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Office Hours: Gilman 368, Mondays 12-2PM or by appointment

“Ladies in the Laboratory: Science and Gender in U.S. History”

Course Number: AS.140.380
Mondays and Wednesdays, 4:30-5:45 PM

Overview:

Why has science historically been so dominated by men? Why is this still true for many STEM fields today? We will explore the answers to these questions in this course, as well as look at a broader history of women and gender in science. Societal conceptions of gender have shaped not only the self-identity of a scientist, but also how certain kinds of scientific labor have been conceptualized as being more appropriate to men or women. We will study how gender shapes, and has continued to shape, the boundary between scientist and non-scientist by looking at the lives of individual women, at scientific or technical movements, and at institutions. Because education continues to be crucial in pushing people into or out of scientific careers, this course will also feature a large focus on K-12, college, and graduate science education.

A few other questions which we will discuss throughout the semester include:

- Why are there so few women in STEM professions? Was this always the case?
- How and why does gender affect who is considered skilled? Or an expert?
- Why are different types of scientific work considered ‘masculine’ or ‘feminine’?
- How/has feminism changed science?

The course runs roughly chronologically, beginning with colonial America and running through to the present day. Note that this course presupposes no knowledge of history, science, or gender studies and is open to students of all backgrounds. Science and engineering majors, as well as humanities majors, are encouraged to enroll. Although there may occasionally be a short talk at the beginning of class introducing some necessary historical background, the emphasis is on active group discussion.

Assignments:

In-Class Participation:

Students are expected to come to class fully prepared. Participation will be evaluated based on attendance, a short response paragraph, and contributions in class. Students are expected to contribute at least once to the discussion in any given class. Before class, please send me approximately a short paragraph with your reactions to the readings. The paragraph does not need to be long and can contain an observation, analysis, or questions. (similarly to how we have sometimes done in class.) Any presentations given in-class will count towards the participation grade.

The “Shit Happens” Clause:

Shit happens. Everyone gets one absence from class, no questions asked. Everyone can also have one 3-day extension on any written assignment, as long as you email me to tell me that shit happened (although you don't need to specify what kind of shit).

All other absences can be excused with prior approval but will need to be made up with a written 2-page response to that class's readings or a discussion of those readings with me in my office hours.

All other written assignments are expected to be turned in by 11:59PM on the date that they are due unless there are extenuating circumstances you have made me aware of ahead of time and we have worked out a new due date. Otherwise, late submission will be penalized by a grade reduction of one third of a letter grade (e.g. A to A-) on the assignment for each day that it is late.

Midterm Paper (Due October 28):

This 5-page paper will be a comparison and analysis of the movies *October Sky* and *Hidden Figures*. Multiple avenues of analysis are possible, but there must be a single clearly argued thesis. Some possible themes which your paper could address include: the role of gender in determining expertise, the intersectionality of race and gender, the portrayal of education, hierarchies in science, gender in the Cold War context, etc. Out-of-class screenings will be arranged for all interested students, and more detailed instructions are on Blackboard.

Annotated Bibliography (Due November 4):

The annotated bibliography is designed to prepare for writing the final paper. The bibliography does not need to include all sources which will eventually be used in the paper, but should include at least five sources (minimum 1 primary and 4 secondary sources). Chicago-style bibliographic citations should be used. To see how to cite sources in a Chicago-style bibliography check out the how-to guide: https://www.chicagomanualofstyle.org/tools_citationguide/citation-guide-1.html. Copies of *The Chicago Manual of Style* are also available at the library. For each source, write a short paragraph which should do the following:

- Summarize the source. Why was the material written? What is the argument? How is that argument supported?
- Describe the usefulness of the source for the final project. What are its benefits and limitations? How will it be used?

Final Paper (Due December 19):

This research paper should be 15 pages long (Times New Roman 12-point font, double spaced lines, one inch margins) and concern a topic related to the course. Topics should be discussed with me in office hours and approved by October 21st to ensure there are enough sources to work from. The paper itself is due on the "exam date" according to the schedule posted by the University, which is December 19. Footnote and bibliography citations should be used following the Chicago style as developed in the annotated bibliography.

Grading:

- In-Class Participation (20%)
- Short Writing Assignments (10%)
- Midterm Paper (20%)
- Annotated Bibliography (10%)
- Final Paper (30%)
- And 10% to be decided by you and communicated to me via email by September 16th.
Example 1: 10% could be added to the Participation grade so it would be worth 30%.
Or, Example 2: 5% could be added each to the Short Assignments and to the Annotated Bibliography so these would each now be worth 15%.

