

LB 333,002
The Historical Relationship of Science and Gender

Mondays / Wednesdays, 10:20AM – 12:10PM
C-103 Holmes

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Hours: Tuesday/Thursday 11:15AM - 12:15PM, or by appointment

In 2005, the president of Harvard University created a storm of controversy when he suggested that the under-representation of women in professional science was due, in part, to their biology. His remarks, though reprehensible, are but one example of the complex relationship between the practice of science and the cultural construction of gender in the West, and this course will explore elements of this relationship from the sixteenth century through to the present day in an effort to understand how each has affected the development of the other. Some of the questions we will consider include: What role has gender played in the identity of individual scientists? How are science and technology themselves gendered by consumerism, advertising, and cultural expectations? How might we understand “masculinist” and “feminist” science, and how do these reflect (or differ from) the way that science is practiced today?

Required Texts:

- Londa Schiebinger, *Nature's Body: Gender in the Making of Modern Science*, 2nd ed. (Rutgers University Press, 2004)
- Coursepack for LB 333,002 (available in the campus bookstore)

Grading Scheme:

5 Pop Quizzes	50 points	
Response Paper (4-5 pages):	50 points	500 – 450 = 4.0 449 – 400 = 3.5
Final Essay (10-12 pages):	150 points	399 – 350 = 3.0 349 – 300 = 2.5
Student Presentations	150 points	299 – 250 = 2.0
Class Attendance/Participation:	100 points	
Total:	500 points	

Participation:

I will use the following guidelines when assessing your final participation score. These are not hard and fast numbers, but merely a baseline I'll use when calculating your final grade.

Excellent attendance, but never speaks	--	30 / 100 points
Excellent attendance, speaks once a week	--	50 / 100 points
Excellent attendance, speaks once every class	--	70 / 100 points
Excellent attendance, speaks often, contributes meaningful ideas and opinions	--	100 / 100 points

Attendance Policy:

I'm a big believer in regular attendance – you can't participate in the class and engage with your peers if you don't show up. You will be allowed one free unexcused absence this semester (an unexcused absence is one that isn't excused by a note from a doctor, counsellor, dentist, professor, etc.); every unexcused absence after that will lose you 5 points from the overall attendance and participation score as listed above. Attendance will be taken in the first minutes of class – if you're not here when attendance is taken, you won't get credit for that day.

Written Work:

All written work for this class will be submitted twice:

- Firstly, to <http://www.turnitin.com>, to ensure that there are no issues with plagiarism. To access our class, you will need the class ID number (**2794898**) and the enrollment password (**waddellm**).
- Secondly, a paper copy to be handed to the instructor, which will be graded and returned.

For every day that an assignment is overdue, you will lose 10 points. A failure to submit your paper to turnitin.com by the deadline will also lose you 10 points. All assignments must be handed in for you to receive a grade in this course; if any assignments are not submitted, your grade for the course will be 0.

Final Deadline:

The final exam for this class is scheduled to end at **12PM on Friday, December 18th**. Even though we will not have a regular exam, this is the *final deadline* for all work in this class – no exceptions will be made.

Cell phones, Laptops, etc.:

In order to minimize distractions and interruptions, this class is an electronics-free zone. If your cell phone goes off during class—even on vibrate—you lose 10 points.

Period. So please turn them off and stow them. Laptops are unnecessary and shouldn't make an appearance.

A Note about the Internet:

My personal policy is that the Internet does *not* constitute a viable source of academic information. With rare exceptions, students will not be allowed to cite websites as legitimate sources – too often, the information sitting on the Internet is not properly reviewed or checked, and it can be difficult to know which sources can be trusted and which cannot. The Net is, however, a valuable way to locate other, legitimate sources of information (books, articles, reviews, *etc.*). When preparing work for this course, please keep this in mind. Papers that rely on Internet sources will be graded accordingly—so if you cite Wikipedia, expect to lose a good portion of your assignment grade.

Academic Integrity and Honesty:

Article 2.3.3 of the *Academic Freedom Report* states that, “The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards.” In addition, the Lyman Briggs College adheres to the policies on academic honesty as specified in General Student Regulations 1.0, *Protection of Scholarship and Grades*; the all-University Policy on *Integrity of Scholarship and Grades*; and Ordinance 17.00, Examinations. (See *Spartan Life: Student Handbook and Resource Guide* and/or the MSU Web site: <http://www.msu.edu>.)

In addition, students in Lyman Briggs are expected to know, understand, and adhere to the Lyman Briggs Academic Honesty Policy, which can be found at the following URL: <http://www.lymanbriggs.msu.edu/current/honorCode.cfm>

Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the www.allmsu.com Web site to complete any course work in LB 333.

Instances of academic dishonesty, including but not limited to cheating, plagiarism, and illegal use of outside and/or copyrighted materials, will result in penalties ranging from a 0 on the assignment to a failing grade in the class and possible disciplinary action. These penalties will be decided by the instructor on a case-by-case basis.

