

ANTH 369: HUMAN GROWTH & DEVELOPMENT (version 9.27.2020)
Fall Quarter 2020 (CRN 16530)
4 credit hours (Satisfies an SC requirement)

Course Time: Mondays and Wednesdays, 10:15 - 11:45 am

Course Location: REMOTE

Instructor: Dr. Josh Snodgrass (website: <http://www.pinniped.net/snodgrass.html>)

Office Hours: Fridays at 11-12 (open Zoom) & private meetings by appointment (using Zoom)

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Graduate Teaching Assistants: Tanner Anderson, e-mail: tander10@uoregon.edu

Kelsi Kuehn, e-mail: kelsik@uoregon.edu

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: REMOTE (Prerecorded lectures, live discussion, and online live 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, as well as patterns of aging.

Canvas: A Canvas site will be used extensively, it being the main source for course materials, information, readings, lab materials, and announcements. Make sure that you check your Canvas-linked e-mail account daily.

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

Required Readings: Assorted articles and book chapters (see below—all available on Canvas).

Expectations and Grading: Viewing of lectures and participation in laboratory sections are required. Course readings are extremely helpful as a supplement to lectures, completing lab assignments, and participating in lab section activities. Also, students are encouraged to attend and participate in the online class discussion. Your grade in the course will reflect your performance on four quizzes, three lab write-ups, and a term project that includes iterative writing assignments and a presentation in lab section.

Canvas Quizzes 40%

Quiz 1 (Online, covers weeks 1-3; Must be taken 10/15 - 10/18), 10%

Quiz 2 (Online; covers weeks 4-5; Must be taken 10/29 - 11/1), 10%

Quiz 3 (Online; covers weeks 6-7; Must be taken 11/12 - 11/15), 10%

Quiz 4 (Online; covers weeks 8-9; Must be taken 11/26 -11/29), 10%

Lab Write-Ups 15%

Week 2 Lab (Anthropometry; Write-up due 10/13), 5%

Week 5 Lab (Fetal Development & Embryology; Write-up due 11/3), 5%

Week 7 Lab (Skeletal Development; Write-up due 11/17), 5%

COVID Briefing 45%

Scaffolding Assignment 1 (Topic & group division of labor; Due 10/25), 5%

Scaffolding Assignment 2 (How you are approaching this briefing; Due 11/8), 5%

Scaffolding Assignment 3 (Key issues & intervention possibilities; Due 11/22), 5%

Group Presentation (In lab section; 12/1), 10%

Final Briefing Document (Due 12/8), 20%

Quizzes: The quizzes are based on lectures, readings and class discussions, and will be multiple choice on Canvas. Quizzes must be taken at the scheduled time. Make-up quizzes will not be given without a documented excuse (e.g., signed note from your doctor). If you will not be able to take a quiz, you must notify us in advance by e-mail.

Lab Write-Ups: During the term, each student will write three 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 and will be run by TAs Tanner Anderson and Kelsi Kuehn.**

COVID Briefing: During the term, each student will participate in a group activity of 3 students and will write a 3-page (single-spaced) plus 1 page of references COVID Briefing Document on one of the following topics: 1) Parenting in a pandemic; 2) Supporting the physical and mental health of kids during COVID; 3) Vaccinating children and adolescents for COVID; and, 4) Social determinants of health with COVID. Your team will write the CBD imagining that you form the transition team for a newly elected US Senator or Congressperson. Your group will have to outline the key issues related to the topic in your particular area (a state or congressional district of your choice) and identify the possible points of intervention or greatest impact. This is an iterative writing assignment with three assignments due during the term (with feedback provided) and the final document submitted during Finals Week (12/8). Also, your team will present this COVID Briefing to your lab during Week 10.

Course Grades: 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.

