

Course Syllabus

FYS 100 G: "Scientists: Born or Made?"

Fall 2009: Tuesday/Thursday 12:00 – 1:15 PM
(Salem Hall, Room 210)

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Course Objectives:

The public image of scientists may still be haunted by Madame Curie's reported remark: "Science deals with things, not people." This "people vs. things" dichotomy is largely held to be a truism of scientific endeavors, and it has been argued that scientists themselves locate scientific work on one end of a seesaw, rising only at the expense of practical societal and human concerns on the other end of the seesaw. If such a dichotomy does, indeed, exist, it would preclude the pursuit of science as a true vocation, since the seesaw would keep one's passions and talents for scientific exploration forever apart from their purpose and impact on the various communities served by scientists. It is our task, then, to explore this dichotomy in more detail in order to identify the true nature of scientific vocation, as portrayed by scientists past and present.

Through class-based discussions, debates, student-led presentations, exercises, independent readings, and writings focused on the traits and roles of scientists, it is hoped that the student will gain an appreciation of Einstein's famous proclamation: "*The most beautiful thing we can experience is the mysterious. It is the source of all true art and all science. He to whom this emotion is a stranger, who can no longer pause to wonder and stand rapt in awe, is as good as dead: his eyes are closed.*" In particular, this First Year Seminar will help the student to "keep one's eyes open" by:

(a) identifying and recognizing the traits of scientists; (b) exploring the relationship between those traits and students' own lives; (c) becoming familiar with cases of scientific discovery that have shaped our lives; (d) differentiating between fallacious scientific reasoning and mistaken scientific belief; and (e) developing an appreciation for the ethical standards that must accompany all discovery, scientific or otherwise.

Required Books (i-iii available at WFU Bookstore):

(i) S. S. Carey, *A Beginner's Guide to Scientific Method* (3rd Edition), Wadsworth Publishing Company, 2004.

(ii) C. Djerassi & R. Hoffmann, *Oxygen*, Wiley-VCH, 2001.

(iii) J. Brockman (Ed.), *Curious Minds: How a Child Becomes a Scientist*, Vintage Books, 2005.

(iv) Committee on Science, Engineering & Public Policy, *On Being A Scientist: Responsible*

Conduct In Research (2nd Edition), National Academy Press, 1995. Available for free on-line at <http://www.nap.edu/readingroom/books/obas/>

(v) H. Hellman, *Great Feuds in Medicine*, Wiley, 2001. Available as e-book with free access from ZSR Library

(vi) H. Hellman, *Great Feuds in Science*, Wiley, 1998. Available as e-book with free access from ZSR Library

Class Meetings:

Two class meetings per week. Students are expected to attend all classes and will be responsible for all materials discussed in the classroom, in addition to assigned readings and homework exercises. Class meetings will cover four major units of study:

- (i) "Who" is a scientist? Characteristics and factors affecting those who do science.
- (ii) "Why" do science? Vocational choices and motivations.
- (iii) "How" is science done? The scientific method.
- (iv) "What" is science? Truth vs. fallacy vs. fraud; scientists' roles and responsibilities.

Evaluation:

Scientific "Blog" 15% Group Project: Scientific Rivalry 15%

Biographical Interview with a Scientist 15% Written theme paper 10%

Homework and in-class assignments 10% Assigned theme presentation 10%

Final Reflection Paper: My Life (As A Scientist?) 15% Participation 10%

Office Hours:

All students are encouraged to drop by my office (Salem Hall 207C) whenever you have questions or concerns. It is not necessary to have an appointment for us to meet, but to be sure to catch me in you might call ahead (758-4936) or make some arrangement with me when we are together in class. Also, do not hesitate to communicate with me by email (colyercl@wfu.edu).

Blackboard Page:

A Blackboard homepage will be maintained throughout the semester to provide an on-line forum for this First Year Seminar class. Materials found at this site will include the course syllabus, learning objectives, homework assignments, reading assignments, and other resources. The Blackboard site will be added to as the semester proceeds, so you should visit it daily to discover new and important tools and resources. In the event of a flu pandemic or other emergency that might prohibit the regular meeting of classes, the Blackboard site will be used to facilitate virtual class discussions, to permit the delivery of regular class materials, to enable the submission of student work and assignments, and so on. The Blackboard site can be accessed at: <http://blackboard.wfu.edu/>.

Learning Assistance Center:

If you have a disability that may require an accommodation for taking this course, please contact the Learning Assistance Center (758-5929) within the first two weeks of the semester.

Academic Integrity:

It is expected that students will be aware of and will abide by the Wake Forest University Honor System (see p. 13 of the 2009/2010 Bulletin of WFU).