

ANTH 369: HUMAN GROWTH & DEVELOPMENT
Fall Quarter 2014 (CRN 16806)
4 credit hours (Satisfies an SC requirement)

Course Time: Mondays and Wednesdays 1:30pm-2:50pm
Course Location: 123 Pacific

Instructor: Dr. Josh Snodgrass (website: <http://www.pinniped.net/snodgrass.html>)
Office: 354 Condon (but I'm not holding my regular MW office hours in my office)
Office Hours: Mon & Wed 12-1 pm (@ Espresso Roma coffee shop on 13th) & on Fri by appointment
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Graduate Teaching Fellow (GTF): Theresa Gildner (website: http://www.bonesandbehavior.org/theresa_gildner/)
Office: Condon 366 (red cubicle)
Office Hours: Wed 11-1
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Prerequisite: None; ANTH 173, ANTH 175, ANTH 270, or equivalent highly recommended

Course Description: Examines key issues in human and nonhuman primate growth and development; addresses genetic, social, and ecological determinants of variation in growth.

Course Format: Lecture, in-class discussion, and required weekly laboratory sections.

Expanded Course Description: This is a science group satisfying course that examines key issues in human growth and development, focusing particular attention on human physical growth. In this course, human growth and development is viewed as a biocultural process that demands an integrated analysis. This course uses a scientific approach, drawing on the methods, theories, and bodies of knowledge from various scientific disciplines, including evolutionary biology, genetics, neuroscience, physiology, nutritional sciences, and medicine.

This course has **three main sections**:

Section 1 builds the framework for understanding human growth and development. This section begins by providing an historical overview of growth studies, focusing particular attention on developments during the 20th century. This is followed by discussions of the scientific method and evolutionary theory, with particular attention directed towards the adaptation concept and life history theory. This comparative evolutionary perspective on human growth incorporates studies of living primates and fossil human ancestors.

Section 2 focuses on the basic principles of human growth and development, from conception through older adulthood. For each life stage, the major shifts in anatomy, physiology, and brain development are discussed. This section also covers techniques for assessing human growth status and the application of the knowledge of patterns of growth and development to bioarchaeology and forensic anthropology.

Section 3 focuses on variation in human growth and development. Beyond simply describing differences in growth and development within and between groups, this course uses a biocultural framework that incorporates genetic, social, and ecological factors to explain why these patterns of variation exist. This section spends considerable time on illustrating how specific dietary factors, disease exposure, and parenting practices can shape variation in growth and development.

Blackboard: A Blackboard site will be maintained for this class, which will be your main source for course information, documents, lab materials, and announcements. Make sure that you regularly check your Blackboard-linked e-mail account.

Accommodations: Appropriate accommodations will be provided for students with documented disabilities. Please make arrangements to meet with me or your GTF to discuss these accommodations.

Required Readings: Assorted articles and book chapters (see below).

Expectations and Grading: Regular attendance at lectures and participation in laboratory sections are required. Course readings are required and are essential to passing exams, completing lab assignments, and participating in lab section activities. Your grade in the course will reflect your performance on a midterm exam, final exam, two quizzes, four short (2-3 page each) reaction papers, and 4 short (1-2 page) lab write-ups.

Quiz 1 (Online; Must be taken 10/16-10/19)	10%
Midterm Exam (Monday, 11/3)	25%
Quiz 2 (Online; Must be taken 11/20-11/23)	10%
Final Exam (Monday, 12/8—at 2:45 pm)	25%
Reaction Papers (4 Special Topics Reaction Papers @ 5% each)	20%
Lab Exercises (4 Lab Write-Ups @ 2.5% each)	10%

Grades will be assigned as follows: A = 90-100%, B = 80-89%, C = 70-69%, D = 60-69%, F < 60% (with minus and plus grades assigned at appropriate cutoffs).

