

**PHYS 485**  
**Spring 2012**  
**Tom Browder**

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What use is ethics? Everyone has been and will again be faced with a situation requiring ethical deliberation and judgment, either directly or indirectly. Some training in ethics is necessary for physicists because

- 1) It is not always obvious when an ethical situation presents itself. A situation involving ethics can be made worse by ignorance and neglect.
- 2) Knowledge of a decision-making process for ethical judgments can enable efficient and appropriate resolution.
- 3) Problems can be avoided by conducting study, work and professional life according to ethical rules or norms.
- 4) Ethical training builds good character by enabling good judgment.

In PHYS485 we will study ethics in physics. We will examine, review and use the guidelines of the American Physical Society. These are described in the APS guidelines website. These guidelines cover professional ethical issues in physics including research results, publication and authoring practices, peer review and conflict of interest as well as treatment of subordinates.

Students will give several powerpoint presentations on ethical issues in physics.

We will study selections of Richard Muller's book on "Physics for Future Presidents". We will discuss the ethical and public policy questions in his book and their connection to physics. There will be a series of quizzes on the selections from Muller's book.

- T. Browder, [Introductory lecture on Ethics for Physicists](#)
- [American Physical Society Guidelines](#)
- [Einstein's Letter\(s\) to FDR](#)
- T. Browder, [Energy \(based on excerpts from Physics for Future Presidents\)](#)
- T. Browder, [Radioactivity \(from Physics for Future Presidents\)](#)
- T. Browder, [Nukes \(from Physics for Future Presidents\)](#)
- T. Browder, [Climate Change \(from Physics for Future Presidents\)](#)
- IPCC, [Reports from the IPCC](#)
- APS, [Climate Change Statements \(from the American Physical Society\)](#)

First round of student presentations

- Patents for wireless communication (Christina King, Friday March 2)
- Power-line EM fields and cancer (Xiaowen Shi, Friday March 2)
- Physicists and Fukushima Dai-ichi (Yuki Ueda, Monday March 5)
- Cold Fusion (Travis Tanaka, Monday March 5)
- Jocelyn Bell and the discovery of Pulsars (Travis Hishinuma, Friday March 9)
- N-rays (Andrew Carpenter, Friday March 9)
- Physicists and Hanford, Washington (Adam Goss, March 23)

Second round of student presentations (examples/suggestions)

- Millikan Oil Drop Experiment (Travis Tanaka, date )
- Molecular transistors ( Xiaowen Shi, date )
- Space Debris (Yuki Ueda, date )
- Polywater (Tavis Hishinuma, date )
- TBA (Christina King, date)
- TBA (Andrew Carpenter, date )
- TBA (Adam Goss, date )
  
- Blind Analysis (TBA) [Paper by Prof. Aaron Roodman \(SLAC\)](#)
- APS and Climate Change controversy
- Bogdanov Affair (TBA)

Other possible topics (related to ethical issues) :

- Lise Meitner and Discovery of Nuclear Fission (TBA)
- Hafnium Bomb
- Iranian Nuclear Weapons (TBA)
- Uri Geller (TBA)
- LBL Heavy Elements
- Hendrik Schon and Bell Labs
- Split A\_2
- Missing Mass Spect
- More on weapons/war/physics ethics

This is a oral course (95% of the course grade), which is based on oral presentations concerning ethical issues. It also satisfies the ethics requirement.

Scheduling items:

Feb 24-25, Belle Analysis Meeting (BAM)

Feb 26-28, Belle II Physics Advisory Committee (BPAC)@KEK

Mar 12-13, Belle General Meeting (BGM)@KEK

Mar 15-16, US Belle II CDR review@KEK

Mar 14-17, Belle II General Meeting (B2GM)@KEK

April 15-19, DOE Graduate Fellowship Panel (DC)

Early May, DOE Belle II CD-1 Review, dates TBA

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