



**Department of Anthropology
Biology of Human Variation
ANTH-2110
Fall 2019**

CONTACT INFORMATION

**Instructor: Dr. Katie Whitaker
Email: kwhitake@lakeheadu.ca
Office Location: Sessional Desk Area
Office Hours: Tues 1:15 – 2:15**

DELIVERY MODE/LOCATION

**Course Location: OA2008
Campus: Orillia
Times: Tu/Th 2:30PM-4:00PM**

COURSE DESCRIPTION

This course focuses on human microevolution. Topics include evolutionary theory, the genetic background of human variation, human adaptability and the role of disease.

COURSE OBJECTIVES

Be able to analyse and evaluate scholarly work.
Have a solid understanding of basic evolutionary principles.
Be able to identify the fundamental traits that make us all “human”.

LEARNING OUTCOMES

To recognize and analyse evidence and processes in human biological and social development.
To think and write critically.
To increase and expand your interest in archaeology and paleoanthropology.

REQUIRED MATERIALS

The assigned readings will be journal articles, you are expected to read these **BEFORE** the class in which they are assigned. These can be found in the appropriate folder on MyCourseLink. We

may not always discuss these specifically; however feel free to ask questions if anything is unclear.

ASSESSMENTS

<u>Assessment</u>	<u>Grade Percentage</u>	<u>Due Date</u>
Scavenger Hunt	2% BONUS	11:30PM September 12
Attendance & Participation	10%	N/A
Reading Presentation	15%	Various dates
Midterm	15%	October 10
Article Summaries	10%	October 22
Labs	10% each, 30% total	Sept 17; Oct 31; Nov 21
Final Exam	20%	Exam Period December 5th-15th

COURSE SCAVENGER HUNT 2% BONUS

On the course website you will find a quiz which is focussed on being aware and understanding the content of the course. The aim is to make sure you are familiar with the course rules with respect to expectations as well as the various documents found in the Content section. You will have up to 10 attempts to get 100% on the quiz, but it must be completed by 11:30pm on September 12. If you achieve 100% you will receive a 2% bump to your final mark.

ATTENDANCE AND PARTICIPATION 10%

Attendance will be taken every class, considering that **lecture slides and notes will NOT be posted**, you are encouraged to attend and participate in order to get full marks. Attendance will be taken every class for 5% of your final mark. Marks will be based on the following criteria: attending 90% or more classes receive 5%, attending 70-89% of classes receive 3%, attend 50-69% of classes receive 1.5%, attend less than 50% and you will receive no credit. Participation will be based on your daily involvement in discussions, including submitting a question for every Reading Presentation you are not leading, and throughout lectures by asking and answering questions and will account for the other 5%.

READING PRESENTATION 15%

Each group of 3 (three) students will pick from the classes marked with an asterix (*) and present all of the readings to the class and lead a discussion. The presentation must include a PowerPoint and will take 5 (five) minutes to set the scene and provide a summary of the articles under review. Be sure to provide a complete reference for each as a final Reference List slide, as well as any relevant images (including maps, tables, photographs or drawings) to better explain your sources. Afterwards the group will lead a 15 (fifteen) minute discussion. This will include creating a series of leading questions (questions that cannot be answered with simple yes or no responses) that will be submitted to me on the Sunday before the class and encouraging the whole group to participate, you will also be answering any audience questions, so be sure to understand your readings. Please see the Reading Presentation Rubrics for details on how your presentation will be assessed. The night before your presentation (Monday or Wednesday, by 10pm), each group member will e-mail me a brief note about how they contributed to the group. Unless there are huge disparities in workload and effort, group members will receive the same mark. **Your group must stick to the allotted time, the presentation will be cut off after 25 (twenty-five) minutes irrespective of how much you have completed, and you will be marked accordingly. Therefore, it is highly suggested that you do multiple presentation run-throughs to make sure your timing is correct. There will be no make-ups for missed presentations.**

If this is not your week to present, you must come prepared with a written question for the group that you will submit **before** the presentation.