The grading system used in this course is as follows:

- A** – Outstanding performance relative to that required to meet course requirements; demonstrates a mastery of course content at the highest level.
- B** – Performance that is significantly above that required to meet course requirements; demonstrates a mastery of course content at a high level.
- C** – Performance that meets the course requirements in every respect; demonstrates an adequate understanding of course content.
- D** – Performance that is at the minimal level necessary to pass the course but does not fully meet the course requirements; demonstrates a marginal understanding of course content.
- F** – Performance in the course, for whatever reason, is unacceptable and does not meet the course requirements; demonstrates an inadequate understanding of the course content.

Exams: The midterm and final exams will be based on lectures, videos, readings, and class discussions, and will include objective (multiple choice & matching), fill-in-the-blank, short answer, and short essay sections. The final exam will emphasize the material from the second half of the class, but it will also require integration of course material from throughout the course (not just the material introduced after the midterm).

Exams must be taken at the scheduled time. Under no circumstances will make-up exams be given without a documented excuse (e.g., signed note from your doctor). If you will not be able to take an exam, you must notify me in advance (preferably by e-mail).

Reaction Papers: During the quarter, each student will write four short (2-3 page) reaction papers on articles provided by the instructor (see “Special Topics” on the schedule). These response papers provide opportunities for discussion and critical analysis of current biological, cultural, and social issues related to human growth and development. Reaction papers are only 2-3 pages long so writing should be concise and focused around a couple of main points. Reaction papers are due the week of discussion section. Your participation in these discussions is an essential component to this course.

Lab Exercises: During the quarter, each student will write four short (1-2 page) lab write-ups based on the exercises and questions from lab activities. Lab exercise write-ups are due in lab the following week. **All lab sections are held on Tuesdays in 368 Condon and will be run by Theresa.**

SCHEDULE

Week	Date	Topics	Reading Assignment
1	9/29 10/1	Introduction and course overview; Why study growth? Introduction to general education & the scientific method Historical perspective on human growth & development; Different approaches to studying growth & development Lab 1: Introduction to the Course; Scientific Method & Evolutionary Theory Exercise ** (Lab write-up due in lab the following week)	Bogin 1999 (Introduction) Rosenberg & Trevathan 2001 Tanner 1998 Lab Readings: Wilson 2007 & Bering 2012
2	10/6 10/8	Basic principles; Methods for assessing growth and maturity Evolutionary/Comparative perspective on human growth; Case Study: Human brain evolution Lab 2: Anthropometry; Assessing growth and development ** (Lab write-up due in lab the following week)	Bogin 2010 Leonard et al. 2012 Lab Readings: Antón & Snodgrass 2009
3	10/13 10/15	Prenatal growth & development; Embryology <i>Video: Life's Greatest Miracle</i> Prenatal growth & development (cont'd); Pregnancy Lab 3: Fetal Development & Embryology ** (Lab write-up due in lab the following week) **Quiz on material from 1st three weeks (Online—to be taken anytime 10/16-10/19) **	Berk 2008 (Ch. 3) Trevathan 2010 (Ch. 4)
4	10/20 10/22	Birth Infancy & Breastfeeding Lab 4: Special Topics Discussion I: Genetic Screening— Video: NOVA—Cracking Your Genetic Code **REACTION PAPER DUE IN LAB SECTION TODAY	Trevathan 2010 (Ch. 5) Berk 2008 (Ch. 5, pp 164-193)
5	10/27 10/29	Childhood & juvenile growth; Why grow up? Catch-up, review, and discussion Lab 5: Special Topics Discussion II: Co-Sleeping (Kerrigan 2013, Gettler & McKenna 2010, and/or March of Dimes N.D.) **REACTION PAPER DUE IN LAB SECTION TODAY	Berk 2008 (Ch. 8, pp. 292-311) Berk 2008 (Ch. 11, pp. 410-426) No new readings for lecture

COURSE SCHEDULE (CONTINUED)