Recommended Books:

All readings will be available through the library catalog, E-Reserves, or Blackboard, but you may wish to purchase the following books. We will read a fair amount of these books for class, and they will also be useful to get an overview of the course.

- Kim Tolley. *The Science Education of American Girls: A Historical Perspective*. New York: Routledge, 2002.
- Julie Des Jardins. *The Madame Curie Complex*. New York City: Feminist Press at the City University of New York, 2010. (Available as an ebook through the library catalog or e-reserves).

Statement on Academic Ethics and the Classroom Climate

Cheating hurts our community by undermining academic integrity, creating mistrust, and fostering unfair competition. Punishments can include failure on an assignment, failure in a course, permanent transcript notation, suspension and /or expulsion. Offenses may be reported to medical, law, or other professional or graduate schools. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition.

Report any violations you witness to the instructor. You may consult the associate dean of student conduct (or designee) by calling the Office of the Dean of Students at 410-516-8208 or via email at integrity@jhu.edu. For more information, see the Homewood Student Affairs site on academic ethics: (<https://studentaffairs.jhu.edu/student-life/student-conduct/academic-ethics-undergraduates>)

I am committed to creating a classroom environment that values the diversity of experiences and perspectives that all students bring. Everyone here has the right to be treated with dignity and respect. At no time in this learning process should someone be singled out or treated unequally on the basis of any seen or unseen part of their identity. If you ever have concerns in this course about harassment, discrimination, or any unequal treatment, or if you seek accommodations or resources, I invite you to share directly with me. I promise that we will take your communication seriously and to seek mutually acceptable resolutions and accommodations. Reporting will never impact your course grade. You may also share concerns with the Director of Undergraduate

Studies (Joris Mercelis jmercelis@jhu.edu), the Assistant Dean for Diversity and Inclusion (Darlene Saporu, dsaporu@jhu.edu), or the Office of Institutional Equity (oiie@jhu.edu). In handling reports, people will protect your privacy as much as possible, but faculty and staff are required to officially report information for some cases (e.g. sexual harassment).

Anxiety, Stress, and Mental Health

If you are struggling with anxiety, stress, depression or other mental health related concerns, please consider visiting the JHU Counseling Center. If you are concerned about a friend, please encourage that person to seek out their services. The Counseling Center is located at 3003 North Charles Street in Suite S-200 and can be reached at 410-516-8278 and online at <http://studentaffairs.jhu.edu/counselingcenter/>

Schedule

Week 1: Introduction – Why Study Gender? Why Study History?

- **August 29: Introduction and Motivations**
 - o *In class* - Introduction to the course with a review of the syllabus.
 - o *In class* - Watch and discuss the video “Science: It’s a Girl Thing!”
<<https://www.youtube.com/watch?v=zj--FFzngUk>>
- **No class on Labor Day.**
- **September 4: Intersectionality, Gender, Politics, and Race**
 - o Before class, read – Kanta Dihal, “Where State Politics Meets Gender Politics: Chien-Shiung Wu and the Manhattan Project,” *The New Inquiry*, 18 January 2018.
< <https://thenewinquiry.com/blog/where-state-politics-meets-gender-politics-chien-shiung-wu-and-the-manhattan-project/>>
 - o *In class* – Interview with Chanda Prescod-Weinstein by TVO on July 11, 2019
<<https://www.tvo.org/video/a-fresh-perspective-for-physics>>.
 - o *Optional* – Lady Science Podcast, “Talking Feminist Astrophysics with Chanda Prescod-Weinstein,” May 9, 2019. Available for free online and with a transcript at: <<https://www.ladyscience.com/podcast/talking-feminist-physics-chanda-prescod-weinstein>>. Also available on Google Play, iTunes, and Stitcher.

Week 2: Masculinity, Femininity, and Scientific Identity

- **September 9: Gender and Public Scientific Personas**
 - o Julie Des Jardins. *The Madame Curie Complex*. New York City: Feminist Press at the City University of New York, 2010. Chapter 1 “Madame Curie’s American Tours” (Pages 23-52).
 - o Rebecca Herzig, *Suffering for Science*: (Piscataway: Rutgers University Press, 2005). Introduction and Chapter 5 “Martyrs” (Pages 1-16 & 85-99).
- **September 11: Gender and Private Scientific Personas**
 - o Lindsay, Debra. “Intimate Inmates: Wives, Households, and Science in Nineteenth-century America.” *Isis* 89, no. 4 (December 1998): 631–652
 - o Nina Baym. *American Women of Letters and the Nineteenth-Century Sciences: Styles of Affiliation*. New Brunswick: Rutgers University Press, 2002.

