**Anthropology 102:**

**How Humans Evolve**

**Second Semester 2017**

# Couse Details

Course value: 15 points

**Lectures:**

Tuesday 1 – 2 pm

Room

Thursday 1-2 pm
Room

**Tutorials/Labs:**

One one-hour lab per week starting in Week 2

**Course Staff**

**Convenor:**

Dr Nicholas Malone

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AP Judith Littleton
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**Tutors:**

Alison Wade

Julie Spray

Rebecca Bell

**Course description**

In this course we introduce you to some of the big questions of how humans evolve. The course is an introduction to biological anthropology; the study of human and non-human primate biological variation over time, and the relationship of that variation to the worlds we inhabit: social, cultural and physical. Biological anthropologists study human evolution and human ecology at a range of different levels, from the gene to the population. In the department at the University of Auckland we are involved in the analysis of skeletons from the past (e.g. Bronze Age Mongolia, pre-contact Australia), primate studies (Indonesia, Africa), infectious disease, growth and development of contemporary populations (Taiwan, New Zealand), human behaviour in the context of economic change (China), changes in health and migration (Pacific), and the genetics of environmental change (Pacific, Australia). Our past and present students have gone on to work in diverse areas: archaeological consulting, museum work, teaching, community work, public health research, and clinical research.

*Evolutionary theory and research as applied to humans and their closest relatives. Topics include: most recent evidence of our ancestors, an overview of primates and their behaviour, and modern human variation studied through analysis of living and past populations.*

Image source: <http://www.handresearch.com/news/primatology-palm-reading-primate-hands-family-tree.htm>

**Course synopsis: The course in 350 words**

Humans are part of the diverse primate order united by an emphasis on sociality, diversity and flexibility. We are subject to the same evolutionary forces as other species. While mutation is important it is not the only source of variation. Furthermore very few genes involve a straight line from the gene to the trait, even sex is not that straight forward. Genetic drift was probably important in the past and is certainly evident in studies of inbreeding. However, human populations are dominated by gene flow. Nevertheless natural selection is important in both our past history and in our relationships with the world today. But more broadly humans inherit both genes and culture so that human evolution in the past is in some parts more about gene-culture coevolution than genes alone. And this involves how many species there ever were and even are today is very complex and even more difficult when dealing with fossils. However we can trace some of that history with molecules. The history of humans also involves the evolution of human life history and human social systems. Humans are biocultural beings so our biology is interpenetrated with culture and that is particularly clear when we look at characteristics like skin colour. So while we share biological characteristics our biology is also local. Genes are important but not everything. And yes humans are still evolving and evolution is still important in understanding how the world works.

**Course Aims**

In this course we aim to:

* Introduce you to and give you an understanding of the mechanisms of evolutionary change;
* Explain how evolutionary change is studied in human and primate populations;
* Explore how humans respond and adapt to environments, both biologically and culturally;
* Give you an appreciation of humans as a biocultural species but an animal nevertheless;
* Train you in how to research and evaluate work by biological anthropologists and others so that you become an effective researcher.

**Learning objectives**

* Demonstrate your ability to undertake library research in biological anthropology;
* Be able to express your ideas clearly, demonstrating an understanding of the scientific process, including the differences between theory, data, and interpretation;
* Be able to examine some of the evidence used in biological anthropology (fossils, behavioural and biological data) and draw inferences;
* Understand and be able to apply evolutionary concepts;
* Be able to describe the broad course of human evolution as currently understood.

# Course Texts

**Required:** Fuentes, A. 2012. Biological Anthropology: Concepts and Connections. New York: McGraw-Hill.

**Recommended:** For each lecture there are additional resources for you to read to gain a fuller understanding of the topic and broaden your range. These are available through links on Canvas.

**Assessment**

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| **Task** | **Value** | **Due Dates** |
| Lecture quizzes | 5% (Best 6 marks out of 10) | Question will be asked in Thursday’s lecture – one quiz per week commencing week 3 |
| Lab assignments | 20%  | Starting week 2 (1st August) |
| Annotated bibliography | 5% | Due week 5 (21nd August) |
| Essay | 20% | Due week 9 (25 September) |
| Exam | 50% (2 hours, multiple choice) | Exam Period. |

**Lecture quizzes (5%)**

Starting at the beginning of Week 3 on each Thursday, there will be a brief quiz. The aim of the quizzes is to check that you are keeping up with the text, understand concepts and to prepare you for the final exam.

