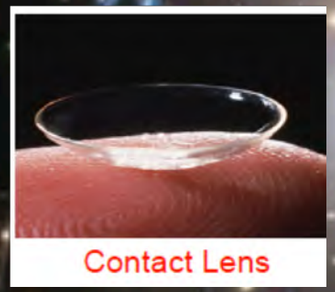
Prof. Marjorie Olmstead
ufaphys@uw.edu

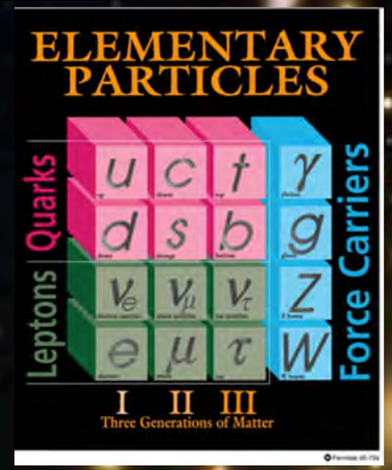
WELCOME

Assoc Chair for Undergraduates
Undergraduate Faculty Advisor

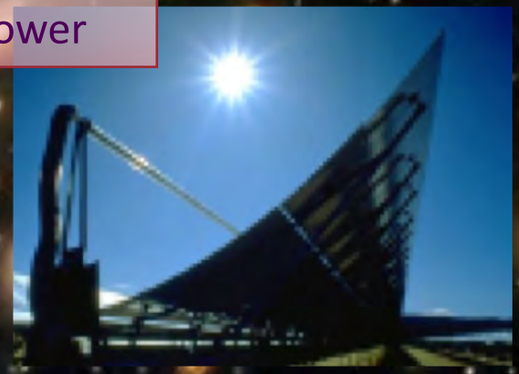
- Every one of you has the capability to graduate with a bachelor of science in physics.
- Every one of you is welcome, regardless of other identities you hold in addition to that of physics student.
- Every one of you may access campus resources to smooth your path through UW and help you transition to life beyond UW.