COURSE SCHEDULE

Week	Date	Topics	Reading Assignment
1	9/28 9/30	<p>No class; Yom Kippur holiday</p> <p>Lecture 1: Introduction and course overview; Why study growth? Introduction to GenEd & the scientific method; Evolutionary & biocultural approaches; Human auxology</p> <p>Lab 1: Introduction to the Course; Introductions; Scientific Method & Evolutionary Theory Exercise</p>	<p>1) Bogin 1999 2) Rosenberg & Trevathan 2014 3) Ball & Russell 2014 4) McDade & Sancilio 2020</p> <p>Lab Readings: 1) Firestein 2012 2) Understanding Evolution 2010</p>
2	10/5 10/7	<p>Lecture 2: Historical perspective on human growth & development; Different approaches to studying growth & development</p> <p>Lecture 3: Basic principles; Methods for assessing growth and maturity; Biocultural perspective on growth & development</p> <p>Lab 2: Anthropometry; Assessing growth and development ** (Lab write-up due 10/13)**</p>	<p>1) Tanner 1998</p> <p>1) Cameron 2012 2) Cole 2013 3) Wiley & Allen 2013</p>
3	10/12 10/14	<p>Lecture 4: Evolutionary perspective on human growth</p> <p>Lecture 5: Human brain evolution and our life history</p> <p>Lab 3: Focus on COVID Discussion 1: Parenting during the pandemic</p> <p>**Quiz on material from weeks 1-3 (10/15 - 10/18)**</p>	<p>1) Bogin 2012</p> <p>1) Leonard et al. 2012</p> <p>Lab Readings (read at least 3): 1) Ablow & Sullivan 2020; 2) Khazan & Harris 2020; 3) NPR Short Wave Podcast 2020; 4) Grose 2020; 5) Decaille 2020</p>
4	10/19 10/21	<p>Lecture 6: Ovarian cycle regulation; Conception; Prenatal growth & development; Embryology</p> <p>Lecture 7: Prenatal growth & development (cont'd); Pregnancy; Fetal “programming” & the Developmental Origins of Health and Disease (DOHaD)</p> <p>Lab 4: COVID Briefing Discussion: Instructions (GE demonstration of research process) & Form your group</p> <p>**COVID Briefing Scaffolding assignment 1 (Topic & Team members/team division of labor), Due 10/25**</p>	<p>1) Berk & Meyers 2015 (Ch. 3)</p> <p>1) Low et al. 2015 2) Gildner & Thayer 2020</p>
5	10/26 10/28	<p>Lecture 8: Birth; Birth outcomes; Advantages and disadvantages of our evolutionary heritage</p> <p>Lecture 9: Infancy; Infant growth & development; Breastfeeding</p> <p>Lab 5: Fetal Development & Embryology ** (Lab write-up due 11/3)**</p> <p>**Quiz on material from weeks 4-5 (10/29 - 11/1)**</p>	<p>1) Trevathan 2015 2) Trevathan & Rosenberg 2014</p> <p>1) Berk & Meyers 2015 (Ch5 part) 2) Hoi & McKerracher 2015</p>

COURSE SCHEDULE (CONTINUED)

Week	Date	Topics	Reading Assignment
6	11/2	Lecture 10: Case Study—Growth & development research among the Shuar of Amazonian Ecuador	1) Urlacher et al. 2018 2) Williams 2018
	11/4	Lecture 11: Childhood & juvenile growth; Why grow up? Lab 6: Focus on COVID Discussion 2: How do we support the physical and mental health of kids during COVID? **COVID Briefing Scaffolding Assignment 2 (How your team is approaching this briefing), Due 11/8**	1) Berk & Meyers 2015 (Ch8 part) 2) Berk & Meyers 2015 (Ch11part) Lab Readings (read at least 3): 1) Schwarz 2020; 2) Bernstein 2020; 3) Aizenman & Silver 2020; 4) Gettleman & Raj 2020; 5) Chang & Dunn 2020
7	11/9	Lecture 12: Puberty; Adolescent growth & development	1) Berk & Meyers 2015 (Ch. 14)
	11/11	Lecture 13: Reproductive maturity; Emerging Adulthood; Social dimensions of adolescence and the transition to adulthood Lab 7: Skeletal Development ** (Lab write-up due 11/17) **Quiz on material from weeks 6-7 (11/12 - 11/15)**	1) Berger 2011 2) Gluckman & Hanson 2006 Lab Reading: TBA
8	11/16	Lecture 14: Reproductive ecology; Regulation of fecundity in women and men	1) Valeggia & Núñez-de la Mora 2015
	11/18	Lecture 15: Aging & Older adulthood; Senescence; Aging in global context Lab 8: Focus on COVID Discussion 3: How are we going to handle COVID vaccination, including for children and adolescents? **COVID Briefing Scaffolding Assignment 3 (Key issues & intervention possibilities), Due 11/22**	1) Brown 2020 Lab Readings (read at least 3): 1) Jong-Fast 2020; 2) Koerth 2020; 3) Zimmer 2020; 4) Khullar 2020; 5) Yong 2020
9	11/23	Lecture 16: Variation in growth between populations; Genetic influences on growth	1) Stinson 2012
	11/25	Lecture 17: Variation in growth within populations; Secular trends; Biocultural approaches Lab 9: Focus on COVID Discussion 4: The uneven distribution of COVID—Social determinants of health **Quiz on material from weeks 8-9 (11/26 - 11/29)**	1) Hoke & Schell 2020 Lab Readings (read at least 3): 1) Dooley 2020; 2) Gravlee 2020; 3) King & Gaudiano 2020; 4) Wan 2020; 5) BBC News 2020
10	11/30	Lecture 18: Social determinants of growth, development, and health; SES; Stress; Nutrition; Infectious disease	1) Valeggia & Snodgrass 2015 2) Said-Mohamed et al. 2018 3) Bogin & Varea 2020
	12/2	Lecture 19: Putting it all together & How to live a long and healthy life Lab 10: Group Presentations on COVID Briefing	No new reading for 12/2
11	12/8	**COVID Briefing Final Document Due (1 copy per group)	

