Pre-Major Advising Dinner: Physics, Engineering Physics

Sponsored by
Department of Physics
and
School of Humanities and Science
Representatives Here Tonight

Use stanfordwho.stanford.edu to find contact information.
We’d love to talk to you!

• Sarah Church  --  Director, Physics Undergraduate Studies
• Peter Michelson  --  Chair, Physics
• Pat Burchat  --  Physics and Engineering Physics pre-major/major advising; co-Director of Engineering Physics
• Monika Schleier-Smith  --  Professor; PHYS 105, 170
• Rick Pam  --  pre-major advising; intermediate labs
• Physics majors: Deanna Abrams, Mallory Frazier, Marie Lu, Eduardo Torres-Montano (SPS)
• Engineering Physics majors: Jinhie Skarda (EPIC)
• Physics Alum: Matt Sahagan, Eddie Santos, Ian Tenney
• Engineering Physics Alum: Scott Cauble
Prof. Sarah Church
Director UG Studies
Prof. Peter Michelson  
Chair of Physics Department
Prof. Hari Manoharan
Past Director UG Studies
Prof. Monika Schleier-Smith
Physics 107, 170
Rick Pam
Advising, Advanced Labs
Eduardo Torres Montano
Alyssa Rudelis
Tudor Cibanu
Zoe Himwich
Zhanpei Fang
Max Drimmer

Other Physics majors here:
Deanna Abrams
Mallory Frazier
Marie Lu

EPIC
Engineering Physics Interdisciplinary Community
OR
Engineering Physics Is Cool!

Alex Welch
Jinhie Skarda
Joey Valery
Matt Sahagun

BS in Physics, Stanford Teacher Education Program
Physics Teacher @ Woodside High School

Teach Physics Video
More Alumni here tonight!

Scott Cauble (Eng Physics)
Eddie Santos (Physics)
Ian Tenney (Physics, CS Coterm)
What can I do with a physics-related degree?

- Pursue an advanced degree and conduct research or R&D in physics, engineering, biophysics, health physics, medicine, law, education, ...

- Pursue a career in science policy, teaching, law, medicine, philosophy, history of science...

- Work in 21st-century industries.
We tracked down 172 (89%) of 193 students who completed a Stanford Physics major between 2007-08 & 2014-15.

Of these 172 Physics majors:

- almost 50% pursued a PhD (with or without a Master’s);
  - about 2/3 in physics, astrophysics or applied physics,
  - the other 1/3 in biophysics, medical physics, neuroscience, aero astro, CME, CS, EE, MatSci, ME, math, stats, and philosophy.

- 44% completed a Master’s degree (including coterm);
  - ~¼ of these pursued a PhD.

- ~1 in 20 pursued business, education, law or medicine.

- ~½ went directly from BS to becoming software engineers, analysts, consultants, writer, dancer, …

33 Engineering Physics majors similar:

- 18 completed Master’s. 10 are pursuing a Ph.D.
- A few have started companies.
Physics at Stanford

~30 Physics majors per year
(c.f., ~200 students/year in each of CS, Bio Sci, Hum Bio, Econ)

- Active Society of Physics Students.
- Physics Tutoring Center.
- 4th floor lounge and study area in Varian Physics Building.
- Student-initiated course on research computing.
- Potential TA opportunities.
- ~45 Physics and Eng Physics majors participate in 8-week ($5120) or 10-week ($6400) summer research
Options for Studying Physics at Stanford

- Physics major (Bachelor of Science)
- Engineering Physics major (BS in Engineering)
- Physics major plus major or minor in another area (Math, Music, Creative Writing, Philosophy, Education...)
- Physics or Eng Physics major, plus Co-Terminal Masters degree in Engineering
Of the 193 students who completed a Physics major between 07/08 & 14/15 (~24/year), 25% (50/193) completed a double major, 33% (65/193) pursued a coterminous Master’s.

**2nd Majors Pursued by Physics Majors**
- Mathematics
- Philosophy
- Comp Sci
- Elec Engr
- Chemistry
- Biology
- Psych
- Music
- Linguistics
- Intl Relations
- Film Media
- English
- Education
- Economics
- Engr: Subplan

**Co-Terminal Masters Degrees Pursued by Physics Majors**
- Elec Engr
- Statistics
- Comp Sci
- Aero Astro
- Mat Sci Engr
- Mech Engr
- Bio Engr
- Petr Engr
- Civil Engr
- Bio Engr
- Geology
- Biology
- Mathematics
- Applied Phys
- Education
- Religious Stud
Engineering Physics Major

- Designed for students who have an interest in and an aptitude for both engineering and physics.
- Prepares students to tackle complex problems in multidisciplinary areas that are at the forefront of 21st-century technology.
- Students are well prepared to pursue graduate work in either engineering or physics.

Students take at least three courses in one of the following specialty areas:

- Aerospace Physics
- Biophysics
- Computational Science
- Photonics
- Materials Science
- Electromechanical System Design
- Energy Systems
- Renewable Energy
Comparison

Physics Major

- Bachelor of Science
- ~80 required units plus ~8 recommended units.
- Essentially all courses prescribed.
- Concentration optional.

Engineering Physics

- BS in Engineering
- ~105 required units.
- Many topics prescribed, but several courses from which to choose for most topics.
- Specialty required.

Both have an Honors program.
Coterminal BS/MS Programs

- BS and MS degrees may be granted simultaneously or at the conclusion of different quarters.
- Usually five years are needed for combined program.
- Typically a minimum GPA of 3.5 in math, science and engineering courses is required for co-term in an Engineering Department.
- MS typically requires 45 units.
For information on physics-related careers see

- American Institute of Physics -- Statistics
- American Physical Society
- Sloan Career Cornerstone
Questions??