**Lab assignments (20%)**

We will hold a lab assignment most weeks of labs. The labs are a set of exercises and will be put together as a pdf document so that you can print out the worksheets for each week (or complete them on line in labs) **and bring them to labs.** Some of these tasks will be hands-on exercises and we will be expecting you to record your observations. Others will be problems or writing exercises. We will organise for your lab assignments to be done online directly following your lab. Each exercise is only short: a short answer question or or an exercise. The purpose is to keep you up to date with hands on work and to help with your revisions. For this reason you have one week only to complete that week’s lab exercise. Lab assignments must be completed by Monday 23.59pm of the following week.

**Writing Exercises (25%)**

**Essay (20%)**

You will be asked to write a 1500 word essay on the following question.

**Humans are a social species and our evolution is the result of biological (e.g. genetics, development) and cultural (e.g. environmental change, social systems, the inheritance of beliefs and practices) processes. Explain this in relation to one of the following examples:
the evolution of lactase persistence**

**adaptations to malaria**

**adaptations to high altitude**

**the evolution of intelligence or**

 **the evolution of language.**

The essay requires you to undertake research of primary sources, evaluate them and assemble a coherent argument in response to the question. You will have to supply a reference list in Anthropology style (see the Anthropology Guide to essay writing). Due to be submitted via Canvas by 23.59pm 25 September.

**Annotated bibliography (5%)**

Choose three primary sources relevant for your essay and write an annotated bibliography. This is 100 – 200 words (your own words not quotes) per source describing the article and why it is important for your essay. You will follow the Department of Anthropology Guide to Essay Writing for formatting and referencing - available on Canvas. The paragraph is to be submitted via Canvas by 23.59 pm, 21st August.

**Plagiarism**

The University of Auckland will not tolerate cheating, or assisting others to cheat, and views cheating in coursework a serious academic offence. The work that a student submits for grading must be the student’s own work, reflecting his or her learning. Where work from other sources is used, it must be properly acknowledged and referenced. This requirement also applies to sources on the world-wide web. A student’s assessed work may be reviewed against electronic source material using computerised detection mechanisms. Upon reasonable request, students may be required to provide an electronic version of their work for computerised review. Your attention is also drawn to the University of Auckland’s position on Academic Honesty and Plagiarism, and to specific guidelines for the Conduct of Coursework and Conduct of Research. This information can be found on the University’s website at:

https://www.auckland.ac.nz/en/about/the-university/how-university-works/policy-and-administration/teaching-and-learning/students/academic-conduct-statute.html

**Due dates, late work**

**All coursework must be submitted by the due date and time. LATE WORK WILL NOT BE ACCEPTED NOR MARKED, EXCEPT IN CIRCUMSTANCES FOR WHICH THERE IS PROOF IN THE FORM OF A MEDICAL CERTIFICATE OR OTHER EVIDENCE (E.G. COUNSELLING CERTIFICIATE).** Unlike some other classes, there are no late penalties, late work is simply unacceptable. **If you are having difficulties see Judith, Nic or your tutor BEFORE if at all possible**. We have instituted this policy because it is fair to everyone, it is the way you will need to work when you are employed, and because we have found that work handed in late is often not as good as work handed in on time as well as having taken away your time from the next task on hand.

**Attendance**

University courses are about learning a wealth of material in a short period of time, with the goal being able to think critically about the topic at hand. Therefore, attendance at lectures will generally increase your ability to understand the course material. Lecture recordings, while undertaken, are not a replacement for attendance.

Labs are designed to get you practicing what you have learnt in a small, hands-on environment to facilitate your comprehension of the material. As such, each student is enrolled in a lab class which will run from Week 2 of the class. These are compulsory since 20% of your marks comes from work undertaken in these classes.