ARTICLE SUMMARIES 15%

Choose one article from those tagged with a # and create two summaries. The first will be a 1 (one) page summary. Make sure you state the thesis/research question and provide an overview of the content of the article. Refer to the first lecture for more details, as well as the Article Summary Grading Rubrics and Article Checklist for the assessment expectations. You must reference throughout, referring to the article by author last name and year NOT the article title, and if using specific information or quotes you must include a specific page number in your reference. Refer to the Written Assignment and Style Guide for specific details. The second summary is a tweet of that same article. You must follow all of the rules that you would for an original tweet (140 characters (not 280), only use short forms that are considered common knowledge). For this part, your goal is to get right to the point. What was the purpose of the article and what did they find; these are what you need to determine. There is no need to include a citation within the tweet, though if you include quotes, or specific information you need to, which means learning to paraphrase concisely will save you the characters you need. Please include the number of characters used on the same page as your tweet. Make sure you reference your article in a separately-paged Reference List and create a single overall Title Page. Finally complete and include the Article Checklist. **This is mandatory for the acceptance of your paper** and forms the basis of 50% of your mark, refer to the Article Summary Grading Rubrics for the remainder of the assignment expectations. Therefore you will submit a five-page package

with **A STAPLE. NO PAPER CLIPS PLEASE**. The summaries are due together, as a package, on October 27 in class (by 3:55pm).

Example of a tweet for: Buckberry JL and DM Hadley. 2007. An Anglo-Saxon execution cemetery at Walkington Wold, Yorkshire. *Oxford Journal of Archaeology* 26: 309-29.

“Did criminals receive different burials in England in the past? Yes, they were buried prone in the 8th century and comingled in the 10th.” Character count: 139.

MIDTERM 15% October 10 in class

The midterm will cover everything from September 3 to October 8 including lectures, labs and all readings. The format will be discussed and reviewed on October 8.

LABS 3 X 10%, 30% TOTAL

Lab assignments will be made available on MyCourseLink. You are expected to print them off, complete any readings before the lab and finish any required questions before the lab. During the lab you will cover the remainder of the exercises and will submit your complete assignment at the end of the class. You will not have a chance to catch-up on missed labs unless there are documented, extenuating circumstances (in which case a make-up writing assignment will be given in lieu of the lab), otherwise you will forfeit the 10% if you chose not to show up. ****Please come to the lab with your assignments pre-stapled, they will not be accepted otherwise.****

FINAL 20%

This exam, though based on the entire course, will not simply be a recitation of course content. The bulk of the exam will be short essay questions that require you to extrapolate data and think critically. As a result of the labs along with the lectures in class and the assigned readings, you will have developed these skills throughout the course and as long as you have reviewed all of these components (which will enable you to draw in examples and create a discussion), this should be straightforward. There will be a review and discussion session during the last class and you are free to discuss any concerns and questions you have in class or with me during office hours.

Lecture Outline

DATE	LECTURE TOPIC	READINGS
SEPTEMBER 3	COURSE INTRODUCTION AND THE HISTORY OF EVOLUTION	
SEPTEMBER 5	HISTORY OF HUMAN VARIATION	DEVUYST 2015; WEISS 1998
SEPTEMBER 10	INTRODUCTION TO DNA	#HYLAND 2018
SEPTEMBER 12	EVOLUTION	#EVANS 2009; RUBICZ <i>ET AL.</i> 2010

