

BAN1. HUMANS IN BIOLOGICAL PERSPECTIVE

Paper aims and objectives:

This paper provides a broad introduction to biological anthropology and covers major subject areas such as human origins, adaptation to different environments, life history and genetic diversity. The paper investigates behavioural and gene-environment interactions, and the ecology and adaptations of modern populations in the context of their growth, health and cultural variability. Specific topics covered include the burden of malnutrition and interrelationships with poverty, the role of nature and nurture in shaping human mind, and human communication and cognition. The paper concludes with two special topic modules: 1) What Infant chimpanzees teach us about Facebook, and; 2) Wildlife conservation in developing countries.

Paper Coordinator: Dr Jay Stock (jts34@cam.ac.uk)

General Reading:

Boyd, R. & Silk, J. (2009) *How Humans Evolved*. 5th edit. W. W. Norton & Co.
Dawkins, R. (1989) *The Selfish Gene*. New edit. Oxford University Press.
Ridley, M. (2003) *Nature Via Nurture: Genes, Experience, and What Makes Us Human*. Harper Collins
Stringer, C. & Andrews, P. (2005) *The complete world of Human Evolution*. Thames & Hudson
de Waal, F. (2001) *Tree of Origin. What Primate Behavior Can Tell Us about Human Social Evolution*. Harvard University Press.

Lecture Room:

Lecture Theatre (Room 41), Division of Biological Anthropology, Pembroke Street.

Lecture Times:

Michaelmas, Lent and Easter Terms (Monday 11, Wednesday 11)

Syllabus:

This paper is about the relationship between the biology and behaviour of our species. It first provides an overview of the relationship between poverty and malnutrition in the developing world, with implications for both human health and policy. The process of human adaptation is then introduced more broadly, with reference to the interactions between our biology and our behaviour. The theme of human adaptability continues with an introduction to human genetics where the principles and evolutionary mechanisms that generate and shape genetic variation are presented, explaining how inferences from observed patterns of diversity within and among human populations are made. Next, the relationship between genes and the environment is considered from the perspective of nature and nurture. An introduction to life history theory demonstrates how the timing of key events throughout the human lifespan relates to our success as a species. These factors are important to understand human origins and dispersal of modern *Homo sapiens* from the perspective of the fossil evidence. The paper also covers the unique and shared aspects of human and non-human primate communication and behaviour, and the importance of social networks across the primate order. The paper concludes with a consideration of the challenges of wildlife conservation in developing countries.

Michaelmas Term

The Scope of Biological Anthropology

An introduction to the breadth and scope of research into the biology of our species within an Anthropological perspective.

Dr Jay Stock

Two lectures, 14 Oct, 16 Oct

Readings:

Boyd, R. & Silk, J. (2009) *How Humans Evolved*. 5th edit. W. W. Norton & Co.

The Double Burden of Malnutrition

The relationship between malnutrition and poverty is explored, with specific reference to socioeconomic factors in the developing world.

Prof Nick Mascie-Taylor

Five lectures, beginning 21 Oct

Readings:

Human Adaptation to Environmental Extremes

Dr Jay Stock

Three lectures, beginning 6 Nov

Humans have successfully colonized almost all of the world's environments. This module considers the process of human adaptability, integrating biological and cultural factors.

Readings:

Moran, E. (2007) *Human Adaptability: An Introduction to Human Ecology*. 3rd edition. Westview Press.

Schutzkowski, H. (2005) *Human Ecology: Biocultural Adaptations in Human Communities*. Springer, Ecological Studies 182

Wells, J.C.K. & Stock, J.T. (2007) Biology of the colonising ape. *Yearbook of Physical Anthropology* 50:191-222.

Processes shaping genetic variation in humans

Dr Toomas Kivisild

Three lectures, beginning 18 Nov

Our genes encode information that shapes our biology and informs us about the history of our species. This module provides an introduction and overview of how to discover and assess genetic diversity, the processes that generate and shape diversity, interplay among different forces of evolution, and how to make inferences from genetic evidence about human evolution.

Readings:

Jobling, M.A., Hollox, E., Hurles, M.E., Kivisild, T., Tyler-Smith, C. (2013) *Human Evolutionary Genetics: 2nd edition*. Garland Science. Chapters 4-6.

Nature, Nurture and the Human Mind

Dr Nick Mascie-Taylor

Three lectures, beginning 27 Nov

This module explores the relationship between nature (our genes) and nurture (our environments), with particular focus on the factors which shape intelligence, and the human mind.

Readings:

Ridley, M. (2003) *Nature via Nurture*. Fourth Estate.

Lent Term

Life History theory and human resilience

Dr Frank Marlowe

Three lectures beginning 20 Jan

There is considerable variation in how humans allocate energy throughout the lifespan. This module explores the implications of variation in 'life history' for our understanding of human ecology, adaptability and behaviour.

Readings:

The Evolution and Origin of our Species

Dr Jay Stock

Six lectures beginning 29 Jan

Human origins and evolution from ape ancestors to modern humans are discussed, with a focus on the evolution of human diversity.

Readings:

Boyd, R. & Silk, J. (2009) *How Humans Evolved*. 5th edit. W.W. Norton.

Stringer, C. & Andrews, P. (2005) *The complete world of Human Evolution*. Thames & Hudson

Battles of the Sexes: Behavioural Strategies

Dr Frank Marlowe

Three lectures beginning 19 Feb

What is the biological basis for the differences between men and women, and how are these reflected in human behaviour?

Readings:

Primate and Human Communication and Cognition

Lecturers

Four lectures beginning 3 March

The biology and behaviour of non-human primates (apes, monkeys, prosimians), and what they tell us about our own species.

Readings:

Campbell, C. et al., eds. (2007) *Primates in Perspective*. Oxford University Press.

De Waal, F., ed. (2001) *Tree of Origin*. Harvard University Press.

McGrew, W. C. (2004) *The Cultured Chimpanzee*. Cambridge University Press.

Corbey, R. (2005) *The Metaphysics of Apes. Negotiating the Animal-Human Boundary*. Cambridge UP

Strier, K.B. (2006) *Primate Behavioral Ecology*. 3rd edit. Allyn & Bacon

Easter Term

What infant chimpanzees say about Facebook and the Arab Spring

Dr Peter Walsh

Two lectures beginning 28 April

Social networks.....

Readings:

Wildlife conservation in developing countries

Dr Peter Walsh

Two lectures beginning 5 May

The preservation of natural environments and species.....

Readings:

Assessment:

This paper is assessed by a three-hour written examination. All topics are covered in a single undivided paper, and candidates must answer three questions from a choice of ten.

Supplementary Teaching:

Students are expected to have supervisions arranged by their Director of Studies. Four supervisions per term are usual, and three to four essays are typically expected. Practicals introduce students to fossil hominid material, primate biology and identification, and genetic techniques.

Preparation for Part II (Dr. J.T. Stock and Dr. T. Kivisild)

The Part II programme in Biological Anthropology is aimed at deepening and broadening knowledge and understanding of humans in their biological context. Information about continuing

in Biological Anthropology will be provided at an introductory meeting on **Monday 12th May 2014, at 11am** in the Biological Anthropology Lecture Theatre, Pembroke Street.

A copy of the Part II Biological Anthropology Handbook is available from the Biological Anthropology Office on Pembroke Street, or on the Division website: www.bioanth.cam.ac.uk.