

Seminar on Gender and Science

WOM 393

Prof. Angela N. H. Creager
Office hours 2:00–3:00 pm M, 1:30-2:30 pm Tu
125 Dickinson Hall, ext. 1680

Fall 2009
W 1:30–4:20 p.m.
101 Marx Hall

Course Description

Why has science traditionally been a man's domain? What are the consequences of that? Have the growing numbers of women practitioners in many fields changed the culture of science? This course will start with the sex/gender distinction and both its promise and problems for understanding developments in science. We examine the historic systematic exclusion of women from science, while stressing that science has not been unique in its failure to welcome women as participants. Given that feminist critiques have been circulating for twenty-five years, we also ask how they have impacted science so far—and how feminism has challenged or changed technology and medicine as well. Our readings will include both classic works of feminist scholarship on science, medicine, and technology and current work, including perspectives on sexuality and science. This course is intended both to familiarize students with the scholarly issues around gender and science and to allow students to reflect on their own (gendered) experiences and expectations in encountering science as students, laboratory workers, patients, and consumers.

Course Requirements

Students are expected to read the assigned selections fully in preparation for seminar, and to post a page-long response to the readings on Blackboard at least five times during the semester. These responses will be due Tuesdays at 5 p.m. (in advance of the next day's afternoon seminar). In addition to these responses and your regular, vociferous participation in the discussions, two papers are required. The first paper is a biographical sketch (5–7 pages, due 5 p.m. Monday, Nov. 16, 2009) of the life and work of a woman scientist or natural philosopher. Students are urged to consult available primary and secondary source material, including any published papers or books by the scholar. In addition, the archives or national libraries where relevant manuscripts are available should be cited (if applicable). Where biographies have already been written on the subject, the student should comment on the adequacy of the biographical depictions available in the literature.

In the final paper (15–25 pages, due 3 p.m. Dean's Date, Jan. 12, 2010; extensions *only* through Dean's Office), students are expected to engage the scholarship on gender and science analytically. The specific topic may be one that we are covering in the syllabus or a topic of the student's interest. For example, the paper might be a thoughtful literature review, an examination of past or current gender issues in science, or an analysis, informed by feminist theory or perspectives, of a current problem in scientific or medical research.

The following required books are on sale at Labyrinth, as well as on reserve in Firestone. All other assigned readings are available on E-reserves through Blackboard.

Londa Schiebinger, *The Mind Has No Sex?*, Harvard University Press, 1989.

Anne Fausto-Sterling, *Sexing the Body*, Basic Books, 2000.

Joan Cassell, *The Woman in the Surgeon's Body*, Harvard University Press, 1998.

Angela N. H. Creager, Elizabeth Lunbeck, and Londa Schiebinger, eds., *Feminism in Twentieth-Century Science, Technology, and Medicine*, University of Chicago Press, 2001.

Rachel P. Maines, *The Technology of Orgasm*, Johns Hopkins Press, 1998.

Readings and Class Schedule

Please note that assigned readings should be completed before the week's precept meeting. **The name under which each reading is listed in E-reserves is bolded.**

Week 1. (9/23) Introducing Seminar Themes: Why Gender and Science?

Video: Bill Moyers' interview with Evelyn Fox Keller from "A World of Ideas"

Week 2. (9/30) The Sex/Gender Distinction and Its Legacy for Science Studies

Anne Fausto-Sterling, "Dueling Dualisms," *Sexing the Body*, chapter 1.

Joan Wallach **Scott**, "Gender: A Useful Category of Historical Analysis," from *Gender and the Politics of History* (New York: Columbia University Press, 1988): 28–50.

Evelyn Fox **Keller**, "The Gender/Science System: Is Sex to Gender as Nature is to Science?," in Nancy Tuana, ed., *Feminism and Science* (Bloomington: Indiana University Press, 1990), pp. 33–44.

Genevieve **Lloyd**, "Reason, Science and the Domination of Matter," in Evelyn Fox Keller and Helen Longino, eds., *Feminism & Science* (New York: Oxford University Press, 1996), pp. 41–53.

Robert J. **Stoller**, "A Contribution to the Study of Gender Identity," *International Journal of Psycho-Analysis* **45** (1964): 220–226.

Moira **Gatens**, "A Critique of the Sex/Gender Distinction," in Sneja Gunew, ed., *A Reader in Feminist Knowledge* (London: Routledge, 1991), pp. 139–157.

Judith **Butler**, "The Compulsory Order of Sex/Gender/Desire" and "Identity, Sex, and the Metaphysics of Substance," from *Gender Trouble: Feminism and the Subversion of Identity* (New York: Routledge, 1990), pp. 6–7, 16–25.

Elizabeth **Week**, "Introduction," and Judith Butler, "Against Proper Objects," in Elizabeth Week and Naomi Schor, eds., *Feminism Meets Queer Theory* (Bloomington, IN: Indiana University Press, 1997), pp. vii–xiii, 1–30.