SEPTEMBER 17	LAB 1: LET'S MAKE A BABY	#JONES 2013
SEPTEMBER 19	POPULATION GENETICS	#GREEF 2007
SEPTEMBER 24	IMMUNITY AND BACTERIAL EVOLUTION	McNALLY <i>ET AL.</i> 2016
*SEPTEMBER 26	REPRODUCTIVE ISOLATION I	VAN DER GEER <i>ET AL.</i> 2016; WIDDIG <i>ET AL.</i> 2017
*OCTOBER 1	ENVIRONMENTAL ADAPTATION	TATTERSALL 2006; PARKER <i>ET AL.</i> 2016
*OCTOBER 3	HUMAN MIGRATION	CAROTENUTO <i>ET AL.</i> 2016; RASMUSSEN <i>ET AL.</i> 2014; EISENHOFER <i>ET AL.</i> 2017
*OCTOBER 8	ANCESTRY	MARKS 2002; JABLONSKI AND CHAPLIN 2017
OCTOBER 10	MIDTERM	
OCTOBER 14-18	FALL BREAK	
*OCTOBER 22	FOREIGN DNA	HUBLIN 2017; HAWKS 2017; WOLF AND AKEY 2018
*OCTOBER 24	DISEASE ADAPTATION I	KO AND URBAN 2013; MARTIN AND HARROD 2016
*OCTOBER 29	ENVIRONMENTAL ADAPTATION II	POTTS 2012; JARMAN <i>ET AL.</i> 2017
OCTOBER 31	LAB 2: UNDERSTANDING YOU AND YOUR TRAITS	BETTI <i>ET AL.</i> 2015
NOVEMBER 5	NO CLASS	
NOVEMBER 7	CULTURAL VARIATION	STERELNY 2011; MESOUDI 2017
*NOVEMBER 12	DISEASE ADAPTATION II	ELGUERO <i>ET AL.</i> 2015; DONOGHUE 2013
*NOVEMBER 14	REPRODUCTIVE ISOLATION II	JUYAL <i>ET AL.</i> 2014; OSTRER AND SKORECKI 2013
*NOVEMBER 19	ALTERING OUR ADAPTATION	MYERS <i>ET AL.</i> 2013; HONDULA <i>ET AL.</i> 2015
NOVEMBER 21	LAB 3: WHO IS ALTERING WHOM?	BOYD <i>ET AL.</i> 2011; SMITH 2013
NOVEMBER 26	DISEASE, EVOLUTIONARY CONSEQUENCES	MYERS <i>ET AL.</i> 2013; ELGUERO

	AND CLIMATE CHANGE	ET AL. 2015
NOVEMBER 28	CLASS WRAP-UP	HENDRY ET AL. 2017
DECEMBER 5-15	FINAL EXAM PERIOD	

Journal Articles

Devuyst O. 2015. The 1000 genomes project: welcome to a new world. *Peritoneal Dialysis International* 35: 676-77.

Weiss KM. 1998. In search of human variation. *Genome Research* 8: 691-7.

Hyland C. 2018. A critical evaluation of DNA analysis for paleopathological research. *JUST* 6: 1-8.

Evans C. 2009. Small agencies and great consequences: Darwin's archaeology. *Antiquity* 83: 475-488.

Rubicz R, M Zlojutro, G Sun, V Spitsyn, R Deka, KL Young and MH Crawford. 2010. Genetic architecture of a small, recently aggregated Aleut population: Bering Island, Russia. *Human Biology* 82: 719-36.

Jones CB. 2013. Constraints on speciation in human populations: phenotypic diversity matters. *Human Biology Review* 2: 263-279.

Greeff JM. 2007. Deconstructing Jaco: Genetic heritage of an Afrikaner. *Annals of Human Genetics* 71: 674-88.

McNally A, NR Thomson, S Reuter and BW Wren. 2016. 'Add, stir and reduce': *Yersinia* spp. As model bacteria for pathogen evolution. *Nature Reviews Microbiology* 14: 177-190.

van der Geer AAE, GD van den Bergh, GA Lyras, UW Prasetyo, RA Due, E Setiyabudi and H Drinia. 2016. The effect of area and isolation on insular dwarf proboscideans. *Journal of Biogeography* 43: 1656-1666.

Widdig A, L Muniz, M Minkner, Y Barth, S Bley, A Ruiz-Lambides, O Junge, R Mundry and L Kulik. 2017. Low incidence of inbreeding in a long-lived primate population isolated for 75 years. *Behavioural Ecology and Sociobiology* 71: 18-33.

Tattersall I. 2006. Neanderthal skeletal structure and the place of *Homo neanderthalensis* in European hominid phylogeny. *Human Evolution* 21: 269-74.

Parker CH, ER Keefe, NM Herzog, JF O'Connell and K Hawkes. 2016. The pyrophilic primate hypothesis. *Evolutionary Anthropology* 25: 54-63.

Carotenuto F, N Tsikaridze, L Rook, D Lordkipanidze, L Longo, S Condemi and P Raia. 2016. Venturing out safely: The biogeography of *Homo erectus* dispersal out of Africa. *Journal of Human Evolution* 95: 1-12.

