WMST/IDSY 140 Women and Science Spring 2006

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: MWF 2:40 - 3:55, Olds-Upton 216; Fridays minilabs are 2:40 - 3:10 and focus groups meet 3:10 - 3:55
Office Hours: M 10 - 11:30, T 10 - 11:30, W 9 - 10:30
Required Texts: Wyer, Barbercheck, Giesman, Öztürk & Wayne, eds., Women, Science, and Technology
Keller & Longino, eds., Feminism and Science
Education Texts: Sadker and Sadker, Failing at Fairness
Lehn, What is a Scientist?
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. Blank or previously-used notebooks will be provided for those who have none.
History Texts: Rossiter, Women In Science: Struggles and Strategies to 1940
Alic, Hypatia's Heritage
McGrayne, Nobel Prize Women in Science
Boundaries Texts: Fausto-Sterling, Myths of Gender
Harding, Whose Science? Whose Knowledge?
Minilab: Fridays 2:40 - 3:10, Olds-Upton 216, everyone, every week
Class E-mail: TBA
Class Website: see Moodle

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 the history of science. Through involvement in class discussion (which implies attendance) and writing, 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 science despite roadblocks,
3. observe and help girls learning science 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 classes and professions.

Schedule: Here is a sketch of the class:

**Week 1** - Introductions and framing the class. Friday everyone will attend minilab at 2:40, and the education group will remain after the minilab for a focus group meeting and to sign up to visit/watch/work at Woodward.

**Week 2** - Some relatively recent history, stereotyping, and feminism. Friday everyone will attend minilab at 2:40, and the history group will remain after the minilab for a focus group meeting.

**Week 3** - Language and how its use affects definitions of gender and science. Friday everyone will attend minilab at 2:40, and the boundaries group will remain after the minilab for a focus group meeting.

**Week 4** - Language, psychology, and sociology, and how they shape how we think about science and how scientists think. Friday everyone will attend minilab at 2:40, and the education group will remain after the minilab for a focus group meeting; by now education group members will have had orientation at Woodward and probably spent time with students there - bring your journal/lab notebook so we can reflect as a group.

**Week 5** - Various issues related to race and biology. Friday everyone will attend minilab at 2:40, and the history group will remain after the minilab for a focus group meeting.

**Week 6** - Current and potential intersections of feminism and science. Friday everyone will attend minilab at 2:40, and the boundaries group will remain after the minilab for a focus group meeting.

**Week 7** - Epistemology and other reasons why women might do science differently than men. Friday everyone will attend minilab at 2:40, and the education group will remain after the minilab for a focus group meeting; bring your journal/lab notebook so we can reflect as a group.

**Week 8** - Gender, hormones, and dualities. Friday everyone will attend minilab at 2:40, and the history group will remain after the minilab for a focus group meeting.

**Week 9** - How boys are socialized to become men and how women can participate in science because of or despite their socialization. Friday everyone will attend minilab at 2:40, and the boundaries group will remain after the minilab for a focus group meeting.

**Week 10** - Reframing the course and our conceptions of women and of science. Friday everyone will attend minilab for the entire 75 minutes because it will take that long to make enough liquid-nitrogen ice cream for everyone; those of you who have made liquid-nitrogen ice cream in the past are asked to help me and the TAs instruct the rest of the class.

**Week 11** - Final papers are due at our "final exam" time. Any late work will be accepted (at a penalty) until our "final exam" time. If I feel a quiz is necessary, it will take place at our designated time.

Further details regarding the schedule will be provided periodically. Specifics about the first three 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.

- Participating in Class: 25%
- Participating in Focus Group: 15%
- Participating in Minilab: 10%
- Service Learning: 10%
- Short Papers (3): 15%
- Project: 25%
- Total: 100%

Anyone who misses class for a valid reason (e.g. illness, sports) may submit an additional short paper to make up for it; contact me for more details. Anyone who misses a minilab must make it up - contact me to schedule a time. Late work will be accepted but penalized by 5% per day late. If it becomes necessary for me to give a quiz, that quiz grade will affect the relevant participation portion of the grade.

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: Each day when you arrive at class, you will draw the name of one of the four women-scientists-of-the-day, which will place you into one of the four groups. I will also draw a name to be placed into one of the groups. On each table will be a brief description of one woman scientist; you will sit at the table with the description of the woman whose name you drew. I will provide a list of discussion questions to each group; each group may choose any of these questions to discuss and may discuss questions of their own. During discussions, we are all responsible for ensuring that discussion moves forward and covers the readings for that day, as well as for ensuring that everyone in the group has the opportunity to speak. We will have a meta-discussion, a discussion about what we want and don't want in class discussions, at least once during the term. 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 readings so that this will be less hard.

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. Quizzes and tardiness will impact the class participation portion of the grade.

Focus Groups: Once every three weeks your focus group will meet with me. We will discuss three weeks worth of your focus group reading, plus connections of that reading to other readings for the course and the service learning. I'll lead a group discussion of the entire focus group; I expect everyone to participate.