**Having Problems?**

University work is difficult and sometimes life gets in the way. The main thing is don’t let issues compound. Adopt as a matter of course the practice of talking to Julie and Alison during your labs, during our office hours, seeing Alison not just when things are wrong but when things are going right. At all times come and see us (contact details next page) as soon as things start to slide. We are interested in ensuring that you all do well in this course to take advantage of us and our expertise.

If you need help with developing your writing skills or your ability to take effective notes, sign up with the Student Learning Centre. The Student Learning Centre is located in Room 320 of the Kate Edger Information Commons, and their hours are 9am to 5pm, Monday to Friday. More information about their workshops and other services can be found online at [www.library.auckland.ac.nz/student-learing/](http://www.library.auckland.ac.nz/student-learing/). You might also wish to go to the English Language Enrichment (ELE) in the Kate Edger Information Commons. They state “ If you think your English is holding you back from getting better grades, communicating effectively or participating confidently in university life, ELE on campus is a great place to be. You can use English language resources (DVDs, CDs, digital recordings, magazines, newspapers and books), [get advice about your English](http://www.library.auckland.ac.nz/services/student-learning/ele/language-advice) (whatever your subject area), and participate in [language learning groups](http://www.library.auckland.ac.nz/services/student-learning/ele/language-learning-groups). You can also use ELE computers in any way that supports your English language development”.

**Tuakana Arts Undergraduate Mentoring Programme**

Tuakana Tutors are available to help Maori and Pacific Island students and others through a range of opportunities such as study groups, skill based workshops, and one-on-one assistance. Your Tuakana tutor for this course will be introduced both in person (in class) and via Canvas early on in the course.

**Disabled students**

If you have a disability that affects your capacity to participate in this course, please contact the convenor as soon as possible. Additional information for disable students can be found at the **University of Auckland Disability Services** website.

COMPULSORY AND ADDITIONAL READINGS WITH ACTIVE LINKS FOR ANTHRO 102 LECTURES.

