

Biological Anthropology 50.55 Beyond the binary: sex, gender and biology

Meeting time and location: Summer Term 2024 Tuesday/Thursday 10:10 - 12:00

Instructor: Luisa Maria Rivera MPH PhD

Course description: This course examines the biology of sexual dimorphism and variation in humans and its implications for health and social equity. Rooted in biological anthropology examining the evolutionary mechanistic basis of human sexual variation, the course also draws from cultural anthropology, neuroscience, and feminist science studies to help students understand, contextualize, and critically interpret the science of human sexual variation. This is a discussion-based course that is open to all students, with priority given to Anthropology majors. I will provide brief lectures and overviews for certain material (e.g. reviewing sexual development in embryogenesis) but largely our classes will be focused on engaging with and discussing the variety of evidence and theory we explore throughout the term.

Learning Outcomes

- Understand the evolutionary and developmental processes that result in sexual dimorphism in humans
- Critically evaluate and discuss scientific evidence regarding the biology of sex differences and the social context in which it is produced
- Develop and implement a non-essay form independent research project about the interplay between social processes and the science of sex differences
- Creatively and effectively communicate and share independent research findings

Teaching Methods and Philosophy

This course is a discussion-based seminar in which engagement with the readings prior to every class is essential. We will go over different ways to approach reading and maximize your ability to glean meaning from the text, even when those texts are difficult or new to you. My teaching emphasizes exploration, open-mindedness, curiosity, and mutual construction of understanding. These values are also reflected in the final project, a creative 'non-essay' independent research project described in greater detail below.

Expectations and Norms

Contact information and Office Hours

To get in touch, please use my email, luisa.rivera@dartmouth.edu. I typically respond to emails in 24 hours, Monday through Friday, 8am - 5pm. Don't wait until the last minute to email: we don't have emergencies in this class, just keep me posted. My office hours are anytime on Mondays by appointment and/or over Zoom, whatever is your preference.

Attendance and late work

You may miss two classes, no questions asked or excuses needed, without it impacting your grade. Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me before the end of the second week of the term to discuss appropriate accommodations.

I give a 24 hr grace period for all deadlines; you may take this with no questions asked. If you require more than a 24-hour extension, please reach out to me as soon as possible to discuss a timeline for turning in your work.

Canvas

Course readings (outside of the required texts) will be posted to Canvas. I will also keep an updated course schedule and assignment submissions for your pre-class summaries and questions.

Texts and Materials

Clancy, K. (2023). *Period: The Real Story of Menstruation*. Princeton University Press.

Fine, C. (2017). *Testosterone Rex: Myths of sex, science, and society*. WW Norton & Company.

All other course readings will be available on Canvas. If you experience financial difficulties related to this course, please let me know.

Assessment and Grading

Participation (20%)

Participation is the core of this seminar. I ask that prior to class, all students **prepare a brief summary (3-5 key points) of at least one reading marked with an *, as well as two discussion questions for the class, to be submitted on Canvas prior to meeting for class that day and brought to class**. These summaries and questions will help prepare you for engagement in class discussions and also serve to keep you on top of your reading. These are graded 0 (not submitted), 1 (acceptable), or 2 (good). I will provide you with a rubric and examples in the beginning of class and post these to Canvas. You may choose any of the readings for your response that you like, or integrate several.

Midterm short exam (20%)

An in person written midterm exam (with a blend of short answer and multiple choice questions) will be administered about halfway through the term.

Final Project Proposal (25%)

To prepare for your final projects, I will ask you to submit a project proposal that describes the goal of your project, the rationale for choosing the type of project, and includes a preliminary bibliography of sources. The proposal should be approximately 4 pages double-spaced, in 12 point font, including references.

Final Project (35%)

For your final project, I ask that each student prepare an “Unessay” covering a topic (either unexplored in class or explored more deeply) relating to the biology of sexual and gender variation and the course materials.