Contact Lens

Physics explains how the universe works



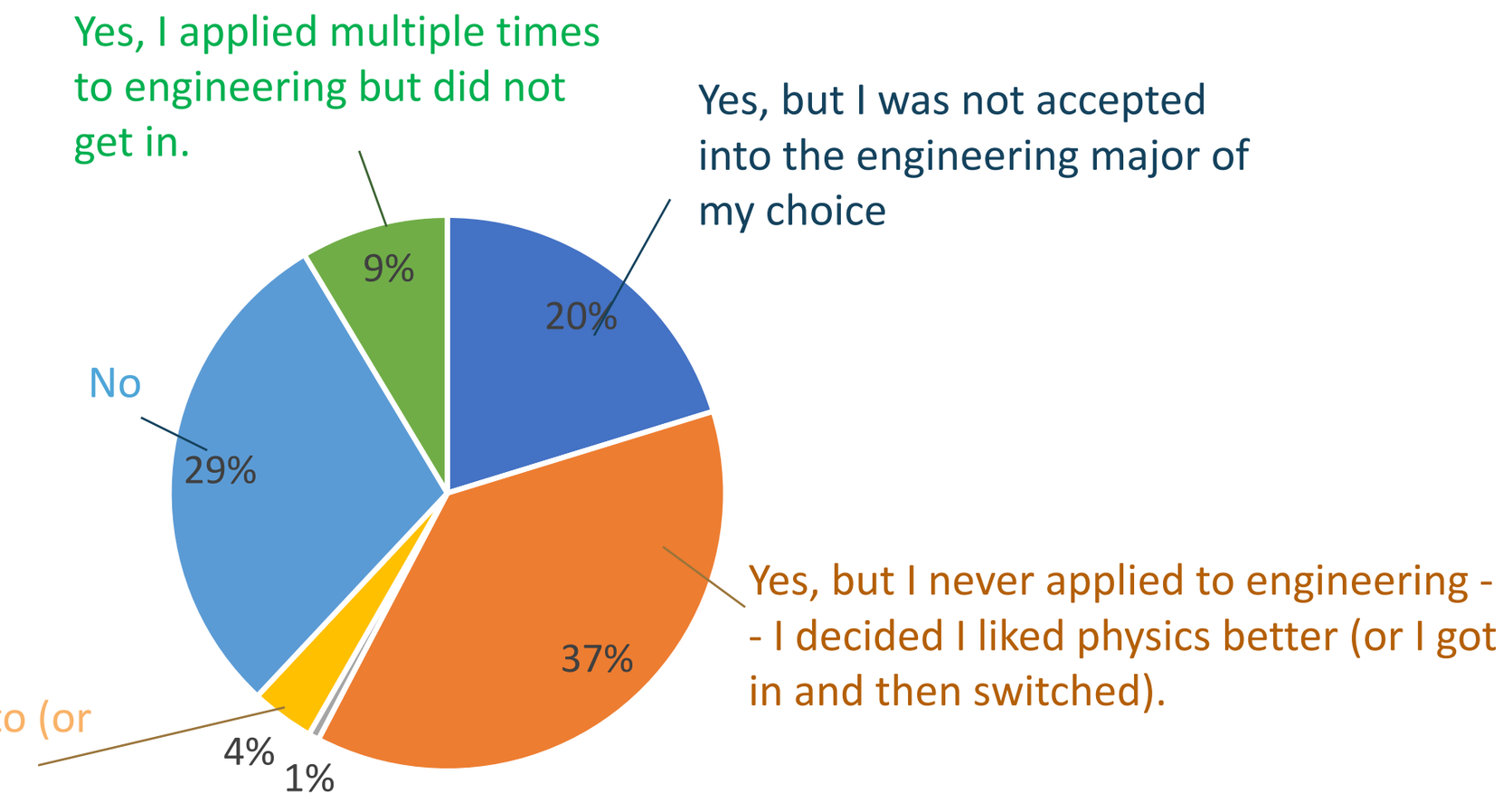
Solar Power



So you think you want to major in physics …

Did you ever seriously consider majoring in engineering?

Since 2011:
49% PreSci
37% PreEngr
12% Other



Cohort: Physics majors who applied to graduate in 2017-18

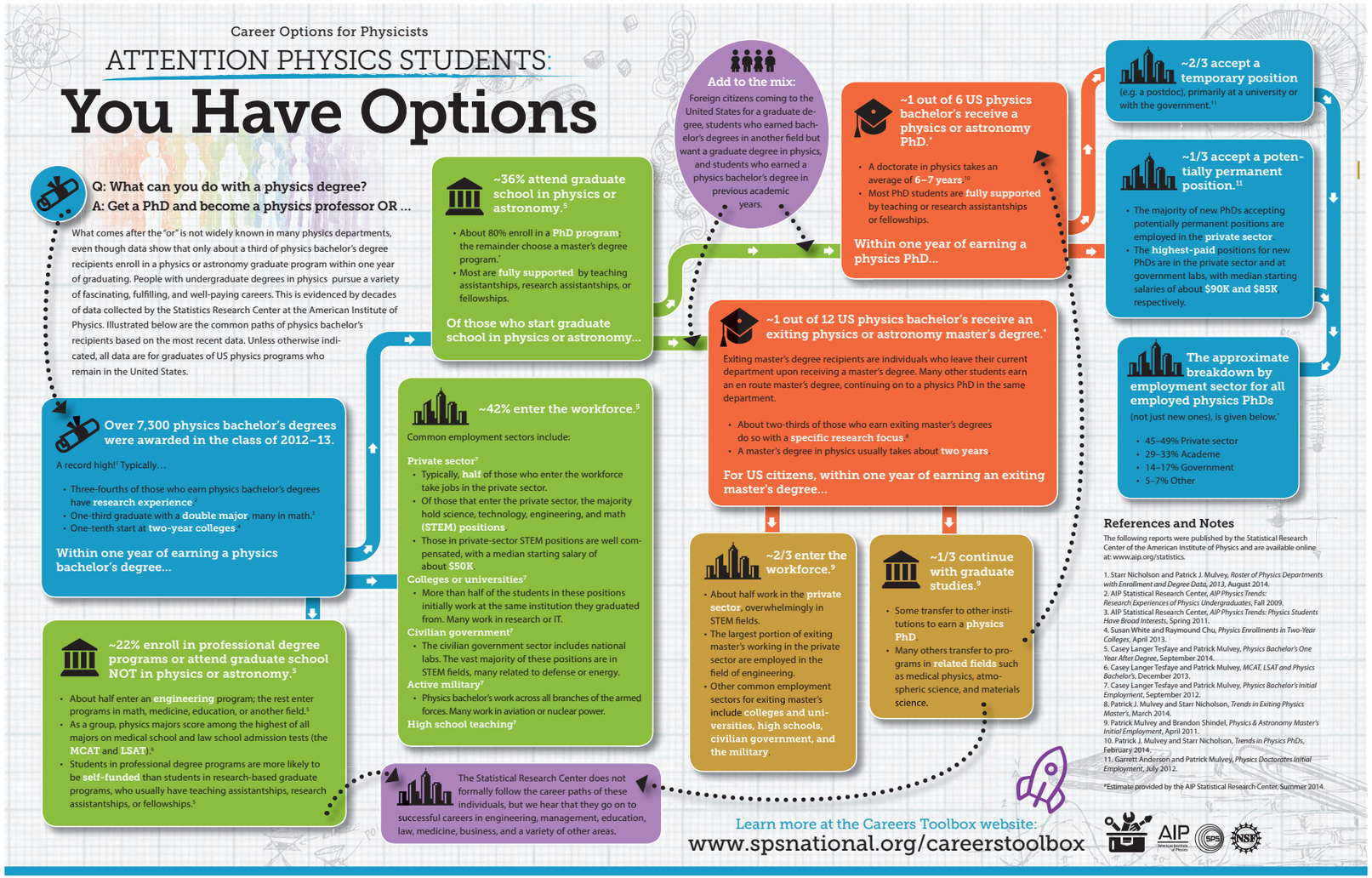
Why major in physics?