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| **Lec** | **Dates** | **Topics and Readings (Fuentes text, other readings)** |
| 1 | 25/7 | What is anthropology, what is biological anthropology and why is this science.Fuentes, pp.1-22[fuentes, A. (2010), Naturalcultural Encounters In Bali: Monkeys, Temples, Tourists, And Ethnoprimatology. Cultural Anthropology, 25: 600–624. Doi: 10.1111/J.1548-1360.2010.01071.X](http://onlinelibrary.wiley.com.ezproxy.auckland.ac.nz/doi/10.1111/j.1548-1360.2010.01071.x/full) |
| 2 | 27/7 | We are primates: ideas about being human and when that changed.Fuentes p 45-67[Marks, Jonathan. (2000) "98% alike? What our similarity to apes tells us about our understanding of genetics." *The Chronicle of Higher Education* 46.36 (2000): B7.](http://go.galegroup.com/ps/i.do?id=GALE%7CA62201541&v=2.1&u=learn&it=r&p=AONE&sw=w&asid=d82dd4ebad063723d9a922bedc8ff9c6) |
| 3 | 1/8 & 3/8 | The implications of Darwin.Fuentes, pp.22-43[Stix, G (2009) Darwin's Living legacy Scientific American 300, 38-43 doi:10.1038/scientificamerican0109-38](http://www.nature.com.ezproxy.auckland.ac.nz/scientificamerican/journal/v300/n1/full/scientificamerican0109-38.html)[Futuyma, D (1985) Evolution as Fact and Theory Bios Vol. 56, No. 1 (Mar., 1985), pp. 3-13](http://www.jstor.org.ezproxy.auckland.ac.nz/stable/4607934?seq=1#page_scan_tab_contents) |
| 4 |  | Heredity: why don’t I look like a blend of my father and mother OR why do I?Fuentes p 69-88[Chial, H. (2008) Mendelian genetics: Patterns of inheritance and single-gene disorders. Nature Education 1(1):63](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/topicpage/mendelian-genetics-patterns-of-inheritance-and-single-966) |
| 5 | 8/8 & 10/8 | The source of variation: Am I just a product of my genes?Fuentes, pp.88-98[Loewe, L. (2008) Genetic mutation. Nature Education 1(1):113](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/topicpage/genetic-mutation-1127)  |
| 6 |  | Evolutionary forces: the gene pool, gene flow and genetic drift – Tristan da Cunha[D. F. Roberts (1971) The Demography of Tristan da Cunha Population Studies 25, No. 3:. 465-479](http://www.jstor.org.ezproxy.auckland.ac.nz/stable/2173079) [Glausiusz, J. (1995, 06). Unfortunate drift. *Discover, 16*, 34-35.](http://ezproxy.auckland.ac.nz/login?url=http://search.proquest.com/docview/206004691?accountid=8424) |
| 7 | 15/8 & 17/8 | Processes of evolutionary change: Why are human babies fat?Fuentes pp 100-108Cunnane, S. C., & Crawford, M. A. (2003). [Survival of the fattest: fat babies were the key to evolution of the large human brain. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*, *136*(1), 17-26.](http://www.sciencedirect.com.ezproxy.auckland.ac.nz/science/article/pii/S1095643303000485) |
| 8 |  | Beyond the genome: genes, the epigenome, plasticity – The Dutch Famine[Gibbs, W. W. (2003). The unseen genome: gems among the junk. Scientific American, 289(5), 46-53](http://www.nature.com.ezproxy.auckland.ac.nz/scientificamerican/journal/v289/n5/full/scientificamerican1103-46.html)Roseboom, T et al. (2011) [Hungry in the womb: What are the consequences? Lessons from the Dutch famine Maturitas 70: 141-145.](http://www.sciencedirect.com.ezproxy.auckland.ac.nz/science/article/pii/S0378512211002337)  |
| 9 | 22/8 & 24/8 | Species and speciation: are Neandertals a separate species?Fuentes, pp.108-117[Harvati, K. (2012) What Happened to the Neanderthals? Nature Education Knowledge 3(10):13](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/knowledge/library/what-happened-to-the-neanderthals-68245020) |
| 10 |  | Classification matters: should chimpanzees have human rights?Fuentes, pp.120,137-158[Clee, P. & Gonder, M. K. (2012) Macroevolution: Examples from the Primate World. Nature Education Knowledge 3(12):2](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/knowledge/library/macroevolution-examples-from-the-primate-world-96679683) |
| 11 | 29/8 & 31/8 | Being a primate: who are the primates? (Nic Malone)Fuentes, pp.119-137[Vigilant, L. & Groeneveld, L. F. (2012) Using Genetics to Understand Primate Social Systems. Nature Education Knowledge 3(10):87](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/knowledge/library/using-genetics-to-understand-primate-social-systems-71223219) |
| 12 |  | Another ape under the skin? Human and ape minds and culture. (Nic Malone)Fuentes pp137-158[Hopper, L. M. & Brosnan, S. F. (2012) Primate Cognition. Nature Education Knowledge 5(8):3](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/knowledge/library/primate-cognition-59751723)[Whiten, A. (1999). Why we’re different: Probing the gap between apes and humans. *Science*, *25*, 2070.](http://www.biologia.uniba.it/Darwin/14-comportamento/Science-pdf.pdf) |