A. Women and the History of Science, Technology, and Medicine

Week 3. (10/7) The History of Science as a Manly Vocation

Londa Schiebinger, *The Mind Has No Sex?*, Introduction and Chapters 1, 2, 3, and 7.

Evelyn Fox **Keller**, "Spirit and Reason at the Birth of Modern Science," from *Reflections on Gender and Science* (New Haven: Yale University Press, 1985), pp. 43–65.

Jan **Golinski**, "The Care of the Self and the Masculine Birth of Science," *History of Science* **40** (2002): 125–145.

Mary **Terrall**, "Gendered Spaces, Gendered Audiences: Inside and Outside the Paris Academy of Sciences," *Configurations* **2** (1995): 207–232.

Sharon **Traweek**, "Pilgrim's Progress: Male Tales Told During a Life in Physics," *Beamtimes and Lifetimes: The World of High Energy Physics* (Cambridge, MA: Harvard University Press, 1988), Chapter 3.

Week 4. (10/14) Overcoming the Odds: 19th and 20th Century Women Scientists and Physicians

Note: We will meet with Emily Belcher, bibliographer for women and gender, in Firestone Library foyer for a session from 1:30-2:30 pm on this day.

Margaret **Rossiter**, *Women Scientists in America: Struggles and Strategies to 1940* (Baltimore: The Johns Hopkins University Press, 1982), Introduction, Chapters 1, 2, 5, and Conclusion.

Ellen M. **More**, Elizabeth Fee, and Manon Perry, "New Perspectives on Women Physicians and Medicine in the United States, 1849 to the Present," in Ellen M. More, Elizabeth Fee, and Manon Perry, *Women Physicians and the Cultures of Medicine* (Baltimore, MD: Johns Hopkins University Press, 2009), pp. 1–20.

Carla **Bittel**, "Mary Putnam Jacobi and the Nineteenth-Century Politics of Women's Health Research," in *Women Physicians and the Cultures of Medicine*, pp. 23–51.

Edward H. **Clark**, *Sex in Education; Or, A Fair Chance for Girls* (Boston: Houghton, Mifflin, and Co., 1882), pp. 11–60.

Evelyn Fox **Keller**, "A World of Difference," from *Reflections on Gender and Science* (New Haven: Yale University Press, 1985), pp. 158–176.

Nina V. **Federoff**, "Two Women Geneticists," *American Scholar* **65** (1996): 587–592.

In addition, each of you will read and report on one of these biographical sketches (the books are on reserve, not E-reserves):

Sally Gregory Kohlstedt, "Maria Mitchell and the Advancement of Women in Science," in *Uneasy Careers and Intimate Lives: Women in Science, 1789–1979*, edited by Pnina G. Abir-Am and Dorinda Outram (New Brunswick: Rutgers University Press, 1987), pp. 129–146.

Joy Harvey, "'Strangers to Each Other': Male and Female Relationships in the Life and Work of Clémence Royer," in *Uneasy Careers and Intimate Lives*, pp. 147–171.

Ann Hibner Koblitz, "Career and Home Life in the 1880s: The Choices of Mathematician Sofia Kovalevskaia," in *Uneasy Careers and Intimate Lives*, pp. 172–190.

Helena M. Pycior, "Marie Curie's 'Anti-natural Path': Time Only for Science and Family," in *Uneasy Careers and Intimate Lives*, pp. 191–215.

Peggy Kidwell, "Cecilia Payne-Gaposchkin: Astronomy in the Family," in *Uneasy Careers and Intimate Lives*, pp. 216–238.

Pnina G. Abir-Am, "Synergy or Clash: Disciplinary and Marital Strategies in the Career of Mathematical Biologist Dorothy Wrinch," in *Uneasy Careers and Intimate Lives*, pp. 239–280.

Penina Migdal Glazer and Miriam Slater, "The Promise of New Opportunities in Science," *Unequal Colleagues: The Entrance of Women into the*

Professions, 1890–1940 (New Brunswick: Rutgers University Press, 1987), pp. 119–164.

Marsha L. Richmond, “Women in the Early History of Genetics: William Bateson and the Newnham College Mendelians, 1900–1910,” *Isis* 92 (2001): 52–90.

Maria Rentetzi, “Gender, Politics, and Radioactivity Research in Interwar Vienna: The Case of the Institute for Radium Research,” *Isis* 95 (2004): 359–393.

Arleen Tuchman, “Situating Gender: Marie E. Zakrzewska and the Place of Science in Women’s Medical Education,” *Isis* 95 (2004): 34–57.

Judy Tzu-Chun Wu, “A Chinese Woman Doctor in Progressive Era Chicago,” in *Women Physicians and the Cultures of Medicine*, pp. 89–112.