An Unessay is a chance to creatively demonstrate your knowledge around a topic outside of the traditional written research essay. It could be an art piece, a comic, a TikTok series—the assignment is open for you to interpret. Don’t be intimidated! This is a chance to break out of the end of seminar term paper grindset and explore new ways of communicating what you know and care about. Later in the term, I will share a clear rubric for grading and support you throughout your project development. We will share our Unessays with each other at the end of the course in brief informal presentations (taking one day of the exam period if necessary).

For more information, check out these blog posts and Tweets (with examples of student work) about the Unessay from [Mark Kissel](#) and [Holly Norton](#).

Learning Resources

Dartmouth has a host of resources to support you in your learning. For many of you, this might be the first time you’ve had to ask for help; ask early and often, no one is born knowing how to conduct research, read academic texts, or write scholarly work!

[Academic Skills Center](#) (ASC): Open to the entire Dartmouth community, the ASC assists students in achieving their academic goals through tutoring and learning skills trainings.

[Research Center for Writing, and Information Technology](#) (RWIT): RWIT is a free service dedicated to helping members of the Dartmouth community develop more effective strategies for generating and organizing their ideas, finding and evaluating research sources, and presenting and revising compositions in a variety of media.

[Dartmouth College Library](#): The Dartmouth College Library provides support through subject area specialization, course materials and reserves, reservable learning spaces, workshops & classes for students, research, scholarly publication, copyright, media, book arts, and more. The

Library's [Research Guides](#) by subject area and your discipline's [subject librarian](#) are sources of specialized help for your course and students.

Academic Integrity

Please consult Dartmouth's [Academic Honor Principle](#) and [Sources and Citation at Dartmouth](#) to make sure your work complies with academic integrity expectations. For the Final Project, any citation style is fine as long as it is consistent (e.g. APA, Chicago, etc). I recommend using reference managing software to automatically format your bibliographies and in-text citations. [Zotero](#) and [Mendeley](#) are free resources that work with Microsoft Word. I use [Paperpile](#) because it can be used with Google Docs, but it has a subscription fee.

Note: I encourage reading together with classmates and sharing notes: this is not a violation of the Honor Principle for this course. In fact, it can be a source of much inspiration and enrichment. Please do not take advantage of your fellow classmates and make sure your collaborations are reciprocal.

Student Accessibility and Accommodations

Students requesting disability-related accommodations and services for this course are required to register with Student Accessibility Services (SAS; [Getting Started with SAS webpage](#); student.accessibility.services@dartmouth.edu; 1-603-646-9900) and to request that an accommodation email be sent to me in advance of the need for an accommodation. Then, students should schedule a follow-up meeting with me to determine relevant details such as what role SAS or its [Testing Center](#) may play in accommodation implementation. This process works best for everyone when completed as early in the quarter as possible. If students have questions about whether they are eligible for accommodations or have concerns about the implementation of their accommodations, they should contact the SAS office. All inquiries and discussions will remain confidential.

Mental Health and Wellness

The academic environment is challenging, our terms are intensive, and classes are not the only demanding part of your life. There are a number of resources available to you on campus to support your wellness, including: the [Counseling Center](#) which allows you to book triage appointments online, the [Student Wellness Center](#) which offers wellness check-ins, and your [undergraduate dean](#). The student-led [Dartmouth Student Mental Health Union](#) and their peer support program may be helpful if you would like to speak to a trained fellow student support listener. If you need immediate assistance, please contact the counselor on-call at (603) 646-9442 at any time. Please make me aware of anything that will hinder your success in this course.