ANTH 369 Human Growth and Development (Fall 2020) – Course Readings

Week 1

for Wednesday's Class (9/30)

- Bogin B. 1999. Introduction. In: Patterns of Human Growth (2nd Ed.). Cambridge: Cambridge University Press, pp. 1-17.
- Rosenberg KR, Trevathan WR. 2014. Clinical brief: Evolutionary obstetrics. *Evolution, Medicine, and Public Health* 2014: 148.
- Ball HL, Russell CK. 2014. Clinical brief: SIDS and infant sleep ecology. *Evolution, Medicine, and Public Health* 2014: 146.
- McDade TW, Sancilio A. 2020. Beyond serosurveys: Human biology and the measurement of SARS-CoV-2 antibodies. *American Journal of Human Biology* 2020.

Week 1 Lab Readings for Scientific Method & Evolutionary Theory Exercise

- Firestein S. 2012. What science wants to know. *Scientific American* (April).
- Understanding Evolution 2010. Evolving altitude aptitude. UC Berkeley's Understanding Evolution website (https://evolution.berkeley.edu/evolibrary/news/101001_altitude)

Week 2

for Monday's class (10/5)

- Tanner JM. 1998. A brief history of the study of human growth. In: SJ Ulijaszek et al. (eds.) The Cambridge Encyclopedia of Human Growth and Development. Cambridge: Cambridge U Press.

for Wednesday's class (10/7)

- Cameron N. 2012. The measurement of human growth. In: N Cameron, B Bogin (eds.) Human Growth and Development (2nd edition). New York: Elsevier, pp. 487-514.
- Cole T. 2013. Growth references and growth charts. In: M. Hermanussen (ed.) Auxology: Studying Human Growth and Development. Stuttgart: Schweizerbart, pp. 4-7.
- Wiley AS, Allen JS. 2013. Introduction: A biocultural approach to medical anthropology. In: Medical Anthropology: A Biocultural Approach (2nd edition). New York: Oxford U Press, pp. 1-11.

Week 3

for Monday's class (10/12)

- Bogin B. 2012. The evolution of human growth. In: N Cameron, B Bogin (eds.) Human Growth and Development (2nd edition). New York: Elsevier, pp. 287-324.

Week 3 Lab Readings for Focus on COVID Discussion 1 (Parenting during the pandemic) (**read/listen to at least 3):

- Ablow JC & Sullivan E. 2020. Pregnancy during a pandemic: The stress of COVID-19 on pregnant women and new mothers is showing. *The Conversation*, 9/23/20.
- Khazan O & Harris A. 2020. What are parents supposed to do with their kids? *The Atlantic*, 9/3/20.
- NPR Short Wave Podcast with Geoff Brumfiel. 2020. The science is simple, so why is opening schools so complicated? *NPR Short Wave Podcast*, 8/17/20.
- Grose J. 2020. The pandemic is a 'mental health crisis' for parents. *The New York Times*, 9/9/20.
- Decaille N. 2020. Divorced and separated couples learn to navigate the ups and downs of custody during covid-19. *Washington Post*, 9/15/20.

for Wednesday's class (10/14)

- 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, pp. 397-414.

Week 4

for Monday's class (10/19)

- Berk LE, Meyers AB. 2015. Prenatal development (Chapter 3). In: Infants, Children, and Adolescents (8th edition). Allyn & Bacon.

for Wednesday's class (10/21)

- Low FM, Gluckman PD, Hanson MA. 2015. Evolutionary and developmental origins of chronic disease. In: MP Muehlenbein (ed.) Basics in Human Evolution. Academic Press, pp. 369-381.
- Gildner TE, Thayer ZM. 2020. Maternal and child health during the COVID-19 pandemic: Contributions in the field of human biology. *American Journal of Human Biology*.

Week 5

for Monday's class (10/26)

- Trevathan WR. 2015. Primate pelvic anatomy and implications for birth. *Philosophical Transactions of the Royal Society B* 370: 20140065.
- Trevathan WR, Rosenberg KR. 2014. Clinical brief: Caesarean section. *Evolution, Medicine, and Public Health* 2014: 164.

for Wednesday's class (10/28)

- Berk LE, Meyers AB. 2015. Physical development in infancy and toddlerhood (Chapter 5). In: Infants, Children, and Adolescents (8th edition). Allyn & Bacon.
- Hoi AG, McKerracher L. 2015. Clinical brief: Breastfeeding and infant growth. *Evolution, Medicine, and Public Health* 2015: 150-151.