Ellen S. More, “Professionalism versus Sexuality in the Career of Dr. Mary Steichen Calderone, 1904–1998,” in *Women Physicians and the Cultures of Medicine*, pp. 113–137.

Week 5. (10/21) Contemporary Science: Does Gender Still Matter? What about Race?

Professor Elizabeth Gavis, of the Department of Molecular Biology, will visit the class to discuss the current experiences of women in science, especially at Princeton.

Ben A. **Barres**, “Does Gender Matter?” *Nature* **442** (July 13, 2006): 133–136.

Henry **Etzkowitz**, Carol Kemelgot, Michael Neuschatz, Brian Uzzi, and Joseph Alonza, “The Paradox of Critical Mass for Women in Science,” *Science* 266 (1994): 51–54.

Evelyn Fox Keller, “The Anomaly of a Woman in Physics,” from *Working It Out: 23 Women Writers, Artists, Scientists, and Scholars Talk About Their Lives and Work*, eds. Sara **Ruddick** and Pamela Daniels (New York: Pantheon Books, 1977), p. 78–91.

Shirley **Tilghman**, “Science vs. the Female Scientist” and “Science vs. Women – A Radical Solution,” *New York Times* editorials, January 25 and 26, 1993. (Note: these are two entries on E-reserves.)

C. Megan **Urry**, “Are Photons Gendered? Women in Physics and Astronomy,” in *Gendered Innovations in Science and Engineering*, ed. Londa Schiebinger (Stanford, CA: Stanford University Press, 2008), pp. 150–164.

Christine **Wennerås** and Agnes Wold, “Nepotism and Sexism in Peer-Review,” *Nature* 387 (1997): 341–343.

Erica **Frank**, Elizabeth Fee, Manon Perry, and Ellen S. More, “Opportunities and Obstacles for Women Physicians in the Twenty-First Century,” in Ellen M. More, Elizabeth Fee, and Manon Perry, *Women Physicians and the Cultures of Medicine* (Baltimore, MD: Johns Hopkins University Press, 2009), pp. 319–341.

Evelynn **Hammonds** (interview by Aimee Sands), “Never Meant to Survive: A Black Woman’s Journey,” from *The “Racial” Economy: Towards a Democratic Future*, ed. Sandra Harding (Bloomington: Indiana University Press, 1993), pp. 239–248.

Week 6. (10/28) Women's History and the History of Technology:
Interactions and Contradictions

Donna **Haraway**, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," from *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), pp. 149–181.

Carol **Cohn**, "Sex and Death in the Rational World of Defense Intellectuals," *Signs* 12 (1987): 687–718.

Hugh **Gusterson**, "Becoming a Weapons Scientist," from *People of the Bomb: Portraits of America's Nuclear Complex* (St. Paul, MN: University of Minnesota Press, 2004), pp. 3–20.

Carroll Pursell, "Feminism and the Rethinking of the History of Technology," in *Feminism in Twentieth-Century Science, Technology, and Medicine*, eds. Angela N. H. Creager, Elizabeth Lunbeck, and Londa Schiebinger (Chicago: University of Chicago Press, 2001), pp. 113–127.

Ruth Oldenziel, "Man the Maker, Woman the Consumer: The Consumption Junction Revisited," in *Feminism in Twentieth-Century Science, Technology, and Medicine*, pp. 128–148.

Michael S. Mahoney, "Boys' Toys and Women's Work: Feminism Engages Software," in *Feminism in Twentieth-Century Science, Technology, and Medicine*, pp. 169–185.

Tatiana Butovitsch Temm, "If You Meet the Expectations of Women, You Exceed the Expectations of Men: How Volvo Designed a Car for Women Customers and Made World Headlines," in *Gendered Innovations in Science and Engineering*, ed. Londa **Schiebinger** (Stanford, CA: Stanford University Press, 2008), pp. 131–149.

Fall recess (11/4)

Week 7. (11/11) The World of Medicine I.: Physicians and Patients
Embodied

Joan Cassell, *The Woman in the Surgeon's Body* (Cambridge, MA: Harvard University Press, 1998).

Nelly Oudshoorn, "On Bodies, Technologies, and Feminisms," in *Feminism in Twentieth-Century Science, Technology, and Medicine*, pp. 199–213.

Elizabeth A. **Wilson**, "Gut Feminism," *differences* 15 (2004): 66–94.

Monday, Nov. 16: first paper due

Week 8. (11/18) The World of Medicine II.: The Consumption Junction

Ruth Schwartz Cowan, "Medicine, Technology, and Gender in the History of Prenatal Diagnosis," in *Feminism in Twentieth-Century Science, Technology, and Medicine*, pp. 186–198.

Rachel P. Maines, *The Technology of Orgasm: "Hysteria," the Vibrator, and Women's Sexual Satisfaction* (Baltimore: Johns Hopkins Press, 1998).