Preliminary Course Schedule

<p>June 20</p> <p>Topic: Class introduction, ground rules, and syllabus review</p> <p>Readings: (recommended but ok if you haven't read by the first class!)</p> <p>“How to (seriously) read a scientific paper”</p> <p>(H. Dunsworth, 2016)</p>	<p>June 25</p> <p>Topic: Foundations for engaging with readings</p> <p>Readings:</p> <p>“How to (seriously) read a scientific paper”</p> <p>(van Anders, 2022)</p> <p>(Slocum, 1975)</p>
<p>June 27</p> <p>Topic: Feminist Evolutionary Anthro</p> <p>Readings:</p> <p>(Slocum, 1975)*</p> <p>(Hrdy & Bleier, 1986) *</p> <p>(Tang-Martínez, 2016)*</p> <p>(Denes, 2011)*</p>	<p>July 2</p> <p>Topic: Evolution of sexual dimorphism</p> <p>Readings:</p> <p>(Ah-King & Nylín, 2010)*</p> <p>(Janicke et al., 2016)</p>

<p>July 9</p> <p>Topic: Human sexual development: embryogenesis</p> <p>(Martin, 1991)*</p> <p>(Girsh, 2021) - I'll review for class</p>	<p>July 11</p> <p>Topic: Human sexual development: childhood</p> <p>(Konner, 2010) Chapter 10*</p> <p>(Lew-Levy et al., 2018)*</p>
<p>July 16</p> <p>Topic: Human sexual development: Adolescence</p> <p>(H. M. Dunsworth, 2020)*</p> <p>(Sear et al., 2019)*</p> <p>(Del Giudice et al., 2009) (I will review in class)</p>	<p>July 18</p> <p>Topic: Review of sexual dimorphism in puberty</p> <p>(No reading assigned)</p>
<p>July 23</p> <p>Topic: The feminized hormones part 1</p> <p>Preface, Chapter 1 & Chapter 2 from <i>Period</i></p>	<p>July 25</p>

<p>July 30</p> <p>Topic: The masculinized hormones: testosterone and androgens</p> <p>Intro and Chapter 4 from <i>Testosterone Rex</i>*</p> <p>Project Proposal due</p>	<p>Aug 1</p> <p>Topic: The masculinized hormones part II</p> <p>Chapter 5 & 6 from <i>Testosterone Rex</i>*</p> <p>Extra Friday Content:</p> <p>Carole Hooven on the JRE</p> <p>Intro from (Hooven, 2021)</p>
<p>Aug 6</p> <p>Topic: Plasticity across the lifecourse: Gender identity in adolescence</p> <p>(Littman, 2018)* (Littman, 2019)* (Restar, 2020)*</p>	<p>Aug 8</p> <p>Topic: Plasticity across the lifecourse: Hormone replacement therapy and gender affirming care</p> <p>(DuBois et al., 2021)* (Restar et al., 2021)*</p>
<p>Aug 13</p> <p>Topic: Biopolitics of the sexed body</p> <p>(DiMarco et al., 2022)* (Sudai et al., 2022)*</p>	<p>Aug 15</p> <p>Topic: Biopolitics of the sexed body</p> <p>(Zemenick et al. 2022)* Response to Zemenick #1 (Fagundes and Coyne 2023) Response to Zemenick #2 (Fenster et al. 2023)</p>

Aug 20 class end	Aug 27
Topic: Final Project Presentations	Final Projects Due

- Ah-King, M., & Nylin, S. (2010). Sex in an Evolutionary Perspective: Just Another Reaction Norm. *Evolutionary Biology*, 37(4), 234–246.
- Carrera, M. V., DePalma, R., & Lameiras, M. (2012). Sex/gender identity: Moving beyond fixed and “natural” categories. *Sexualities*, 15(8), 995–1016.
- Del Giudice, M., Angeleri, R., & Manera, V. (2009). The juvenile transition: A developmental switch point in human life history. *Developmental Review: DR*, 29(1), 1–31.
- Denes, A. (2011). Biology as consent: Problematizing the scientific approach to seducing women’s bodies. *Women’s Studies International Forum*, 34(5), 411–419.
- DiMarco, M., Zhao, H., Boulicault, M., & Richardson, S. S. (2022). Why “sex as a biological variable” conflicts with precision medicine initiatives. *Cell Reports. Medicine*, 3(4), 100550.
- DuBois, L. Z., Gibb, J. K., Juster, R.-P., & Powers, S. I. (2021). Biocultural approaches to transgender and gender diverse experience and health: Integrating biomarkers and advancing gender/sex research. *American Journal of Human Biology: The Official Journal of the Human Biology Council*, 33(1), e23555.
- Dunsworth, H. (2016). When did sex become fun? *Sapiens*.
<https://www.sapiens.org/biology/sexual-evolution-pleasure/>
- Dunsworth, H. M. (2020). Expanding the evolutionary explanations for sex differences in the human skeleton. *Evolutionary Anthropology*, 29(3), 108–116.
- Girsh, E. (2021). *A Textbook of Clinical Embryology*. Cambridge University Press.
- Hooven, C. (2021). *T: The Story of Testosterone, the Hormone that Dominates and Divides Us*.

