

Child and Maternal Health (Anth 5433/6433) Spring 2021 3 credits

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Prerequisites ANTH 1010 OR ANTH 1020 OR ANTH 1050 for Anth 6433.
Graduate standing for Anth 6433.

Course Description This class is a course in human evolution. We try to figure out how nature designed humans to reproduce and care for children by looking at our biology. If you strip away culture, what does the biology predict? If you tinker with the design, what are the consequences?

The course includes an overview of infant and early child mortality rates and its causes. In particular we consider the influences of infectious disease, technology and human variation on health.

An emphasis of the course is hypothesis testing based on scientific methods. How do you know what you know? There are always (at least) two explanations for anything, and students may be surprised to find that some generally accepted beliefs are not evidence-based.

Course materials

There is no textbook to buy. All required readings will be on Canvas, e-Reserve at Marriott Library, or retrievable from other internet sites.

Grading

Anth 5433

Grades will be based on two midterm exams and a research project. The first midterm covers the first half of the course, and the second midterm covers the second half of the course. Each is worth 325 points (32.5 percent of the course grade). The research project consists of several components totaling 350 points (35 percent of the course grade).

The 350 point research project components are a plagiarism tutorial (10 points), a library research assignment (30 points), a research project proposal (55 points), a final written report (250 points) and a plagiarism statement (5 points).

Assume the following percentages for grades: > 93 A, 90-93 A-, 87-89 B+, 83-86 B, 80-82 B-, 77-79 C+, 73-76 C, 70-72 C-, 67-69 D+, 63-66 D, 60-62 D-, and < 60 Fail. I may curve the grades at the end of the semester.

Anth 6433 students

Students enrolled in Anth 6433 should meet with me early in the semester about additional requirements for graduate credit. Normally Anth 6433 students take the same Midterms as Anth 5433 students but are graded on a different scale. The research project is normally a component of a student's thesis. It is expected to be more advanced than projects submitted by Anth 5433 students.

Plagiarism software

You will submit your final write-up of your research project electronically to Canvas, which will use Turnitin software to analyze your work for text matches to other sources to help prevent plagiarism. Plagiarism is improper use of someone else's ideas or words, such as using a phrase or passage from a book as if you wrote it; incorporating passages from the work of someone else and then changing a few words also constitutes plagiarism as is inserting copied phrases into your writing. We will use Turnitin as a learning tool. Students who submit their papers ahead of the due date will have an opportunity to correct any problems it identifies before I grade them.

Important dates and late work**Due dates**

- January 25 (Tuesday) - I will go over the research project requirements. expected to attend.
- March 1 (Tuesday) - Midterm 1, during class in usual classroom.
- March 3 (Thursday) - Library Research Day at Marriott - all expected to attend. There is an assignment (compiling a list of sources about your topic) that you can complete in class that day. I am expecting to receive room assignment from the library after the semester begins.
- March 17 (Thursday) - Last day to submit Library Research Day homework for credit.
- March 25 (Thursday) - Last day to submit topic idea for pre-approval (in advance of Topic Proposal assignment due date).
- March 31 (Thursday) - Last day to submit topic proposal for credit.
- April 14 (Thursday) - Last day to complete plagiarism tutorial for credit.
- April 22 (Friday) - Final Research Project writing assignment due. 50% late penalty for late submissions.
- May 3 (Tuesday) 1 to 3 pm - Midterm 2, in usual classroom. This is the final exam period assignment by the university for this course.

Missed due dates (late work)

You must take the midterms on the scheduled days and submit all assignments by the due date to receive full credit. If you somehow miss a midterm or are unable to submit your research paper by the due date, be sure to notify me in advance to arrange a way to make up the assignment. You will need to supply me with a compelling and documented excuse (such as an unexpected and severe illness) for missing the scheduled midterm or for not being able to submit your paper on time to avoid a 50% late penalty.

Due to time constraints I do not plan to accept late work on the other graded assignments, but you may submit them early. Should you encounter unusual difficulties that prevents you from completing an assignment on time, get in touch before the due date.

