

WMST/IDST 140 Women and Science Syllabus Spring 2005

It is the responsibility of every student registered in this course to be familiar with these guidelines.

Instructor: Loretta Johnson, Olds-Upton 210B, ljohnson@kzoo.edu, x5722
Class Meetings: Monday, Wednesday, Friday 1:15 – 2:30, Olds-Upton 216
Office Hours: M 2:30 – 4, W 11 – 12, Th 10 - 11
Texts: Myra Sadker, David Sadker, Failing at Fairness: How Schools Cheat Our Girls.
Margaret Alic, Hypatia's Heritage: A History of Women in Science From Antiquity Through the Nineteenth Century.
Margaret Rossiter, Women Scientists in America: Before Affirmative Action.
Sharon Bertsch McGrayne, Nobel Prize Women in Science.
Lederman and Bartsch, The Gender and Science Reader.
Mayberry, Subramaniam, and Weasel, Feminist Science Studies.
Derry, What Science is and How it Works.
Also required is a journal book; a lab notebook is preferred. If you have a partially-used lab notebook, I encourage you to use paperclips to mark the section for this course. Some blank or previously-used notebooks will be provided for those who have none.

Course Content and Objective: In addition to tracing the history of women's participation in science and the cultural and economic barriers to women in science, we will examine some of the insights women have brought to the field because of their identity and experiences as women. We will study the similarities between women (as minorities in science) and racial minorities in science, and consider the particular difficulties faced by female racial minorities in science. We will discuss the ways that our changing definitions of science specifically exclude work done by women as well as people in many Third World countries. Throughout the term, we will investigate the ways that various issues surrounding women and science affect the women in our classes and our/their younger sisters, particularly through direct observation of and work with girls in science/math classrooms.

This course will draw on and build your knowledge of women's studies as it introduces you to applications in science and history of science. Through involvement in class discussion (which implies attendance), journals, and the project, you will:

1. develop an understanding of the ways science has viewed women and how these views prevented women from entering scientific careers or affected women practicing science,
2. form a picture of how women through the ages were able to enter and succeed in science despite roadblocks,
3. observe and help girls learning science and math in our community,
4. become the local expert on some particular aspect of women and science,
5. continue sharpening the oral, written, library research, and critical thinking skills necessary in virtually all courses and professions.

Schedule: Details regarding the schedule will be provided periodically. The first few weeks are included at the end of this document.

Any student who must miss a class for approved activities (e.g. sports) must contact the instructor as soon as possible – preferably before the absence.

Grades: The grade scale is 90 – 100 A, 80 – 90 B, 70 – 80 C, 60 – 70 D.

Leading Class Discussion	10%
Participating in Class	20%
Oral Presentations	10%
Journal and Service Learning	25%
Project	<u>35%</u>
	100%

Students who suspect they have a disability that might influence their experience with the course should identify themselves to the instructor during the first week of class. Upon prompt notification, every effort will be made to accommodate unusual situations.

In-Class Discussion: Part of most class sessions will be led by students; assigned names and dates will be announced well in advance. These leaders are expected to develop a list of questions they believe will be interesting for class discussion (I am available for consultation by e-mail, phone, and in person), and to e-mail these questions to the rest of the class *no later than 24 hours before class*. The leaders may also assign specific responsibilities to other students if they do so *more than 48 hours* before class (e.g. if there is to be a debate, panel discussion, play). Discussion leaders must also notify me in advance if they need AV equipment or intend to take the class session someplace other than our assigned room. During class, leaders are responsible for ensuring that discussion moves forward and covers the readings for that day, as well as for ensuring that everyone in the class has the opportunity to speak (which means no one, including the leaders, may dominate the time). *Everyone in class is expected to participate in the discussion every time we meet*. For those who have difficulty asserting themselves, I recommend writing down brief notes on several of the questions so that this will be less hard. If you know you will be absent on a day when you are discussion leader, find someone to swap with and let me and the other discussion leaders of those days know.

A large portion of this class depends upon reading common materials and discussing them. If at any time I sense that a sizable number of students may not have done the reading, I may give a pop quiz over the readings for that day. Because I realize that on any given day, someone is likely to have good reason to have not completed *all* the readings, each quiz will be composed of two questions; answering either one correctly will result in 80% credit and answering both correctly will give 100% credit for that day's class participation grade. Discussion leaders are exempt from the quiz; instead they will sign and turn in their list of questions to earn full credit for the day.

Oral Presentations: Early in the term I will assign each student a different article or chapter to read and report on to the class, in a presentation lasting 2 – 3 minutes. Later in the term, pairs of students will be assigned a chapter, and each pair may decide whether to give a joint presentation 8 – 10 minutes long or individual presentations 3 – 5 minutes long. Further details will be provided later.

Journals: Periodically I will collect lab notebooks in which you record your comments on the science/math classrooms, your answers to specific questions I pose for the journals, anything you don't feel comfortable sharing with the whole class, anything you think would be of particular interest to me, and comments on the progress of your project. Also anything else you feel like, including sketches, taped-in newspaper articles, and random questions.

