

ARTSSCI 4CF3
How Science Speaks to Power
COURSE OUTLINE 2016/17 (Winter 2017)

Professor: Dr J. Roger Jacobs

Office Address: LSB 429

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Office hours: LSB 429 *Mondays 10:00-11:00 and Thursday 9:00-10:00* or contact greaves@mcmaster.ca to schedule

Teaching Assistant: none

Lectures and Inquiry Meetings:	Monday	3:30-4:20	BSB 238A
	Thursday	2:30-4:20	BSB 238A

Materials:

- **Text:** There is no required text. Readings will be linked to the course Avenue site (<https://avenue.mcmaster.ca>). Lecture material related to experimental design can be explored further in this book available in Thode:
Experimental Design for Biologists DJ Glass, *QH 323.5 .G565 2007*
- This book reflects some of the concepts and models presented on science policy, and makes useful reading:
The Honest Broker RA Pielke, Jr. – *Q 180.55 .S62 P54 2007*

Course Objectives:

- This course will develop skills of critical analysis of scientific research- as interpreted or employed by the lay media, governments, NGOs and by scientists, in support of different interests. You will develop your ability to critique the interpretation or application of scientific knowledge as well as to isolate the social and political context of the science. You will learn how to interpret the effect different stakeholders have on the translation of knowledge into policy. After this course you should have greater skill in science literacy, and be better able to critique both science and science-based policy.

Course Description and Format:

- Your government defines the ethical uses of stem cells, changes the content of the food pyramid and declares carbon dioxide to be a pollutant. In all cases these policies are based upon scientific evidence- and in all cases there is dissent on these decisions within the public, government and scientific communities. What constitutes scientific proof? How do scientists agree- or change their mind on whether a conclusion is scientifically valid? How do policy makers decide how to implement scientific insights?
- In this course you will learn the rules by which scientists propose, validate and challenge scientific insights. You will also investigate the context of the research – how research is funded, disseminated, corrected, and how it reaches the public and policy makers. The major focus in the course will be a case study that you identify and analyse from the perspective of the scientist, lobbyist, layperson and the policy maker.

Schedule:

For weeks 1 to 6, two hours per week will explore the process of science. The third hour each week will consider a case study, or be dedicated to project work. Weeks 7-12 students will present their own case studies.

- Weeks 1 and 2: (Jan 5, 9, 12, 16)**
Science vs. The Scientific Method
Hypothesis formulation, testing and falsifiability
Case Study: Trofim Lysenko
- Weeks 3 and 4: (Jan 19, 23, 26, 30)**
Error, variation, confidence
Vetting science: Peer review, retractions
Case Study: Hwang Woo-suk
- Weeks 5 and 6: (Feb 2, 6, 9, 16)**
Funding Science: pay the piper
Case Study: IPCC
Antibiotic Resistance Presentations (Feb 16th)
- Week 7 – Reading Week**
- Weeks 8 and 9: Feb 27, March 2, 6, 9)**
Converting Science to policy
Post Normal Science
Case Study Presentations
- Weeks 10 and 11: (March 13, 16, 20, 23)**
Case Study Presentations
Case Study Presentations
- Weeks 12 and 13: (March 27, 30, April 3, 6)**
Case Study Presentations

Marking Scheme:

Late Penalties

15%	Assignments- 3 x 5% (Provisionally Jan 26, Feb 9, March 6)	5% per school day
10%	Participation/Peer Evaluation	
10%	Antibiotic Resistance Presentations- Feb 16	
15%	Case Study- Presentation/Activity—in class Feb/March	5% per school day
30%	Case Study – Written Submission/Portfolio—March 30	late exams not accepted
20%	Final Exam- take home--- due noon April 13	

McMaster Policy on Academic Integrity:

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences—e.g., the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty, please refer to the Academic Integrity Policy, located at:

<http://www.mcmaster.ca/academicintegrity>

The following illustrates only three forms of academic dishonesty: 1) Plagiarism—e.g., the submission of work that is not one’s own or for which other credit has been obtained. 2) Improper collaboration in group work. 3) Copying or using unauthorized aids in tests and examinations.

McMaster Student Absence Form (MSAF):

In the event of an absence, students should review and follow the Academic Regulations in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work.” Please consult the MSAF statement on our website (<https://artsci.mcmaster.ca/forms-requests/>) and direct any questions or concerns to Shelley Anderson or Rebecca Bishop in the Arts & Science Program Office as appropriate.

Email Contact and Student Responsibility Statement

Please Note:

“The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of students to check **their McMaster email** and course websites weekly during the term and to note any changes.” I will make announcements in class and by using the course email distribution list.

Online Conduct:

As a student enrolled in this course you have been granted permission to access an online learning management system, Avenue to Learn. Avenue to Learn course pages are considered an extension of the classroom and usage is provided as a privilege subject to the same code of conduct expected in a lecture hall (see relevant section of the student code of conduct below). This privilege allows participation in course discussion forums and access to supplementary course materials. Please be advised that all areas of Avenue to Learn, including discussion forums, are owned and operated by McMaster University. Any content or communications deemed inappropriate by the course instructor (or designated individual) may be removed at his/her discretion. Per the University Technology Services Code of Conduct, all members of the McMaster community are obligated to use computing resources in ways that are responsible, ethical and professional. Avenue to Learn Terms of Use are available at <http://avenue.mcmaster.ca>.

Academic Accommodation of Students with Disabilities:

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or email sas@mcmaster.ca. For further information, consult McMaster University’s Policy for Academic Accommodation of Students with Disabilities.

Written Submissions:

The written work submission guidelines have been chosen to support the more sustainable use of paper, energy, and toner and meet the SILVER standard of the Office of Sustainability www.mcmaster.ca/sustainability. All written work should be submitted in the following format:

- Double-sided pages
- 1.5 line spacing
- Exclusion of title page
- Decreased margin