Amy **Hairston**, "The Debate Over Twilight Sleep: Women Influencing Their Medicine," *Journal of Women's Health* 5 (1996): 489–499.

No class Wednesday, Nov. 25 due to Thanksgiving; reschedule during reading week.

B. Feminism and the Sciences

Week 9. (12/2) "Making Sex": Differences and Their Discontents

Suzanne J. **Kessler**, "The Medical Construction of Gender: Case Management of Intersexed Infants," *Signs* 16 (1990): 3–26.

Jennifer **Terry**, "Anxious Slippages between 'Us' and 'Them': A Brief History of the Scientific Search for Homosexual Bodies," in *Deviant Bodies: Critical Perspectives on Difference in Science and Popular Culture*, eds. Jennifer Terry and Jacqueline Urla (Bloomington, IN: Indiana University Press, 1999), pp. 129–169.

Stephanie H. **Kenen**, "Who Counts When You're Counting Homosexuals? Hormones and Homosexuality in Mid-Twentieth-Century America," in Vernon Rosario, ed., *Science and Homosexualities* (New York: Routledge, 1997), pp. 197–218.

Angela M. L. **Pattatucci** and Dean Hamer, "The Genetics of Sexual Orientation: From Fruit Flies to Humans," in Paul R. Abramson and Steven D. Pinkerton, eds., *Sexual Nature /Sexual Culture* (Chicago: University of Chicago Press, 1995), pp. 154–174.

Anne Fausto-Sterling. *Sexing the Body* (New York: Basic Books, 1992), chapters 2, 3, 4, and 9, plus a chapter of your choice among the others (5–8).

Week 10. (12/9) Scrutinizing Science: Critiques of/in Biology

Note: Final paper proposal due this week (1 paragraph).

Alison Wylie, "Doing Social Science as a Feminist: The Engendering of Archaeology," in *Feminism in Twentieth-Century Science, Technology, and Medicine*, pp. 23–45.

Emily **Martin**, "The Egg and the Sperm: How Science Has Constructed a Romance Based on Stereotypical Male-Female Roles," *Signs* 16 (1991): pp. 485-501.

Sarah S. **Richardson**, "When Gender Criticism Becomes Standard Scientific Practice: The Case of Sex Determination Genetics," in *Gendered Innovations in Science and Engineering*, ed. Londa Schiebinger (Stanford, CA: Stanford University Press, 2008), pp. 22–42.

Elizabeth A. **Wilson**, "Introduction: Somatic Compliance—Feminism, Biology and Science," *Australian Feminist Studies* 14:29 (1999): 7–18.

Elisabeth A. **Lloyd**, "Pre-Theoretical Assumptions in Evolutionary Explanations of Female Sexuality," *Philosophical Studies* 69 (1993): 139–153.

Vernon A. **Rosario**, "Homosexual Bio-Histories: Genetic Nostalgias and the Quest for Paternity," in *Science and Homosexualities*, ed. Vernon A. Rosario (New York: Routledge, 1997), pp. 1–25.

Week 11. (12/16) Primateology and Developmental Biology: "Pink-Ribbon" Sciences?

On this day we will also view and discuss a video entitled "The National Geographies of Primates" by Donna Haraway on her cultural interpretation of primatology in twentieth-century global history.

Linda Marie Fedigan, "The Paradox of Feminist Primatology: The Goddess's Discipline?" in *Feminism in Twentieth-Century Science, Technology, and Medicine*, pp. 46–72.

Donna **Haraway**, "Introduction: The Persistence of Vision," "Women's Place is in the Jungle," "Jeanne Altmann: Time-Energy Budgets of Dual-Career Mothering," and "Sarah Blaffer Hrdy," from *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (New York: Routledge, 1989), pp. 1–15, 279–315, 349–367.

Alison **Jolly** and Margaretta Jolly, "A View from the Other End of the Telescope," *New Scientist* 58 (21 April 1990): 58.

Scott F. Gilbert and Karen A. Rader, "Revisiting Women, Gender, and Feminism in Developmental Biology," in *Feminism in Twentieth-Century Science, Technology, and Medicine*, pp. 73–97. [Required book]

Evelyn Fox **Keller**, "Developmental Biology as a Feminist Cause?" *Osiris* 12 (1997): 16–28.

Week 12. (1/6) Alternative Visions: Toward Feminist Science?

Donna **Haraway**, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," from *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), pp. 183–202.

Charis **Thompson**, "Stem Cells, Women, and the New Gender and Science," in *Gendered Innovations in Science and Engineering*, ed. Londa Schiebinger (Stanford, CA: Stanford University Press, 2008), pp. 109–130.

Carol Muske Dukes, *Saving St. Germ* (New York: Viking Penguin, 1994).