READINGS

Readings marked with [coursepack] are, of course, included in the prepared coursepack which you can purchase from the bookstore. Readings marked with [online] are available through ANGEL, and must be printed off and brought to class.

Week 1 - Sep. 2nd

Wednesday: Introduction to the course and its themes. What is gender, and how is it determined? Why is it important to understand its relationship with science?

Week 2 - Sep. 7th & 9th

Monday: HOLIDAY – NO CLASS!

Wednesday: We'll start with a brief essay about the study of gender and science, and consider both where it came from and where it might be going.

Readings: - Evelyn Fox Keller, "Gender and Science: Origin, History, and Politics," Osiris, 2nd series, vol. 10 (1995), pp. 26-38 [online]

Week 3 - Sep. 14th & 16th

Monday: Picking up in many ways from the ideas presented by Keller, we will consider the possibility of a "gynocentric science" and its suppression by conventional "androcentric science." Does it make sense to think in these terms? Is it useful to understand science in this way?

Readings: - Ruth Ginzberg, "Uncovering Gynocentric Science," Hypatia, vol. 2, no. 3 (1987), pp. 89-105 [online]

Wednesday: Our historical survey begins in the 16th century with the unfortunate case of Anna Zieglerin, a self-proclaimed alchemist who came to a grisly end. As a woman, her professional and intellectual reputation was easily questioned, but she was able to exploit both her sex and her gender in order to gain the patronage of a powerful duke.

Readings: - Tara Nummedal, "Alchemical Reproduction and the Career of Anna Maria Zieglerin," Ambix: The Journal of the Society for the History of Alchemy and Early Chemistry, vol. 49 (July 2001), pp. 56-68 [online]

Week 4 - Sep. 21st & 23rd

Monday: The scientific and medical study of the body was strongly influenced by historical notions of gender and sex. For centuries, the human body was understood to have, effectively, a single sex, onto which ideas about masculinity and femininity were projected by physicians and anatomists. We will examine, first, the history and theory behind this model.

Readings: - Thomas Laqueur, Making Sex: Body and Gender from the Greeks to Freud (Harvard University Press, 1990), Chapter 2 (pp. 25-62) [coursepack]

Wednesday: The one-sex model of human anatomy was required, of course, to correspond with the actual physiology observed in dissections of the body. The lengths to which thinkers went in order to create this correlation are both astonishing and enlightening.

Readings: - Laqueur, Chapter 3 (pp. 63-113) [coursepack]

Week 5 - Sep. 28th & 30th

Monday: Beginning with Linnaeus in the 18th century, relations between plants were cast in obviously gendered and sexual language, despite the fact that most plants are actually hermaphroditic. What were the reasons for this?

Readings: - Schiebinger, *Nature's Body*, Preface and Introduction (pp. ix – 10) and Chapter 1

Wednesday: Most of us have probably never considered where the word “mammal” comes from, but in fact the entire taxonomical division of *Mammalia* has its roots in what Schiebinger calls “the cultural history of the breast.” How did historical notions of gender come to play such a role in shaping our own scientific identity as mammals?

Readings: - Schiebinger, *Nature's Body*, Chapter 2

Week 6 - Oct. 5th & 7th

Monday: Ideas about gender and race both played crucial roles in the historical study of primates, and in Western efforts to separate humanity from beasts. To what extent do some of these ideas remain with us today?

Readings: - Schiebinger, *Nature's Body*, Chapter 3
RESPONSE PAPER DUE

Wednesday: If race worked with gender to shape Western ideas about primates and their position relative to humans in the hierarchy of nature, gender itself also worked *on* notions of race in the 18th and 19th centuries. Masculine characteristics, such as beards, were used as signifiers of racial difference,

while the term *Caucasian* stemmed from one man's ideas concerning female beauty.

Readings: - Schiebinger, *Nature's Body*, Chapter 4

Week 7 - Oct. 12th & 14th

Monday: We have already seen how the study of human anatomy was shaped by historical ideas about gender and sexuality in the 16th and 17th centuries. In the 18th century, human anatomy and, specifically, the quest for sexual difference occupied a great deal of scientific and medical thought.

Readings: - Schiebinger, *Nature's Body*, Chapter 5

Wednesday: In the 19th and early 20th centuries, scientists became interested in finding scientific evidence for sex-linked differences—the idea, in other words, that men and women were not merely biologically different, but that ideals like masculinity and femininity could be linked to biology as well. What drove this interest, and what were the consequences?

Readings: - Londa Schiebinger, *The Mind Has No Sex? Women in the Origins of Modern Science* (Harvard University Press, 1989), Chapter 7 – “More Than Skin Deep: The Scientific Search for Sexual Difference” (pp. 189-213) [**coursepack**]

Week 8 - Oct. 19th & 21st

Monday: It is perhaps unsurprising that some scientists today remain interested in establishing “masculine” and “feminine” biologies, and linking these findings with various kinds of behavior, including sexual orientation. Are there problems with this kind of science? Why or why not?