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|  |  | **Mid semester break** |
| 13 | 19/9& 21/ | Working with fossils: the Nariokotome boy.Fuentes, pp.161-184 [Peppe, D. J. & Deino, A. L. (2013) Dating Rocks and Fossils Using Geologic Methods. Nature Education Knowledge 4(10):1](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/knowledge/library/dating-rocks-and-fossils-using-geologic-methods-107924044) |
| 14 |  | Fundamental human adaptations: bipedalism, small canines, big brains.Fuentes, pp.189-211-[Pontzer, H. (2012) Overview of Hominin Evolution. Nature Education Knowledge 3(10):8](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/knowledge/library/overview-of-hominin-evolution-89010983) |
| 15 | 26/9 & 28/9 | The dental and the mental: making sense of the human lineage.Fuentes, pp.217-257[Van Arsdale, A. P. (2013) Homo erectus - A Bigger, Smarter, Faster Hominin Lineage. Nature Education Knowledge 4(1):2](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/knowledge/library/homo-erectus-a-bigger-smarter-97879043)[Leonard, W. R. (2003). Food for thought. Scientific American, 13, 62-71.](http://www.nature.com.ezproxy.auckland.ac.nz/scientificamerican/journal/v13/n2s/pdf/scientificamerican0503-62sp.pdf) |
| 16 |  | Tracing histories with molecules: do we share an ancestor.Fuentes, pp.283-291[Adams, J. (2008) Human Evolutionary Tree. Nature Education 1(1):145](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/topicpage/human-evolutionary-tree-417)[Ho, S. (2008) The molecular clock and estimating species divergence. Nature Education 1(1):168](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/topicpage/the-molecular-clock-and-estimating-species-divergence-41971) |
| 17 | 3/10 & 5/10 | Modern humans: when and how? Niche construction, agriculture and sickle cell anaemia.Fuentes, pp.257-272[Wurz, S. (2012) The Transition to Modern Behavior. Nature Education Knowledge 3(10):15](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/knowledge/library/the-transition-to-modern-behavior-86614339)[Sabeti, P. (2008) Natural selection: uncovering mechanisms of evolutionary adaptation to infectious disease. Nature Education 1(1):13](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/topicpage/natural-selection-uncovering-mechanisms-of-evolutionary-adaptation-34539)[Kevin N. Laland1, John Odling-Smee2 & Sean Myles(2010) How culture shaped the human genome: bringing genetics and the human sciences together Nature Reviews Genetics 11, 137-148 (February 2010) | doi:10.1038/nrg2734](http://www.nature.com.ezproxy.auckland.ac.nz/nrg/journal/v11/n2/full/nrg2734.html) |
| 18 |  | Humans and ‘race’: On skin.Fuentes, pp.297-328[Jablonski, N. G. (2010). The naked truth. *Scientific American*, *302*(2), 42-49](http://www.nature.com.ezproxy.auckland.ac.nz/scientificamerican/journal/v302/n2/pdf/scientificamerican0210-42.pdf).[Marks, J (1996) Science and Race. American Behavioral Scientist, 1996, Vol.40(2), p.123-33](http://abs.sagepub.com.ezproxy.auckland.ac.nz/content/40/2/123) |
| 19 | 10/10 & 12/10 | What is innate? Are women from Venus and men from Mars.Fuentes, pp.309-311[Lehrman, S (2007) Going beyond X and Y. Scientiifc American 296, 40-41](http://www.nature.com.ezproxy.auckland.ac.nz/scientificamerican/journal/v296/n6/pdf/scientificamerican0607-40.pdf)  |
| 20 |  | Adaptability and the human condition: the history of wet nursing and cooperative breeding.Fuentes pp. 337-341[Schaffner, S. & Sabeti, P. (2008) Evolutionary adaptation in the human lineage. Nature Education 1(1):14](http://www.nature.com.ezproxy.auckland.ac.nz/scitable/topicpage/evolutionary-adaptation-in-the-human-lineage-12397)[van Schaik, C. P., & Burkart, J. M. (2010). Mind the gap: cooperative breeding and the evolution of our unique features. In Mind the Gap (pp. 477-496). Springer Berlin Heidel](http://link.springer.com.ezproxy.auckland.ac.nz/chapter/10.1007/978-3-642-02725-3_22#page-1) |
| 21 | 17/10 & 129/10 | Evolution and infection: Emerging and remerging infections (Judith Littleton) Fuentes p343-352[Nesse, R and Williams, G 1998 Evolution and the Origins of Disease Scientific American 279:](http://www.nature.com.ezproxy.auckland.ac.nz/scientificamerican/journal/v279/n5/pdf/scientificamerican1198-86.pdf)86-93 |
| 22 |  | Forensics, bioarchaeology and anthropology: how much can we say from the bones. (Judith Littleton)[Bruwelheide, Kari, and Douglas Owsley. 2007 "Written In Bone Reading The Remains Of The 17th Century." Anthronotes 28(1): 1-](http://www.anthropology.si.edu/writteninbone/WritteninBone.pdf)  |
| 23 | 24/10 & 26/10 | The state of the species: are humans still evolving and what of primate futures?Fuentes p 352-359 |
| 24 |  | The futures market: research in biological anthropology*.* |