Rasmussen M, SL Anzick, MR Waters, P Skoglund, M DeGiorgio, TW Stafford Jr. S Rasmussen, I Moltke, A Albrechtsen, SM Doyle, GD Poznik, V Gudmundsdottir, R Yadav, AS Malaspinas, SS White V, ME Allentoft, OE Cornejo, K Tambets, A Eriksson, PD Heintzman, M Karmin, TS Korneliussen, DJ Meltzer, TL Pierre, J Stenderup, L Saag, VM Warmuth, MC Lopes, RS Malhi, S Brunak, T Sicheritz-Ponten, I Barnes, M Collins, L Orlando, F Balloux, A Manica, R Gupta, M Metspalu, CD Bustamante, M Jakobsson, R Nielsen and E Willersley. 2014. The genome of a Late Pleistocene human from a Clovis burial site in western Montana.

Nature 506: 225-9.

Eisenhofer R, A Anderson, K Dobney, A Cooper and LS Weyrich. 2017. Ancient microbial DNA in dental calculus: A new method for studying rapid human migration events. *The Journal of Island and Coastal Archaeology* 0: 1-14.

Marks J. 2002. Folk Heredity. In Jefferson M Fish (ed) *Race and Intelligence: Separating Science from Myth*. Lawrence Erlbaum Associates, Publishers; New Jersey.

Jablonski NG and G Chaplin. 2017. The colours of humanity: the evolution of pigmentation in the human lineage. *Philosophical Transactions of the Royal Society B* 372: 20160349.

Hublin J-J. 2017. The last Neanderthal. *Proceedings of the National Academy of Science* 114: 10520-10522.

Hawks J. 2017. Neanderthals and Denisovans as biological invaders. *Proceedings of the National Academy of Science* 114: 9761-9763.

Wolf AB and JM Akey 2018. Outstanding questions in the study of archaic hominin admixture. *PLoS Genetics* 14: e1007349.

Ko DC and TJ Urban. 2013. Understanding human variation in infectious disease susceptibility through clinical and cellular GWAS. *PLOS Pathogens* 9: e1003424.

Martin DL and RP Harrod. 2016. The bioarchaeology of pain and suffering” human adaptation and survival during troubled times. *Archaeological Papers of the American Anthropological Association* 27: 161-74.

Potts R. 2012. Evolution and environmental change in early human prehistory. *Annual Review of Anthropology* 41: 151-67.

Jarman CL, T Larsen, T Hunt, C Lipo, R Solsvik, N Wallsgrove, C Ka’apu-Lyons and HG Close. 2017. Diet of the prehistoric population of Rapa Nui (Easter Island, Chile) shows environmental adaptation and resilience. *American Journal of Physical Anthropology* 164: 343-361.

Betti L, SJ Lycett, N von Cramon-Taubadel and OM Pearson. 2015. Are human hands and feet affected by climate? A test of Allen’s Rule. *American Journal of Physical Anthropology* 158: 132-40.

Sterelny K. 2011. From hominins to humans: how *sapiens* became behaviourally modern. *Philosophical Transactions of the Royal Society*. 366: 809-822.

Mesoudi A. 2017. Pursuing Darwin’s curious parallel: Prospects for a science of cultural evolution. *Proceedings of the National Academy of Science* 114: 7853-60.

Elguero E, LM Délicat-Loembet, V Rougeron, C Arnathau, B Roche, P Becquart, J-P Gonzalez, D Nkoghe, L Sica, EM Leroy, P Durand, FJ Ayala, B Ollomo, F Renaud and F Prugnolle. 2015. Malaria continues to select for sickle cell trait in Central Africa. *Proceedings of the National Academy of Science* 112: 7051-54.

Donoghue HD. 2013. Insights into ancient leprosy and tuberculosis using metagenomics. *Trends in Microbiology* 21: 448-460.

Juyal G, M Mondal, P Luisi, H Laayouni, A sood, V Midha, P Heutink, J Bertranpetit, BK Thelma and F Casals. 2014. Population and genomic lessons from genetic analysis of two Indian populations. *Human Genetics* 133: 1273-1287.

Ostrer H and K Skorecki. 2013. The population genetics of the Jewish people. *Human Genetics* 132: 119-127.

Myers SS, L Gaffikin, CD Golden, RS Ostfeld, KH Redford, TH Ricketts, WR Turner and SA Osofsky. Human health impacts of ecosystem alteration. *Proceedings of the National Academy of Science* 110: 18753-60.