Introduction and Chapter 6 “Elizabeth Cary Agassiz and Heroic Science” (Pages 1-17 & 91-112).

Week 3: Science Education for Girls in the Colonial and Antebellum U.S.

- **September 16: Final Grade Distribution Due to me by email.**
- **September 16: Early American Science Education**
 - ***Meet in the Brody Learning Commons outside Special Collections (M-level)***
 - o Kim Tolley. *The Science Education of American Girls: A Historical Perspective*. New York: Routledge, 2002. Introduction (Pages 1-12).
- **September 18: What are the “Appropriate” Subjects for Women and Men?**
 - o Kim Tolley. *The Science Education of American Girls: A Historical Perspective*. New York: Routledge, 2002. Chapters 2 “Science for Ladies, Classics for Gentlemen” and 3 “What is the Use of This Study?” (Pages 35-74).
 - o Benjamin Rush, *Thoughts upon Female Education accommodated to the Present State of Society, Manners, and Government, in the United States of America* (1787). Available through e-reserves or online at:
<<http://www.swarthmore.edu/SocSci/rbannis1/AIH19th/female.html>>.

Week 4: Rethinking Domestic Science and Technology

- **September 23: Home Economics as a Field of Scientific Study**
 - o Sarah Stage. “Introduction” and Chapter 1 “Ellen Richards and the Social Significance of the Home Economics Movement.” In *Rethinking Home Economics: Women and the History of a Profession*, edited by Sarah Stage and Virginia Vincenti. Ithaca: Cornell University Press, 1997. (Pages 1-33).
 - o Genevieve J. Wheeler Thomas. “Reminiscences.” In *Rethinking Home Economics: Women and the History of a Profession*, edited by Sarah Stage and Virginia Vincenti. Ithaca: Cornell University Press, 1997: 229-234.
- **September 25: Home Economics Education**
 - o Amy Sue Bix. “Equipped for Life: Gendered Technical Training and Consumerism in Home Economics, 1920-1980.” *Technology and Culture*. 43, no. 4, (October 2002): 728-754.
 - o Jane Bernard Powers. *The ‘Girl Question’ in Education: Vocational Education for Young Women in the Progressive Era*. London: Falmer Press, 1992. Chapter 2 “Home Economics: A Panacea for Reform” (Pages 12-26).
 - o In-Class Activity: Examining and comparing different home economics textbooks.

Week 5: Science at College

- **NO CLASS September 30.**
 - o Instead of class on Monday, work on the short writing assignment. Details in the Assignments folder under Course Content on Blackboard.
- **October 2: Women’s Colleges and Science as a Feminine Enterprise**
 - o Miriam Levin. *Defining Women’s Scientific Enterprise: Mount Holyoke Faculty and the Rise of American Science*. Hanover: University Press of New England, 2005. Introduction (Pages 1-18).

- Henry Albers, ed. *Maria Mitchell: A Life in Journals and Letters*. New York: College Avenue Press, 2001. Chapter 8 “Vassar College, 1865 to 1873” (Pages 155-203).
- **First Short Writing Assignment: “Colleges and Science Classes” – Due October 4**
 - Instead of class on Monday, work on the short writing assignment. Details in the Assignments folder under Course Content on Blackboard.

Week 6: Gendering Occupations

- **October 7: Changing Scientific Labor Hierarchies**
 - Miriam Levin. *Defining Women’s Scientific Enterprise: Mount Holyoke Faculty and the Rise of American Science*. Hanover: University Press of New England, 2005. Chapter 4 “Redefining Scientific Labor in the Age of Specialization” (Pages 101-128).
 - Ruth Oldenziel. *Making Technology Masculine: Men, Women and Modern Machines in America, 1870-1945*. Amsterdam: Amsterdam University Press, 1999. Chapter 2 “From Elite Profession to Mass Occupation” (Pages 51-90).
 - Skim this.
- **NO CLASS October 9**
- **Second Short Writing Assignment: “Career Advice” – Due October 11**
 - Instead of class on Wednesday, work on the short writing assignment. Details in the Assignments folder under Course Content on Blackboard.

Week 7: WWII: A Turning Point?