Time commitment

A general rule of thumb is that students will need to spend about two hours outside of class for every hour in-class (e.g. <https://regulations.utah.edu/academics/6-100.php>). Therefore, in addition to time spent attending class, students should plan to spend about six hours per week outside of class on readings and assignments.

Topics and readings

Below is list of topics I plan to cover and associated readings I plan to assign. I expect to spend about 1 week on each topic. I will post lecture notes on Canvas and assign the readings as we go. As the course progresses I may adjust this list to accommodate time constraints and interests of the class.

Please see course Canvas page about accessing these resources.

My hope for the readings is that they supplement and complement lecture content. You should read them to gain a fuller understanding of course concepts and the details, especially if you miss a class.

0. Course Introduction

Power, M., et al. (2020). Integrating evolution into medical education. *Evolution, Medicine and Public Health* 2020(1): 60-67.

1. Mammalian reproductive biologies - Reproductive physiology predicts reproductive strategies.

“Life History and Reproduction” by Robert Martin. From *Grzimek's Animal Life Encyclopedia*, 2nd Ed. Volume 12, Mammals I, edited by Michael Hutchins, Devra G. Kleiman, Valerius Geist, and Melissa C. McDade. Farmington Hills, MI: Gale Group, 2003, pp. 89-100.

Ch. 2 (“In the beginning,” pp. 16-48) of *Life's vital link* by Y. W. Loke, Y. W. (Oxford University Press, 2013).

2. Hormonal control of the female reproductive system, energetic costs.
 - 24.4. Hormonal Control of Human Reproduction. Concepts of Biology. 1st Canadian Edition, by C. Molnar and J. Adair.
 - Pp. 19-29 of the chapter “Surviving the first cut” from *On Fertile Ground* by Peter Ellison (Harvard: Harvard University Press, 2001).
3. Lactational amenorrhea, birth spacing.
 - Ch 4: Breastfeeding, Fertility and Population Growth, by Roger Short. From *Nutrition and Population Links - Breast feeding, Family Planning and Child Health*, pp. 31-44. Nutrition Policy Discussion Paper No. 11. United Nations, 1992.
4. Placental transmission of immunity. ABO and Rh blood groups; malaria, sickle cell anemia, fetal hemoglobin.
 - Antibody-Structure, Classes and Functions. (Web source.)
 - Chapter 8 (“Products,” pp. 182-212) from *Life’s vital link* by Y.W. Loke (Oxford: Oxford University Press, 2013).
 - Anstee, David J. (2010). The relationship between blood groups and disease. *Blood* 115 (23): 4635-4643.
5. Fetal loss, offspring quality.
 - To page 43 of “Surviving the first cut” from *On Fertile Ground* by Peter Ellison (Harvard: Harvard University Press, 2001).
 - Haig, D. (2019). Cooperation and conflict in human pregnancy. *Current Biology* 29(11):R455-R458.
6. Maternal-fetal conflict over fetal worth. Menstruation, placental progesterone, human chorionic gonadotropin, nausea and vomiting of pregnancy.
 - Pp. 43-49 of the “Surviving the first cut” from *On Fertile Ground* by Peter Ellison (Harvard: Harvard University Press, 2001).
 - Forbes, S. (2017). Embryo quality: the missing link between pregnancy sickness and pregnancy outcome. *Evolution and Human Behavior* 38:265-278.
7. Maternal-fetal conflict over neonate size. Pre-eclampsia, gestational diabetes.
 - Brooks, Rob (2020). War in the womb: The evolution of pre-eclampsia. Web.

- Kotler J. (2016). Gestational Diabetes and Maternal-Fetal Conflict. In: Weekes-Shackelford V., Shackelford T., Weekes-Shackelford V. (eds), *Encyclopedia of Evolutionary Psychological Science*. Springer, Cham.
8. Rise of inflammatory disease. Diet and skin tone.

Egger G. (2012). In Search of a Germ Theory Equivalent for Chronic Disease. *Preventing Chronic Disease* 9:11030.

Jablonski, N., and G. Chaplin (2003). Skin Deep. *Scientific American* 13(2s): 72-79.
 9. Maternal-infant microbiome. Loss of our “old friends.” How vaginal birth, breastmilk protects newborns, promotes lasting health.