Hondula DM, RC Bailling Jr., JK Vanos and M Georgescu. 2015. Rising temperatures, human health, and the role of adaptation. *Current Climate Change Reports* 1: 144-54.

Boyd R, PJ Richerson and J Henrich. 2011. The cultural niche: Why social learning is essential for human adaptation. *Proceedings of the National Academy of Science* 108: 10918-10925.

Smith EA. 2013. Agency and adaptation: New directions in evolutionary anthropology. *Annual Review of Anthropology* 42: 103-120.

Myers SS, L Gaffikin, CD Golden, RS Ostfeld, KH Redford, TH Ricketts, WR Turner and SA Osofsky. 2013. Human health impacts of ecosystem alteration. *Proceedings of the National Academy of Science* 110: 18753- 60.

Elguero E, LM Délicat-Loembet, V Rougeron, C Arnathau, B Roche, P Becquart, J-P Gonzalez, D Nkoghe, L Sica, EM Leroy, P Durand, FJ Ayala, B Ollomo, F Renaud and F Prugnolle. 2015. Malaria continues to select for sickle cell trait in Central Africa. *Proceedings of the National Academy of Science* 112: 7051-54.

Hendry AP, KM Gotanda and EI Svensson. 2017. Human influences on evolution, and the ecological and societal consequences. *Philosophical Transactions of the Royal Society B* 372: 20160028.

Course Policies:

Class expectations: You are expected to read this outline in its entirety and follow all guidelines as they are clearly set out. If you have any questions, ask them as soon as possible. I will not necessarily be checking my e-mail the night before an assignment is due so please plan accordingly. This class will be a respectful place; no insulting language or actions will be tolerated. **There is absolutely no photography or lecture recording permitted in this class.**

Communication with Dr. Whitaker: Feel free to e-mail me regarding concerns, however please read through the course outline first, as often, the answer can be found here. If, in fact, your answer can be found within the course documents, I will direct you there to find your answer. In composing your e-mail please send it from your Lakehead account, include your course number in the subject field and write a formal e-mail, addressing myself in a respectful manner (see the beginning of this paragraph), use complete sentences and sign your e-mail with your full name and student number. I will try to answer e-mails in a timely manner, usually within 48 hours.

Readings: You are expected to complete all readings BEFORE the assigned class. We may discuss the readings in class, but your lectures will not follow them so come to class prepared to ask and answer questions.

Attendance: It is HIGHLY recommended you attend all classes, especially considering it is worth 5% of your mark. It is expected you will show up and participate in every class. Lecture notes and power point presentations WILL NOT be provided so it is up to you to ensure you are keeping up with the pace of the course. Please see me as soon as possible if you feel you are getting behind.

Late Assignments: You are expected to submit all work on time and be in class. If an assignment is late, 5% will be deducted for 24 hours past the due date (specifically in class, received by 3:55pm) and will not be accepted after three days (72 hours after the deadline). The Anthropology Department will not accept assignments in person or by e-mail. Please do not slide any papers under my office door or the Department office door. Assignments submitted in this way will be marked as late when they are retrieved (as I am only on campus once a week, this will result in a zero for your assignment). Deadlines are firm, and **no extensions** will be given unless there are extenuating circumstances and the appropriate documentation (e.g. Lakehead University doctor's note, obituary) is provided. If an extension is required, Dr. Whitaker must be informed by e-mail at least 24 hours BEFORE the assignment is due. Required documentation will be specific to each case but may include a Lakehead medical certificate or death certificate as appropriate. You must have a response from Dr. Whitaker indicating the granting of an extension as confirmation it has been accepted. **ALWAYS** keep a backup copy of your work!

Missed Midterm: If you miss the midterm you must inform Dr. Whitaker **within 24 (twenty-four) hours** with a clear explanation of the circumstances and associated documentation. Required documentation will be specific to each case but may include a Lakehead medical certificate or death certificate as appropriate. A new date for the make-up will be arranged based on Dr. Whitaker's schedule and the format will involve both short and long essay questions.

