merriwether, DA, JS Friendlaender, J Mediavilla, C Mgone, F Gentz, and RE Ferrell. 1999. Mitochondrial DNA variation is an indicator of Austronesian influence in Island Melanesia. *American Journal of Physical Anthropology* 110:243-270.
- Miles, J. 1997. *Infectious Diseases. Colonising the Pacific?* Dunedin: University of Otago Press. Ch. 3 & 10.
- Morris, LN 1971. *Human Populations, Genetic Variation, and Evolution*. Ch.V. The Small Population (pp. 301-320) San Francisco: Chandler Publishing Co.
- Neel, J. V. 1962. Diabetes mellitus: A thrifty genotype rendered detrimental by progress? *American Journal of Human Genetics* 14: 353-362.
- Oppenheimer S and M Richards. 2001. Slow boat to Melanesia? *Nature* 410:166-167.
- Oppenheimer S and M Richards. 2001. Fast trains, slow boats, and the ancestry of the Polynesian islanders. *Science Progress* 84:157-181.
- O'Shaughnessy DF, AVS Hill, DK Bowden, DJ Weatherall and JB Clegg et. al. 1990. Globin genes in Micronesia: Origins and Affinities of Pacific Island Peoples. *American Journal of Genetics* 46:144-155.
- Pawley, A. 1999. Language. In M Rapaport (ed.) *The Pacific Islands Environment and Society*, pp. 181-194. Honolulu: The Bess Press.
- Pietrusewsky, M. 1996. The physical anthropology of Polynesia: a review of some cranial and skeletal studies. In Davidson, J, Irwin, G, Leach, F., Pawley, A., & Brown, D. (eds.) *Oceanic Culture History: Essays in Honour of Roger Green*, pp. 343-353. Wellington: New Zealand Journal of Archaeology Special Publication.
- Pietrusewsky, M., M.T. Douglas and R. M. Ikehara-Quebral 1997. An assessment of health and disease in the prehistoric inhabitants of the Mariana Islands *American Journal of Physical Anthropology* 104:315-342.
- Prior, I. 1992. Tokelau: migration and health in a small Polynesian society-a longitudinal study. In D. F. Roberts, N. Fujiki, and K. Tonizuka (eds). *Isolation, Migration and Health*. Society for the Study of Human Biology Symposium Series 33, pp. 171-191. Cambridge: Cambridge University Press.
- Serjeantson, SW, DP Ryan, and AR Thompson. 1982. The colonization of the Pacific: The story according to human leukocyte antigens. *American Journal of Human Genetics* 34:904-918.
- Terrell, JE and J Fagan. 1975. "The savage and the innocent: sophisticated techniques and naive theory in the study of human population genetics in Melanesia." *Yearbook of Physical Anthropology*, 19: 1-18.
- Terrell, JE, TL Hunt and C Gosden. 1997. "The dimensions of social life in the Pacific: Human diversity and the myth of the primitive isolate." *Current Anthropology*, 38: 155-195.
- Terrell, JE, KM Kelly and P Rainbird. 2001 Foregone conclusions? In search of 'Austronesians' and 'Papuan.' *Current Anthropology*. 42: 97-124.
- Thomas, F. 1999. The Precontact Period. In M Rapaport (ed.) *The Pacific Islands Environment and Society*. pp. 121-133. Honolulu: The Bess Press.
- van Dijk, N. 1991. The Hansel and Gretel Syndrome: A critique of Houghton's cold adaptation hypothesis and an alternative model. *New Zealand Journal of Archaeology* 13:65-89.

**Additional supplemental reading will be assigned from the following monographs and collected works:**

Attenborough, R.D. and M.P. Alpers. Editors. 1992 *Human Biology in Papua New Guinea: The small cosmos*. Oxford: Oxford Science Publications.

Bellwood, P. 1997. *Prehistory of the Indo-Malaysian Archipelago*. Honolulu: University of Hawai'i Press.

Davidson, J, G Irwin, F Leach, A Pawley and D Brown. (eds.) *Oceanic Culture History: Essays in Honour of Roger Green*. Wellington: New Zealand Journal of Archaeology Special Publication.

Hill, A.V.S. And S.W. Serjeantson, Editors. 1989 *The Colonization of the Pacific: A genetic trail*. Oxford: Oxford Science Publications.

Howells, W. W. 1973 *The Pacific Islanders*. New York: Charles Scribner's Sons.

Kirch, P. V. 1997. *The Lapita Peoples. Ancestors of the Oceanic world*. Cambridge: Blackwell.

Kirch, P. V. 2000. *On the Road of the Winds. An Archaeological History of the Pacific Islands before European Contact*. Berkeley: University of California Press.

Spriggs, M. 1997. *The Island Melanesians*. Cambridge: Blackwell.

**Additional resources at:**

<http://www.bioanth.org/PacificPrehistory/bibleo.htm>