Service Learning Component: All students will observe science or math classes for at least five hours during the term (making notes in your lab notebook during the class), and work with (tutoring, designing science fair projects, etc.) students at least ten hours during the term (writing notes in your lab notebook during or after the sessions). Up to 2 hours of the “observation” time may be orientation or assisting a teacher setting up equipment.

This work with school children (Woodward or Hillside) may be incorporated into the Project, but students must then produce a paper 10 – 15 pages long that uses references to published books and journal articles on girls and science education, in addition to references to your own notes from class observation and tutoring. Students choosing a Project topic related to working with school children are strongly urged to spend additional time with children, preferably with a different grade level; we can make arrangements with another school if you want to compare, say, junior high students to 4th graders. More information about service learning will be handed out separately.

Projects: Each student will select a topic of particular interest to study throughout the term. This gives you an opportunity to make connections between the readings for class and a topic you are particularly interested in. The final product will be a paper 8 to 12 pages long (double-spaced). I encourage you to consider a topic related to one of Kalamazoo College’s particular strengths, e.g. the strong study abroad program, the history of science book collection, service learning. Further information about the project will be handed out separately. I have placed on reserve at the library several books which contain collections of articles on diverse subjects related to women and science, so scanning the tables of contents and reading a chapter or two may inspire you (the same could be said of our class texts).

Assignments: These will be posted on the website (<http://cc.kzoo.edu/~ljohnson/140Spr/>) periodically. This week I will lead discussion; after that, discussion leadership will rotate among class members. Generally discussion leaders will have about an hour of class time, and I’ll have issues for the remaining 15 minutes. Sometimes I’ll give you assignments related to the reading, for example, see below.

Assigned topic for journal week 1: Summarize and provide page numbers for those ideas which seem to you to be most useful to keep in mind while at WSTAR (hint: you’re most likely to find these in Sadker & Sadker).

Week 1

Monday: Introductions and popular images of women scientists.

Wednesday: Women’s science education and its history.

Alic, *Introduction, Goddesses and Gatherers: Women in Prehistory, Women and Science in the Ancient World, From the Alexandrians to the Arabs.*

Rossiter, *Introduction.*

Sadker, *Preface, Hidden Lessons, Through the Back Door: The History of Women’s Education.*

Friday: Interactions, images, and self-images.

Alic, *Medicine and Alchemy: Women and Experimental Science in the Middle Ages, ‘The Sibyl of the Rhine’, The Rise of the Scientific Lady.*

Mayberry, Subramaniam, and Weasel, *Adventures Across Natures and Cultures: An Introduction.*

Sadker, *Missing in Interaction, The Self-Esteem Slide.*

Week 2

Monday: Self-image, society's image, and evaluation.

Sadker, *High School: In Search of Herself, Test Dive*.

Lederman and Bartsch, *Introduction, Women in Science*.

Eisenhart and Finkel, *Women (Still) Need Not Apply*.

Alic, *From Alchemy and Herbs: Chemists and Physicians of the Scientific Revolution, The New Naturalists, The Women Astronomers*.

Wednesday: Robin Rank on finding information on women and science using College resources.

Derry, *Preface, Prologue*.

Friday: Making way for men and strategies to avoid doing so.

Rossiter, *World War II: Opportunity Lost?*

Sadker, *Higher Education: Colder by Degrees, The Miseducation of Boys*.

Jones and Scantlebury, *Feminist Leadership in the Academy: Innovations in Science Education*

Week 3

Monday: What laws and single-sex education can and can't accomplish.

Sadker, *Different Voices, Different Schools, The Edge of Change*.

Rossiter, *Postwar "Adjustment": Displacement and Demotion*.

Alic, *The Philosophers of the Scientific Revolution*.

Derry, *Exploring the Frontiers of Science, A Bird's Eye View*.

Minilab: Radiation.

Wednesday: Degrees, recognition, and difference.

Alic, *The Nineteenth-Century Mathematicians, The Popularisation and Professionalisation of Science, Epilogue*.

Brainard and Carlin, *A Six-Year Longitudinal Study of Undergraduate Women in Engineering and Science*.

Silverman, *NSF Employment Study Confirms Issues Facing Women, Minorities*.

Wenneras and Wold, *Nepotism and Sexism in Peer-Review, Science and Identity*.

Lederman and Bartsch, *Science and Identity*.

Birke, *In Pursuit of Difference: Scientific Studies of Women and Men*.

Derry, *Nature's Jigsaw*.

McGrayne, *Author to Reader, A Passion for Discovery, Afterward*.

Minilab: Air Pressure.

Friday: Reflection Day – Woodward, paper topics and sources, oral presentation discussion; discussion of Derry; discussion of feminism.

Derry, *New Vistas, Close, But No Cigar, Ingredients for a Revolution*.

Another reading TBA.

Minilabs: Superconductivity, Telescopes & Microscopes.

Three potential paper topics due by 5 p.m.: Ten to fifty words describing each potential topic.

Whenever the Day of Gracious Living occurs, our schedule will slide forward a day, BUT Fridays starting week 3 will remain reflection days, so Wednesday will slide to the following Monday.

This document, along with most other class handouts will be available on the web.