- Reasons that tend not to work out well ...
  - Because you decided to do so in middle school
  - Because engineering turned you down
  - Because mom and dad said to
- GOOD reasons
  - Because you REALLY want to WHY the world works
  - Because the list of courses you REALLY want to take at UW gets a physics degree (or at least close to one)
  - Because you checked out a number of other options, and you like physics the best

UW offers 579 degree options across 306 programs

What comes next?

- You can take any job where they want you to solve complex problems.
- You can attend any graduate program that builds on a physics base.



Who hires physics bachelor's?

- Washington Employers that recently hired new physics bachelor recipients

https://www.aip.org/statistics/washington

- Amazon
- Areva
- Bainbridge Parks & Recreation
- Battelle
- Best in Class Education Center
- Blue Box Group
- Bombsheller
- Bruker Elemental
- Cascade Gasket, Inc.
- Chipton Ross
- Corvus and Columba LLC
- David Evans and Associates, Inc.
- Det Norske Veritas
- Device Inside, Inc.
- Eagle Harbor Technologies, Inc.
- Electroimpact
- Exotic Metals Forming Company
- Financial Partners, Inc.
- Flexasoft
- Google
- Gravity Jack, Inc.
- HopeSource
- Hewlitt Packard
- Intentional Software
- L&S Engineering.
- Lockheed Martin
- Logos Bible Software
- Marchex, Inc.
- Micro Encoder, Inc.
- Microsoft
- Milliman
- NAVSEA
- NW Medical Physics Ctr
- Octapharma Plasma, Inc.
- PNNL
- Pellego
- Physio-Control
- Procure Treatment Centers
- PSC Biotech
- Puget Sound Naval Shipyard
- RAFI USA
- Randstad
- Red Head Steering Gears
- Schneider Electric
- Schweitzer Engineering Labs.
- Seattle Children's Research Inst.
- Space-X
- Tableau Software
- TecAce Software Limited
- Telect, Inc.
- TigerStop
- US Navy
- University of Washington
- Woodruff Scientific Computing
- X2 Biosystems
- Zulily

Common Job Titles for Physics B.S.

These job titles were obtained from surveys of physics bachelor's recipients from the classes of 2009 and 2010, conducted by the American Institute of Physics Statistical Research Center. They are not exhaustive or exclusive.