Henry Holt and Company.

Hrdy, S. B., & Bleier, R. (1986). Empathy, polyandry, and the myth of the coy female.

Conceptual Issues in Evolutionary Biology, 131.

Janicke, T., Häderer, I. K., Lajeunesse, M. J., & Anthes, N. (2016). Darwinian sex roles confirmed across the animal kingdom. *Science Advances*, 2(2), e1500983.

Konner, M. (2010). *The Evolution of Childhood: Relationships, Emotion, Mind*. Harvard University Press.

Lew-Levy, S., Lavi, N., Reckin, R., Cristóbal-Azkarate, J., & Ellis-Davies, K. (2018). How Do Hunter-Gatherer Children Learn Social and Gender Norms? A Meta-Ethnographic Review. *Cross-Cultural Research: Official Journal of the Society for Cross-Cultural Research / Sponsored by the Human Relations Area Files, Inc*, 52(2), 213–255.

Littman, L. (2018). *Rapid-onset gender dysphoria in adolescents and young adults: A study of parental reports*. rogd.fi. <https://rogd.fi/wp-content/uploads/2021/10/pone.0214157.s001.pdf>

Littman, L. (2019). Correction: Parent reports of adolescents and young adults perceived to show signs of a rapid onset of gender dysphoria. *PLoS One*, 14(3), e0214157.

Martin, E. (1991). The Egg and the Sperm: How Science Has Constructed a Romance Based on Stereotypical Male-Female Roles. *Signs: Journal of Women in Culture and Society*, 16(3), 485–501.

Restar, A. J. (2020). Methodological Critique of Littman's (2018) Parental-Respondents Accounts of "Rapid-Onset Gender Dysphoria" [Review of *Methodological Critique of Littman's (2018) Parental-Respondents Accounts of "Rapid-Onset Gender Dysphoria"*]. *Archives of Sexual Behavior*, 49(1), 61–66.

Restar, A. J., Sherwood, J., Edeza, A., Collins, C., & Operario, D. (2021). Expanding Gender-Based Health Equity Framework for Transgender Populations. *Transgender Health*, 6(1), 1–4.

Sear, R., Sheppard, P., & Coall, D. A. (2019). Cross-cultural evidence does not support

- universal acceleration of puberty in father-absent households. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 374(1770), 20180124.
- Slocum, S. (1975). Woman the Gatherer: Male Bias in Anthropology. In R. R. Reiter (Ed.), *Toward an Anthropology of Women* (p. 49). Monthly Review Press.
- Sudai, M., Borsa, A., Ichikawa, K., Shattuck-Heidorn, H., Zhao, H., & Richardson, S. S. (2022). Law, policy, biology, and sex: Critical issues for researchers. *Science*, 376(6595), 802–804.
- Tang-Martínez, Z. (2016). Rethinking Bateman's Principles: Challenging Persistent Myths of Sexually Reluctant Females and Promiscuous Males. *Journal of Sex Research*, 53(4-5), 532–559.
- van Anders, S. M. (2022). Gender/sexual diversity and biobehavioral research. *Psychology of Sexual Orientation and Gender Diversity*. <https://doi.org/10.1037/sgd0000609>
- Clancy, K. (2023). *Period: The Real Story of Menstruation*. Princeton University Press.
- Fine, C. (2017). *Testosterone Rex: Myths of sex, science, and society*. WW Norton & Company.