- **October 14: World War II, Overview and Personal Experiences**
 - Margaret Rossiter, *Women Scientists in America Vol. 2: Before Affirmative Action 1940-1972*. Baltimore: Johns Hopkins University Press, 1995. Introduction and Chapter 1 “World War II” (Pages xv-xviii, 1-26).
 - Browse and read an oral history interview from *Voices of the Manhattan Project* (<https://www.manhattanprojectvoices.org/>). Be prepared to discuss it in class.
- **October 16: World War II Education Case Study**
 - Amy Sue Bix. *Girls Coming to Tech!: A History of American Engineering Education for Women*. Cambridge, Massachusetts: MIT Press, 2013. Chapter 2 “World War II: Emergency Engineering Employment Training,” pg. 55-93.

Week 8: Science and Gender in the Early Cold War

- **Final Paper Topic Due by October 21.**
- **October 21: Growth and Masculinization of Scientific Occupations**
 - Margaret Rossiter, *Women Scientists in America Vol. 2: Before Affirmative Action 1940-1972*. Baltimore: Johns Hopkins University Press, 1995. Chapter 2 “Postwar ‘Adjustment’” (Pages 27-49).
 - Julie Des Jardins. *The Madame Curie Complex*. New York City: Feminist Press at the City University of New York, 2010. Section II Introduction “The Cult of Masculinity in the Age of Heroic Science” (Pages 117-129).
 - **Optional** - David Kaiser, “The Postwar Suburbanization of American Physics,” *American Quarterly* 56, no. 4 (2004): 851-888.

- **October 23: Changing Types of Scientific Masculinity**
 - o Rebecca Onion, *Innocent Experiments: Childhood and the Culture of Popular Science in the United States*. Chapel Hill: University of North Carolina Press, 2016. Chapter 4 “Space Cadets and Rocket Boys” and Chapter 5 “The Exploratorium and the Persistence of Innocent Science” (Pages 113-164).
 - o Steven Shapin. “Milk and Lemon,” Review of *Don’t You Have Time to Think?: The Letters of Richard Feynman*, Michelle Feynman, ed. *London Review of Books* Vol. 27 No. 13 (7 July 2005): 10-12. Available online at <<https://www.lrb.co.uk/v27/n13/steven-shapin/milk-and-lemon>>.

Week 9: Maintaining and Transgressing Boundaries

- **Midterm Paper Due October 28 by midnight**
- **October 28: Strategies of Access**
 - o Julie Des Jardins. *The Madame Curie Complex*. New York City: Feminist Press at the City University of New York, 2010. Chapter 5 “Maria Goeppert Mayer and Rosalind Franklin: The Politics of Partners and Prizes in the Heroic Age of Science” (Pages 157-200).
 - o **Optional** - Margaret Rossiter, *Women Scientists in America Vol. 2: Before Affirmative Action 1940-1972*. Baltimore: Johns Hopkins University Press, 1995. Chapter 15 “Women’s Clubs and Prizes” (Pages 333-360).
- **October 30: Science as Meritocracy?**
 - o Alexandra Rutherford. “Maintaining Masculinity in Mid-Twentieth-Century American Psychology: Edwin Boring, Scientific Eminence, and the ‘Woman Problem.’” *Osiris* 30 (2015): 250-271.
 - o Laurence Summers. Remarks at NBER Conference on Diversifying the Science & Engineering Workforce. Cambridge, MA. 14 January 2005. Available on e-reserves or online at: <https://www.harvard.edu/president/speeches/summers_2005/nber.php>.
 - o Ben A. Barres, “Does gender matter?” *Nature* 442 (2006): 133-136.

Week 10: The 1960s-1980s

- **Annotated Bibliography Due November 4**
- **November 4: Women, Men, and Computers**
 - o Nathan Ensmenger. “‘Beards, Sandals, and Other Signs of Rugged Individualism’: Masculine Culture within the Computing Professions.” *Osiris* 30 (2015): 38-65.
 - o Michael S. Mahoney. “Boys’ Toys and Women’s Work: Feminism Engages Software,” in *Feminism in Twentieth Century Science, Technology, and Medicine*, edited by Angela N.H. Creager, Elizabeth Lunbeck and Londa Schiebinger, 169-185. Chicago: Chicago University Press, 2001.
- **November 6: Science and Feminism, Feminist Science**
 - o Julie Des Jardins. *The Madame Curie Complex*. New York City: Feminist Press at the City University of New York, 2010. Chapter 6 “Generational Divides” (Pages 219-252).
 - o In addition, pick and read either of the following pairs of readings:

- Feminist Glaciology and Astrobiology
 - Anna Reser, “Toward a Feminist Astrobiology,” *The New Inquiry* (14 September 2017) <<https://thenewinquiry.com/blog/toward-a-feminist-astrobiology/>>.
 - Anna Reser, “Calving, Cores, and Controversy,” *Lady Science* (22 April 2016) <<https://www.ladyscience.com/calving-cores-controversy/cm3k22bp7f9haedbdhs4zmaydge2f>>.
- Feminist Anthropology
 - Emma Louise Backe, “Feminist Anthropology,” *The New Inquiry* (15 December 2016) <<https://thenewinquiry.com/blog/feminist-anthropology/>>.
 - Emma Louise Backe, “Feminist Anthropology Part II,” *The New Inquiry* (19 January 2017) <<https://thenewinquiry.com/blog/feminist-anthropology-part-ii/>>.