Bloomfield, Sally F., Graham A.W. Rook, Elizabeth A. Scott and Fergus Shanahan (2016). Time to abandon the hygiene hypothesis: new perspectives on allergic disease, the human microbiome, infectious disease prevention and the role of targeted hygiene. *Perspectives in Public Health* 136(4): 213-224.

Dunn, A., et al. (2017). The maternal infant microbiome: Considerations for labor and Birth. *American Journal of Maternal/Child Nursing* 42(6):318-325.

Newman, J. (1995). How breast milk protects newborns. *Scientific American* 273(6):76-9.
 10. Maternal infant diad. Why babies cry; Sudden Infant Death Syndrome.

McKenna, James J, and Gettler, Lee T. (2010). Co-sleeping, breastfeeding and sudden infant death syndrome. In: Tremblay RE, Barr RG, Peters RDeV, Boivin M, eds. *Encyclopedia on Early Childhood Development*. Montreal, Quebec: Centre of Excellence for Early Childhood Development.

Ch. 5 (“Crybaby,” pp. 139-175) from *Our babies, Ourselves* by Meredith Small. (New York, Anchor Books, 1999.)

“Transport Response” by Aradia Wyndham, October 2017.
 11. Additional topic, time permitting.

Course objectives and learning outcomes

At the end of the course students will be able to • apply anthropological research methods to answer a question or solve a problem; • evaluate and synthesize scientific hypotheses about human variation using empirical data; and • explain aspects of human variation using evolutionary theory. In particular, students will be able to

- identify the basic pattern of human reproduction and its natural variation in diverse human groups;
- use an understanding of human variation and the human past as a tool for investigating questions about fecundity and health;
- use evidence-based research and hypothesis testing to assess the reliability of information;
- interpret graphical representations of data.

Teaching and learning methods

Lectures, class discussion and a research project. Ungraded online discussions.

Boiler Plate Items

Faculty and student responsibilities

Please respect everyone's right and expectation to learn in the classroom. This means all of us should engage in respectful discussion with each other during class time and avoid behaviors that distract others.

You are responsible for making sure I receive assignments before the deadline and that you can access readings and other course materials well before you need them.

University and department policies

ADA Statement: The Americans with Disabilities Act. The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

Safety Statement: The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit <https://safeu.utah.edu>.

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or

someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Wellness Statement: Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness (<https://wellness.utah.edu>; 801-581-7776).

Student Code: (Policy 6-400) All students are expected to maintain professional behavior in the classroom setting, according to the Student Code (<http://regulations.utah.edu/academics/6-400.php>). Students have specific rights in the classroom as detailed in S. II of the Code. The Code also specifies standards of behavior (S. III) and academic conduct (S. V). "Students must adhere to generally accepted standards of academic honesty, including but not limited to refraining from cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating" (S. VB). According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors. Students have the right to appeal such action to the Student Behavior Committee.

Incomplete Policy: An "I" will only be given for work not completed because of circumstances beyond the student's control, providing the student is passing the course and needs to complete 20% or less of the work. Valid reasons for an "I" grade include: (a) An illness (documented by a medical statement) that precludes the ability of the student to perform; (b) an accident or situation that prevents the student from physically being present (documentation may be required); (c) Extreme emotional or other mental circumstances that are severe enough to interfere with a student's normal academic performance. If you do receive an "I", do not register for the course again. You must complete the required work in the time agreed by you and the instructor. If the work is not completed within one year, the grade will change to an "E". Faculty will not accept additional work to change the grade after that one-year period. If a student has a problem with the course, please deal with it immediately. It is the student's responsibility to contact instructors and submit necessary forms. If you delay, your instructor may have left the University or be out of the country. In such a case, you may find that there is nothing the Department can do.

Repeating a Course: Any course taken at the University may be repeated. If you wish to attend a class again, you must register for it and pay tuition for that semester. Note that some courses may be taught infrequently or discontinued.

Note: The syllabus is not a binding legal contract. It may be modified by the instructor when the student is given reasonable notice of the modification.