If you are in the education focus group, your service learning time will also impact your focus group participation grade.
Journals: Periodically I will collect lab notebooks in which education group members record their comments on the science/math classrooms, 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 and/or work with science or math classes for at least five hours during the term; education group members will complete 20 hours during the term. Remember to sign in at Woodward so you’ll receive credit. There will be on-campus opportunities for service-learning, including visits to science labs on campus (scheduled through me with professors who have already told me they’re willing to have visitors) and (probably) Science Day on the Quad; only 3 hours of on-campus service-learning activities may count towards your 5 hours (for the history and boundaries groups) and only 6 hours of on-campus service-learning activities may count towards your 20 hours (for the education group).

Education group members are encouraged to synthesize their observations and reflections into a project paper.

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 5 to 8 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. You will cite at least 5 sources outside our class readings plus at least one of our class readings. As long as you choose one and use it consistently, you may use MLA, APA, or CMS citations. 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 in topic choice (the same could be said of our class texts).

Short Papers: Each student will write three papers 1 - 2 pages typed, double-spaced concerning our readings for Mondays and Wednesdays. The weeks your papers are due and the questions you will address will be handed out separately.

Expectations Regarding Academic Honesty: The College Honor System is described inside the front cover of your catalogue; you are expected to abide by those guidelines in this class. There are a few points that I wish to emphasize for this course.

We will be practicing fairly open discussions at every class meeting - I qualify with "fairly" because during our meta-discussion we will set boundaries, such as not personally attacking one another; those who cross these boundaries will be reminded of the boundaries and repeat offenders may be asked to leave the
discussion before its conclusion. Many of the topics we will be discussing do not have clear-cut "right" and "wrong" answers; we will respect our classmates' right to disagree and seek to create and provide community and a safe space to discuss sensitive issues.

Although most of our work in this class is collective, each student must independently complete their service learning and their written work. I encourage you to talk with one another about your service learning and your written work; if these conversations inspire you, you may ask your classmate for permission to cite your conversation as a source (in a short paper, include the classmate's full name in parentheses, in the project paper, cite the classmate as a personal interview). Remember that if you quote a source, you must place the quotation in quotation marks; quotations should not constitute a large part of your written work.

The First Three Weeks

The recommended readings are intended to keep you on schedule with your focus group, so you don't end up doing three weeks worth of focus group reading the day before your focus group meets.

Week 1

Recommended reading - education group - Sadker: Preface, Hidden Lessons, The Edge of Change; Lehn - history group - Alic: Introduction, Prologue, Women and Science in the Ancient World, From the Alexandrians to the Arabs; Rossiter: Preface, Introduction; McGrayne: Author to Reader, A Passion for Discovery - boundaries group - prefaces and introductions of Fausto-Sterling and Harding

Monday - introductions

Wednesday - Wyer: Preface (3, all), Introduction (11, all), High Hopes (8, all), The Anomaly (8, education), Never Meant to Survive (9, history), Gender Constructs (9, all), Snow Brown (6, boundaries)

Friday - first minilab (all, 30 minutes) - what everyone should know about electricity plus gendered plugs; education group - Sadker: Preface (5), Hidden Lessons (14), The Edge of Change (30), Lehn (all)

Week 2

Recommended reading - education group - Sadker: Through the Back Door, Missing in Interaction - history group - Alic: The Rise of the Scientific Lady, From Alchemy and Herbs,
The New Naturalists, The Women Astronomers - boundaries group - Harding: Feminism Confronts the Sciences

Monday - Wyer: The Shoulders of Giants (4, all), Nepotism and Sexism in Peer-Review (7, all), Nine Decades (14: history through Overdue Recognition (7), education Barbara McClintock through end (7)), The Careers of Men and Women Scientists (6, boundaries); Keller: Introduction (13, all), Women's Perspective (10, all)

Wednesday - Keller: Feminism and Science (12, all), Reason, Science, and the Domination of Matter (12, all); Wyer: Science, Sex, and Stereotypes (8, all); Harding: How the Women's Movement Benefits Science (26, boundaries); Rossiter: Women's Clubs and Prizes and Conclusion (20, history); Tatum: "Why Are All the Black Kids Sitting Together in the Cafeteria?" (each member of the education group will be assigned a chapter)

Friday - second minilab (all, 30 minutes) - what everyone should know about friction plus how to talk to a physicist about gender inequities; history group - Alic: Introduction (3), Prologue (8), Women and Science in the Ancient World (15), From the Alexandrians to the Arabs (12), The Rise of the Scientific Lady (18), From Alchemy and Herbs (13), The New Naturalists (11), The Women Astronomers (15); Rossiter: Preface (2), Introduction (4); McGrawe: Author to Reader (1), A Passion for Discovery (5)

Week 3

Recommended reading - education group - Sadker: The Self-Esteem Slide - history group - Rossiter: Women's Colleges, Doctorates - boundaries group - Faust-Sterling: The Biological Connection, A Question of Genius

Monday - Wyer: Sex, Science, and Education (9, all), Sex and Death (16, education and history), Mixed Messages (14, all), Gender and Science (10, all); Keller: Nuclear Language (12, boundaries)

Wednesday - Wyer: Constructing Gender, Constructing Science (9, all), Science, Facts, and Feminism (7, all); Keller: Body, Bias, and Behaviour (16, all)

Friday - third minilab (all, 30 minutes) - what everyone should know about the weather, the stock market, chaos, and complexity plus the shift from weather girls to (mostly male) meteorologists; boundaries group - Faust-Sterling: Preface (2), The Biological Connection (10), A Question of Genius (48); Harding: Preface (6), Introduction (16), Feminism Confronts the Sciences (32)