Readings: - Beth Skwarecki, “Mad Science: Deconstructing Bunk Reporting in 5 Easy Steps,” from *Bitch* magazine, no. 39 (Spring 2008) [**handout**]
- Anya C. Hurlbert and Yazhu Ling, “Biological components of sex differences in color preference,” *Current Biology*, vol. 17, no. 16 (2006) [**online**]

Wednesday: Evelyn Fox Keller and others have argued that language is incredibly powerful. But what happens when we never notice the gendered language of science? Are its effects more powerful, or less? These are questions we will consider as we examine the language used to describe human reproduction at the cellular level.

Readings: - Emily Martin, “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*, vol. 16, no. 3 (1991), pp. 485-501 [**online**]

Week 9 - Oct. 26th & 28th

Monday: Is it possible that the way in which science was constructed and created made the exclusion of women from rational, intellectual pursuits seem both inevitable and justified? Evelyn Fox Keller suggested as much about the 17th century, and Londa Schiebinger now argues the same about the 19th and 20th centuries.

Readings: - Schiebinger, The Mind Has No Sex?, Chapter 10 – “The Exclusion of Women and the Structure of Knowledge” (pp. 265-278) [**coursepack**]

Wednesday: One of the classic examples of the exclusion of women from scientific discovery is the experience of Rosalind Franklin, the colleague of James Watson and Francis Crick whose work confirmed their theory concerning the structure of DNA but who was dismissed by her male colleagues as “difficult” and unattractive. How is Franklin’s story still relevant today?

Readings: - Sarah Rapoport, “Rosalind Franklin: Unsung Hero of the DNA Revolution,” The History Teacher, vol. 36, no. 1 (2002), pp. 116-127 [**online**]

Week 10 - Nov. 2nd & 4th

Monday: We’ve already seen numerous examples of science becoming gendered both in its practices and in its language, and this is reflected in a particular kind of science that some scholars have identified as “masculine”. What does this mean, exactly, and how can it help us better to understand science today?

Readings: - Alison Kelly, “The Construction of Masculine Science,” British Journal of Sociology of Education, vol. 6, no. 2 (1985), pp. 133-154 [**online**]

Wednesday: The ideal of masculine science, and its accompanying vision of the strong, masculine scientist, can perhaps be exemplified best by the American pursuit of nuclear technologies in the middle of the 20th century. How were gendered assumptions and ideas built into this kind of science, and what were the consequences?

Readings: - Brian Easlea, “Patriarchy, Scientists, and Nuclear Warriors,” in Janet A. Kourany, ed., The Gender of Science (Prentice Hall, 2002), pp. 98-111 [**coursepack**]

Week 11 - Nov. 9th & 11th

Monday: The postwar period in America was marked by a new optimism in the possibilities of technology, and this was perhaps most evident in the rise of technologies designed for use in the American home of the 1950s. Advertising and exhibitions targeted a growing consumer population:

women. We will examine what these technologies promised to American families, and how they remained intertwined with contemporary notions of gender and domesticity.

Readings: - Laura Scott Holliday, "Kitchen Technologies: Promises and Alibis, 1944-1966," Camera Obscura, vol. 16, no. 2 (2001), pp. 78-131 [**online**]

Wednesday: It is not merely technologies themselves that shape public notions of gender, but also—perhaps *especially*—the ways in which these technologies are advertised. Should we strive to be more conscious and critical of advertising as it relates to gender and technology?

Readings: - Sarah S. Jain, "Violent Submission: Gendered Automobility," Cultural Critique, no. 61 (Fall 2005), pp. 186-214 [**online**]

Week 12 - Nov. 16th & 18th

Monday: The numbers of women scientists continue to rise, but some are concerned that this increase is still proceeding too slowly. We will look at the numbers, and consider whether more needs to be done to create sexual equality amongst scientists.

Readings: - Sally Kohlstedt, "Sustaining Gains: Reflections on Women in Science and Technology in 20th-Century United States," NWSA Journal, vol. 16, no. 1 (2004), pp. 1-26 [**online**]

Wednesday: Class time provided for preparation of end-of-semester presentations.

Week 13 - Nov. 23rd & 25th

Monday: In 2005, the president of Harvard, Lawrence Summers, addressed the NBER Conference on Diversifying the Science & Engineering Workforce. His remarks created a firestorm of controversy and ultimately led to his being fired as Harvard's president. We will examine what Summers said, and consider its implications.

Readings: - Lawrence Summers, "Remarks at NBER Conference on Diversifying the Science & Engineering Workforce" [**online**]

Wednesday: What are the challenges and obstacles faced by women scientists today? Several female faculty members from Briggs will join us to discuss their experiences as well as their thoughts on where we need to go from here.

Week 14 - Nov. 30th & Dec. 2nd

Student Presentations

Week 15 - Dec. 7th & 9th

Presentations / Conclusions