GEOS 24705/34705, ENST 24705
Energy: Science, Technology, and Human Usage

Professor: Liz Moyer (moyer@uchicago.edu, Hinds 405)
Teaching assistants:
   Stephanie Aho (slaho@uchicago.edu, Hinds 477)
   Esther Bowen (eebowen@uchicago.edu, Hinds 437)
Field trip coordinator: Jarrod Wolf (jarrodwolf@gmail.com)
Website: http://geosci.uchicago.edu/~moyer/GEOS24705

This course covers the technologies by which humans appropriate energy for industrial and societal use, from steam turbines to internal combustion engines to photovoltaics. We will also discuss the physics and economics of the resulting human energy system: fuel sources and relationship to energy flows in the Earth system, modeling and simulation of energy production and use. The course is intended to provide a technical foundation for students interested in careers in the energy industry or in energy policy. Rather than laboratory time we will take field trips to major energy converters and other relevant facilities.

Course components

- Class T, Th 1:30- 3 PM, Harper 103  (see website for office hours)
- Labs (W 11:30 AM or Th 3:30 PM, requirement to attend 4 or more labs, Hinds 561)
- Field trips (requirement to attend 3 or more field trips, of which only one can be local)
- Problem sets (quick problem on Tuesdays, longer PS on Thursdays due next Tues.)
- Final group research project & paper

Field trip notes: Most field trips are scheduled for 8 AM Fridays. If timing is a problem, students + TAs can arrange additional field trips. For all “official” trips (Fridays plus alternate trips with large attendance), U. Chicago will provide transportation (bus + driver). Signing up for field trips several weeks in advance is usually required, and some trips will be space-limited (facilities cannot accommodate large groups). We strongly suggest that all students go to Crawford since everyone should see a coal-fired plant, and will arrange additional alternate “official” trips to Crawford as needed.

Grading

- Problem sets 2/3 of grade, final project 1/3 of grade
- “Bump-up” points for additional effort: doing optional problems, strong class participation, extra labs or field trips, volunteering on lab development, etc.
- Final project must be in mixed groups (science & policy/econ, grads & UGs) of ~5
- Late policy for problem sets: must inform and receive permission of TA in advance, otherwise 10% deduction per class period delayed.