Submitting Assignments by E-mail: If you will not be submitting your assignments in class, you are still expected to submit all assignments on time, which is by 3:55pm on Tuesday or Thursday, as that is when class ends. In submitting your assignment compose an e-mail (refer to the section above on Communication with Dr. Whitaker) and include your assignment as a single pdf attachment (no other formats will be accepted). Please name the attachment in the format Last Name Assignment Type (ie. Whitaker Article Summary).

Regrading Assignments: If you feel you deserve a different mark on an assignment, please use the following procedure: **please take 24 hours to consider your assignment.** Read through all of the comments and think about what aspects you understand and agree with and where you have concerns. After 24 hours compose a written explanation of why you feel you deserve a different mark by specifically referring to your paper and the grading rubric for your specific assignment. Do not discuss your work in relation to other students', but rather within the context of the work you have put into it and the assignment expectations. E-mail your explanation as an attachment and also include a scanned copy (or screen shots) of your marked assignment. You can expect a response within 48 hours, however, keep in mind your mark could remain the same, be increased, or possibly decreased upon a secondary review.

Academic Conduct: You are expected, as a university student, to abide by and follow the student code of conduct. This means you will submit only your own, original work. If it is found that you have been less than honest in your submission you may receive a mark of zero for the assignment or the course and may possibly face further penalties. Just don't do it.

Respect in Class: Throughout the course we may be discussing a number of contentious issues. The point of this is to critically engage with the literature and your classmates. Therefore, insulting and disrespectful comments will not be tolerated. Treat your fellow students how you feel you deserve to be treated and remember these are just friendly discussions.

GENERAL REGULATIONS

Student Accessibility Services (SAS) (Thunder Bay) and Student Affairs (Orillia) coordinate services and facilitates reasonable academic accommodations for students with disabilities. Academic accommodations are provided on the basis of documentation of a disability. Additional information is available at the following campus websites:

Thunder Bay: <http://learningassistance.lakeheadu.ca/>.

Orillia: <http://orillia.lakeheadu.ca/about-us--orillia-student-affairs/>

ACADEMIC DISHONESTY:

The University takes a most serious view of offences against academic honesty such as plagiarism, cheating and impersonation. Penalties for dealing with such offences will be strictly enforced.

A copy of the "Code of Student Behaviour and Disciplinary Procedures" including sections on plagiarism and other forms of misconduct may be obtained from the Office of the Registrar.

The following rules shall govern the treatment of candidates who have been found guilty of attempting to obtain academic credit dishonestly.

- (a) The minimum penalty for a candidate found guilty of plagiarism, or of cheating on any part of a course will be a zero for the work concerned.
- (b) A candidate found guilty of cheating on a formal examination or a test, or of serious or repeated plagiarism, or of unofficially obtaining a copy of an examination paper before the examination is scheduled to be written, will receive zero for the course and may be expelled from the University.

Students disciplined under the Code of Student Behaviour and Disciplinary Procedures may appeal their case through the Judicial Panel.

Note: "Plagiarism" shall be deemed to include:

- 1. Plagiarism of ideas as where an idea of an author or speaker is incorporated into the body of an assignment as though it were the writer's idea, i.e. no credit is given the person through referencing or footnoting or endnoting.
- 2. Plagiarism of words occurs when phrases, sentences, tables or illustrations of an author or speaker are incorporated into the body of a writer's own, i.e. no quotations or indentations (depending on the format followed) are present but referencing or footnoting or endnoting is given.

3. Plagiarism of ideas and words as where words and an idea(s) of an author or speaker are incorporated into the body of a written assignment as though they were the writer's own words and ideas, i.e. no quotations or indentations (depending on format followed) are present and no referencing or footnoting or endnoting is given.

A listing of University Regulations can be found at:

<http://calendar.lakeheadu.ca/current/contents/regulations/univregsintro.html>

The code of student behaviour and disciplinary procedures can be found at:

<http://policies.lakeheadu.ca/policy.php?pid=60>

MISSED FINAL EXAMS:

Make-up examinations will only be given with written documentation from a healthcare practitioner using the official Student Health Certificate, available at

<http://registrar.lakeheadu.ca/uploads/docs/F.HealthCertificate.pdf>

Final examinations run from **December 5th to 15th 2019**, inclusive. There will be no rescheduling of examinations to accommodate holiday travel or extracurricular activities. No one will be allowed to write examinations prior to the scheduled date.