Week 6

for Monday's class (11/2)

- Urlacher SS, Ellison PT, Sugiyama LS, Pontzer H, Eick G, Liebert MA, Cepon-Robins T, Gildner TE, and Snodgrass JJ. 2018. Tradeoffs between immune function and childhood growth among Amazonian forager-horticulturalists. *Proceedings of the National Academy of Sciences* 115: E3914-E3921.
- Williams S. 2018. Amazonians offer clues to human childhood development. *The Scientist*, July 2018.

Week 6 Lab Readings for Focus on COVID Discussion 2 (How do we support the physical and mental health of kids during COVID?) (read at least 3):**

- Schwarz J. 2020. Hunger in America, especially for children, has "skyrocketed" during Covid-19, data shows. *The Intercept*, 9/23/20.
- Bernstein L. Child deaths tied to covid-19 remain remarkably low, months into U.S. pandemic. *Washington Post*, 9/25/20.
- Aizenman N & Silver M. 2020. How bad has the pandemic been for childhood vaccinations? *NPR (Goats and Soda)*, 9/21/20.

- Gettleman J & Raj S. 2020. As Covid-19 closes schools, the world's children go to work. *The New York Times*, 9/27/20.
- Chang T & Dunn M. 2020. Teens want COVID-19 advice that gives them safe ways to socialize – not just rules for what they can't do. *The Conversation*, 9/16/20.

for Wednesday's class (11/4)

- Berk LE, Meyers AB. 2015. Physical development in early childhood (Chapter 8). In: Infants, Children, and Adolescents (8th edition). Allyn & Bacon.
- Berk LE, Meyers AB. 2015. Physical development in middle childhood (Chapter 11). In: Infants, Children, and Adolescents (8th edition). Allyn & Bacon.

Week 7

for Monday's class (11/9)

- Berk LE, Meyers AB. 2015. Physical development in adolescence (Chapter 14). In: Infants, Children, and Adolescents (8th edition). Allyn & Bacon.

for Wednesday's class (11/11)

- 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.

Week 8

for Monday's class (11/16)

- Vallengia CR, Núñez-de la Mora A. 2015. Human reproductive ecology. In: MP Muehlenbein (ed.) Basics in Human Evolution. San Diego: Academic Press, pp. 295-308.

Week 8 Lab Readings for Focus on COVID Discussion 3 (How are we going to handle COVID vaccination, including for children and adolescents?) (read at least 3)**

- Jong-Fast M. 2020. I am not a brave person. I am also Patient 1133. *The New York Times*, 9/17/20.
- Koerth M. 2020. How to know when you can trust a COVID-19 vaccine. *FiveThirtyEight*, 9/23/20.
- Zimmer C. 2020. A Covid-19 vaccine for children may not arrive before fall 2021. *The New York Times*, 9/21/20.
- Khullar D. 2020. It will take more than a vaccine to beat COVID-19. *The New Yorker*, 9/8/20.
- Yong E. 2020. America is trapped in a pandemic spiral. *The Atlantic*, 9/9/20.

for Monday's class (11/18)

- Brown DE. 2020. Life span: Aging and senescence. In: DE Brown. Human Biological Diversity (2nd edition). London: Routledge.

Week 9

for Monday's class (11/23)

- 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 Wednesday's class (11/25)

- Hoke MK, Schell LM. 2020. Doing biocultural anthropology: Continuity and change. *American Journal of Human Biology*.

Week 9 Lab Readings for Focus on COVID Discussion 4 (The uneven distribution of COVID—Social determinants of health) (read at least 3)**

- Dooley S. 2020. Coronavirus Is attacking the Navajo 'because we have built the perfect human for it to invade' *Scientific American*, 7/8/20.
- Gravlee C. 2020. Racism, not genetics, explains why black Americans are dying of COVID-19. *Scientific American*, 6/7/20.
- King M & Gaudiano N. 2020. The pandemic could widen the achievement gap. A generation of students is at risk. *Politico*, 9/23/20.
- Wan W. 2020. Coronavirus kills far more Hispanic and Black children than White youths, CDC study finds. *Washington Post*, 9/15/20.
- BBC 2020. Coronavirus: BBC poll suggests stark divide between rich and poor countries. *BBC News*, 9/11/20.

Week 10

for Monday's class (11/30)

- Vallengia CR, Snodgrass JJ. 2015. Health of indigenous peoples. *Annual Review of Anthropology* 44: 117-135.
- Said-Mohamed R, Pettifor JM, and Norris SA. 2018. Life history theory hypotheses on child growth: Potential implications for short and long-term child growth, development and health. *American Journal of Physical Anthropology* 165.
- Bogin B, Varea. 2020. COVID-19, crisis, and emotional stress: A biocultural perspective on their impact on growth and development for the next generation. *American Journal of Human Biology*.

for Wednesday's class (12/2)

- No new reading