Week 11: The 1980s to Today – Changing Institutions

- **November 11: Lawsuits and Change at Universities**
 - Margaret Rossiter, *Women Scientists in America: Forging a New World Since 1972*. Baltimore: Johns Hopkins University Press, 2012. Chapter 2 and Epilogue (Pages 21-40, 269-286).
- **November 13: Inclusivity and Campus Climate at Hopkins**
 - JHU Emails including:
 - JHU letter to the Hopkins Medicine community on the Inaugural Diversity Annual Report (3 February 2016).
 - JHU letter to the Hopkins community on firing of Hopkins professor (22 July 2019).
 - Both are available as a single document under Course Content on Blackboard.
 - Talia Richman, “Johns Hopkins fires professor accused of sexual misconduct in case marked by delays and campus protests,” *Baltimore Sun* (23 July 2019). Available on blackboard or at: <https://www.baltimoresun.com/education/bs-md-hopkins-professor-sexual-misconduct-20190723-b47amphzi5evfjafxwfu7hoxke-story.html>
 - *Optional*: Chanda Prescod-Weinstein, “Intersectionality as a Blueprint for Postcolonial Scientific Community Building,” *Medium* (24 January 2016).

Week 12: The 1980s to Today – Continued...

- **November 18: Silicon Valley and the Google Memo**
 - James Damore. “Google’s Ideological Echo Chamber.” (July 2017). Approximately 10 pages. PDFs of this document will be made available on Blackboard.
 - Paul Lewis. “‘I see things differently’: James Damore on his autism and the Google memo.” *The Guardian*. (17 November 2017). Available online at:

<https://www.theguardian.com/technology/2017/nov/16/james-damore-google-memo-interview-autism-regrets>>.

- Claire Cain Miller. “Tech’s Damaging Myth of the Loner Genius Nerd.” *The New York Times*. (21 August 2017). Available online at:
<<https://www.nytimes.com/2017/08/12/upshot/techs-damaging-myth-of-the-loner-genius-nerd.html>>.
- Alona King. “No, I Am Not Lost: A Black woman’s experience in the Stanford Computer Science Major.” *The Odyssey*. (20 July 2015). Available online at:
<<https://www.theodysseyonline.com/black-women-in-tech>>.
- **November 20: Bodies, Gender, and what is “Normal”**
 - Leila McNeill, “Disability, Pregnancy, and the Continued Fight for Workers’ Rights,” *Lady Science* (15 July 2016)
<<https://www.ladyscience.com/disabilitypregnancy/6h32y695dbmgkpp28r6pxypc42ysj7>>.
 - Jesse Shanahan, “The Cost of Disclosure: On Being a Woman with a Disability in Geophysics,” *The New Inquiry* (17 August 2017)
<<https://thenewinquiry.com/blog/the-cost-of-disclosure-on-being-a-woman-with-a-disability-in-geophysics/>>.
 - Brad Bolman, “Women Radiobiologists and ‘Standard Man,’” *The New Inquiry* (17 May 2018). <https://thenewinquiry.com/blog/women-radiobiologists-and-standard-man/>
 - Caroline Criado-Perez, “The deadly truth about a world built for men – from stab vests to car crashes,” *The Guardian* (23 February 2019)
<<https://www.theguardian.com/lifeandstyle/2019/feb/23/truth-world-built-for-men-car-crashes>>.
 - **Optional** - Anna Reser, “Astronormate: The Image of Ability in the American Space Program,” *Lady Science* (15 July 2016)
<<https://www.ladyscience.com/aerospace-and-disability/4c3cagwrs8mawm2pw4dsthfmkwz399>>.

Week 13: Presentations/Wrap-Up

- **December 2: Presentations**
 - In this last week we’ll hear from everyone about their final projects in short 5-10 minute presentations. The presentations will not be graded except as part of participation credit.
- **December 4: Finish presentations, concluding conversation**