Week	Date	Topics	Reading Assignment
6	11/3 11/5	Midterm Exam Conducting research in human growth and development: The Shuar Health & Life History Project <u>Lab 6: Video: Secret Life of the Brain</u>	Blackwell et al., 2009 TBA
7	11/10 11/12	Puberty; Adolescent growth & development Reproductive maturity; Emerging Adulthood; Social dimensions of adolescence and the transition to adulthood <u>Lab 7: Special Topics Discussion III: Epigenetics and Blaming Mothers (Richardson et al. 2014 & TBA)</u> **REACTION PAPER DUE IN LAB SECTION TODAY	Berk 2008 (Chapter 14) Berger 2011 Gluckman & Hanson 2006
8	11/17 11/19	Female reproductive ecology: Regulation of reproduction; Female fecundity Male reproductive ecology <u>Lab 8: Skeletal Development</u> **(Lab write-up due in lab the following week) **Quiz on material from weeks 6-8 (Online—to be taken anytime 11/20-11/23) **	Ellison 2008 Bribiescas 2010 <u>Lab Reading:</u> Loth & Iscan 2000
9	11/24 11/26	Older adulthood; Aging vs. Senescence; The evolution of aging Fetal programming/Developmental plasticity; Evolution of Plasticity <u>Lab 9: Video: Rx for Survival: A Global Health Challenge (Back to the Basics)</u>	Brown 2010 Kuzawa 2012 Kuzawa and Bragg 2012
10	12/1 12/3	Intrapopulation variation in growth; Secular trends; Social and economic determinants of health; Obesity Physiological vs. chronological age; Interpopulation variation in human growth; Economic development & growth; Ecological and environmental influences on growth <u>Lab 10: Special Topics Discussion IV: Revisiting key issues: Genetic screening, choosing the sex of your baby, & think before your breed (Sidhu 2012, Washington 2012, Saletan 2012, and/or Overall 2012)</u> **REACTION PAPER DUE IN LAB SECTION TODAY	Stinson 2012
11	12/8	Final Exam, Monday, 12/8 at 2:45 pm	

Anthropology 369: Human Growth and Development—Required Readings

Week 1

- Bogin B. 1999. Introduction. In: Bogin B. Patterns of human growth (2nd Ed.). Cambridge: Cambridge University Press.
- Rosenberg KR, Trevathan WR. 2001. The evolution of human birth. *Scientific American* (Nov.): 80-85
- Tanner JM. 1998. A brief history of the study of human growth. In: Ulijaszek SJ et al. (eds.) The Cambridge encyclopedia of human growth and development. Cambridge: Cambridge University Press. p. 3-12.

For Week 1 Lab:

- Wilson DS. 2007. Clearing the deck (Chapter 2). In: *Evolution for Everyone: How Darwin's Theory Can Change the Way We Think About Our Lives*. Delacorte Press. p. 11-16.
- Bering J. 2012. How are they hanging? This is why they are. In: *Why is the Penis Shaped Like That?...And other Reflections on Being Human*. Scientific American/FSG, p. 3-10.

Week 2

- Bogin B. 2010. Evolution of human growth. In: ML Muehlenbein (ed.) Human Evolutionary Biology. Cambridge, p. 379-395.
- Leonard WR, Snodgrass JJ, Robertson ML. 2012. Comparative and evolutionary perspectives on human brain growth. In: N Cameron and B Bogin (eds.) Human Growth and Development (2nd edition). New York: Elsevier, p. 397-414.

For Week 2 Lab:

- Antón SC and Snodgrass JJ. 2009. Integrative Measurement Protocol for Morphological and Behavioral Research in Human and Non-Human Primates (Version 1.0). Available online from the Center for the Study of Human Origins, New York University and the Bones and Behavior Working Group Website (<http://www.bonesandbehavior.org/protocol.pdf>).

Week 3

- Berk LE. 2008. Prenatal development (Chapter 3). In: Infants, children, and adolescents (6th edition). Allyn & Bacon. p. 92-127.
- Trevathan W. 2010. Staying pregnant (Chapter 4). In: Ancient Bodies, Modern Lives: How Evolution Has Shaped Women's Health. Oxford, p. 75-89.

