JPH 441S
PHYSICAL SCIENCE IN CONTEMPORARY SOCIETY
Spring Term, 2013

FINAL EXAM INFORMATION

TIME: 7:00 - 10:00 PM, Thursday, April 25

LOCATION: GB 412, Galbraith Building, 35 St. George Street

FORMAT: The format will be similar to the Mid-term Test, with essay-type questions (not calculations), both short and long, perhaps some definitions. It will be a closed-book exam. No examination aids will be allowed – just bring pens and pencils.

MATERIAL: The exam covers the following material from Lectures 1 through 11: slides, assigned readings, *The Demon-Haunted World* by Carl Sagan, presentations and discussion from Report #2. There will probably be a bias towards material covered since the mid-term test, but material from all lectures is fair game.

The exam does NOT cover Report #1 or the suggested readings (except for material from them that was presented in the lectures).

MARKING:

15%	Written report #1
20%	Mid-term test
15%	Written report #2
10%	Oral presentation on report #2
40%	Final exam

HOMEPAGE: http://www.atmosp.physics.utoronto.ca/people/strong/jph441/jph441.html

REMINDER – REPORT #2:

Due: Reports are due in the last lecture, i.e., now!

Late penalty: Late penalty = 5% per day (which also applies to weekend days) for a maximum of 7 days, i.e., until 5 PM, Tuesday, April 9, after which reports will not be accepted.

Instructions: The report is to be from the team, with every team member contributing to the researching and writing. Along with the report, each person should provide a page summarizing their contribution to the report. See Written Report #2 Information Sheet for full instructions. If these sheets are not attached, please email them to me as soon as possible.

Marking: I will email the class when the reports are marked and ready to pick up, or I will bring them to the exam. I will also provide the marks the oral presentations at that time.

JPH 441S
COURSE SYLLABUS

Lecture 1
- The nature of science
- The scientific method
- Historical perspectives on the scientific method

Lecture 2
- More on the scientific method
- Thinking scientifically
- Science and pseudoscience

Lecture 3
- Peer review
- Communicating science to the public

Lecture 4
- Guest lecture on science outreach – Ashley Kilgour, Niall Ryan
- Communicating science to the public

Lecture 5
- Publishing, credit and measuring impact in the sciences
- Who funds science?
- Science funding in Canada

Lecture 6
- What is ozone?
- What is happening to stratospheric ozone?
- What causes ozone depletion?
- How are ozone and climate related?
- The future of ozone?

Lecture 7
- The climate system
- Radiative forcing
- The greenhouse effect
- Observed changes in greenhouse gas concentrations
- Observed changes in the climate system
- Human influence on climate change
- Climate model predictions
- Communicating the science of climate change

Lecture 8
- Canada's Science & Technology Strategy
- Science in Canada
- Public perception of science
- The end of science?
- Is scientific genius extinct?
- Looking into the future

Lecture 9
- Looking into the future
- Student presentations on Report #2: (i) Medical technologies,(ii) Exploitation of near-Earth space, (iii) Fossil fuels

Lecture 10
- Student presentations on Report #2: (iv) Geo-engineering, (v) Wind energy, (vi) Digital security, (vii) Superconductivity

Lecture 11
- Student presentations on Report #2: (viii) Nuclear energy, (ix) Medical imaging in cancer detection, (x) Water resources, (xi) Nuclear fusion