**Science of Modern Technology and Public Policy.  APHY S100, ENAS S100, PHYS S100**

**Session A**
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Seminar that examines the science behind selected major advances in modern technology. The focus is on the scientific basis of each advance, as well as the technology's resulting impact on society. Student will research individual topics, in consultation with the instructor. **Intended for non-science majors.** The format will be a lecture/seminar.

This course can be applied towards the Sciences Yale College distributional requirement.

**Topics included:**
nanotechnology; advanced materials; aircraft; space flight; nuclear power, weapons, medical uses; optical systems for communication and medical diagnostics; magnetic-resonance imaging -MRI transistors and integrated circuits; self-driving cars, clean energy and Yale initiatives; renewable energy technologies, and applications in the developing world, new technology for satellite imaging and Global Positioning systems; large-scale immunization; DNA made-to-order; clean public water technology; and lighting – from tungsten filaments to LEDs.

**Texts:**
There is no recommended textbook; we will provide readings for all the topics. We will also make use of web resources, and will post lecture notes for each lecture. Yale exhibits some of these advanced technologies, so we will use Yale examples where appropriate, with virtual 'class trips'.

**Background required:**
Knowledge of high school math, chemistry, and physics is assumed/required. This course is not overly quantitative in nature, but you will be expected to make quantitative judgements and form opinions related to the topics discussed.

**Homework:**
There will be problem sets assigned during the course. Problem sets will be posted on the course server, and solutions can be submitted there also, as scans or photographs. Optional homework help sessions will be held.

**Midterm exam:**
This will be open book, with a 1-day time limit. The day can be chosen by the student.

**Final paper:**
Each student will also submit an individual paper at the end of the term. The topic will be developed with the instructor.

**Grading:**
a. Homework_________30%
b. Midterm exam_______30%
c. Final paper___________30%
d. Class participation____10%  includes answering questions in class on Zoom via Chat
Examples of Yale topics we will discuss in the course; pictures from the Yale campus:
a. (upper left) Yale’s new residential colleges and energy efficiency  
b. Kroon Hall, with solar and geothermal renewable energy  
c. Yale power plant, co-generation  
d. Yale solar plant