Week 4

- Trevathan W. 2010. Welcome to the world (Chapter 5). In: Ancient Bodies, Modern Lives: How Evolution Has Shaped Women's Health. Oxford, p. 90-107.
- Berk LE. 2008. Physical development in infancy and toddlerhood (Chapter 5). In: Infants, children, and adolescents (6th edition). Allyn & Bacon. p. 164-193 ONLY.

For Week 4 Reaction Paper:

- Video: NOVA—Cracking Your Genetic Code (2012); <http://video.pbs.org/video/2215641935/>

Week 5

- Berk LE. 2008. Physical development in early childhood (Chapter 8). In: Infants, children, and adolescents (6th edition). Allyn & Bacon. p. 292-311 ONLY.
- Berk LE. 2008. Physical development in middle childhood (Chapter 11). In: Infants, children, and adolescents (6th edition). Allyn & Bacon. p. 410-426 ONLY.

For Week 5 Reaction Paper:

- Kerrigan S. 2013. Is it time to rethink co-sleeping? *Commonhealth/WBUR*.
- Gettler LT, McKenna JJ. 2010. Never Sleep with Baby? Or Keep Me Close But Keep Me Safe: Eliminating Inappropriate “Safe Infant Sleep” Rhetoric in the United States. *Current Pediatric Reviews* 6: 71-77.
- March of Dimes. No Date. Co-Sleeping.

Week 6

- Blackwell AD, Pryor III G, Pozo J, Tiwia W, Sugiyama LS. 2009. Growth and market integration in Amazonia: A comparison of growth indicators between Shuar, Shiwiar, and nonindigenous school children. *American Journal of Human Biology* 21:161-171.
- TBA

Week 7

- Berk LE. 2008. Physical development in adolescence (Chapter 14). In: Infants, children, and adolescents (6th edition). Allyn & Bacon. P. 528-563.
- Berger KS. 2011. Emerging adulthood: Biosocial development (Ch. 17). In: The Developing Person throughout the Lifespan (8th Edition). Worth Publishers, pp. 465-489.
- Gluckman P, Hanson M. 2006. Coming of age (Chapter 6). In: Mismatch: The Lifestyle Diseases Timebomb. Oxford University Press. pp. 137-157.

For Week 7 Reaction Paper:

- Richardson et al. 2014. Don't blame the mothers. *Nature* 512: 131-132.
- TBA

Week 8

- Ellison PT. 2008. Energetics, reproductive ecology, and human evolution. *Paleoanthropology* 2008: 172-200.
- Bribiescas RG. 2010. An evolutionary and life history perspective on human male reproductive senescence. *Annals of the New York Academy of Sciences* 1204: 54-64.

For Week 8 Lab:

- Loth SR, Iscan MY. 2000. Morphological age estimation. In: Siegal JA et al. (eds.) Encyclopedia of forensic sciences. San Diego: Academic Press. p. 242-252.

Week 9

- Brown DE. 2010. Life span: Aging and senescence (Chapter 10). In: Human Biological Diversity. Pearson. pp. 181-200.
- Kuzawa CW. 2012. Early environments, developmental plasticity, and chronic degenerative disease. In: N Cameron and B Bogin (eds.) Human Growth and Development (2nd edition). New York: Elsevier, p. 325-242.
- Kuzawa CW, Bragg JM. 2012. Plasticity in human life history strategy: Implications for contemporary human variation and the evolution of genus *Homo*. *Current Anthropology* 53(suppl. 6): S369–S382.

Week 10

- Stinson S. 2012. Growth variation: Biological and cultural factors. In: Stinson S et al. (eds.) Human Biology: An Evolutionary and Biocultural Perspective (2nd edition). New York: Wiley. p. 587-635.

For Week 10 Reaction Paper

- Sidhu J. 2012. Women are paying huge sums to have a daughter rather than a son. *Slate*; 9/14/12
- Washington HA. 2012. Prenatal genetic blueprint: What is a healthy baby, anyway? *Slate*; 9/16/12
- Saletan W. 2012. Will new prenatal tests shake up abortion politics? *Slate*; 6/1/12
- Overall C. 2012. Think before you breed. *The New York Times*; 6/17/12