Computer Hardware & Software

- Analyst
- IT Consultant
- Programmer
- Software Engineer
- Systems Analyst
- Technical Support Staff
- Web Developer

Education

- High School Physics Teacher
- High School Science Teacher
- Middle School Science Teacher

Engineering

- Application Engineer
- Associate Engineer
- Design Engineer
- Development Engineer
- Electrical Engineer
- Engineering Technician
- Field Engineer
- General Engineer
- Laser Engineer
- Manufacturing Engineer
- Manufacturing Technician
- Mechanical Engineer
- Optical Engineer
- Process Engineer
- Process Technician
- Product Engineer
- Product Manager
- Project Engineer
- Research Engineer
- Systems Engineer
- Technical Services Engineer
- Test Engineer

Research & Technical

- Accelerator Operator
- Lab Assistant
- Lab Technician
- Physical Sciences Technician
- Research Assistant
- Research Associate
- Research Technician

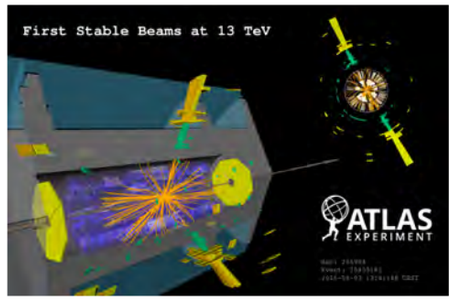
Common Physics Core – taken by all majors*

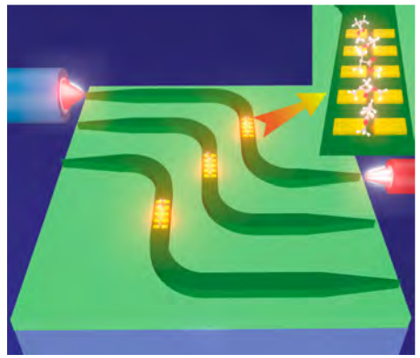
- 5-quarter overview of physics
  - Motion; Electricity & Magnetism; Waves; Thermal Physics; Quantum Physics
- Key tools for doing physics
  - Mathematical tools
  - Electronics lab
  - Overview of physics research
- Common sequence for applying those tools
  - Advanced Electricity and Magnetism
- At least 4 quarters of math
  - One year of Calculus
  - Selections from Linear Algebra, Differential Equations, Vector Calculus, Partial Diff. Eqn, Complex Analysis

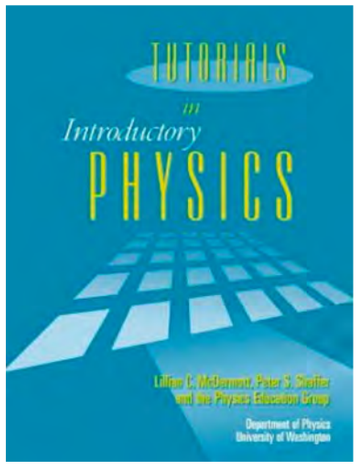
* Completing most of the core gets you a minor in physics

UW Physics Major Options

- Comprehensive
  - Graduate school in physics or astronomy
  - Full range of physics and math
- Applied
  - Technical job at B.S. level or M.S. in engineering
  - More flexibility in electives
- Teaching
  - Communicate science to HS or general audience
  - Physics by Inquiry sequence
- Biological
  - Medical school or grad school in biophysics
  - 7 quarters of biology and chemistry in addition to physics core







Physics Option Requirements

	Comprehensive (+38-41 cr)	Applied (+34-39 cr)	Teaching (+38-41 cr)	Biological (+51-55 cr)
Math	Math Phys II + Another adv. math	Matlab or Python + +2 adv. math	Math Phys II + Another adv. math	Math Phys II
32x	Relativity & Particles, Quantum Mechanics; 3 of E&M, QM, Astro, Classical Mech, Stat Mech	One from "call me a physicist" list	Relativity & Particles, Quantum Mechanics; 1 more "call me a physicist"	Quantum Mechanics Statistical Physics 1 more "call me a physicist"
Lab	Two advanced labs	Data Analysis lab Two advanced labs	One advanced lab	(in bio/chem)
Capstone	Research or Seminar	Research, internship or Seminar	Teaching practicum	bio-related research
UD Elect	2 additional Phys/Cognate Class	3 additional Phys/Cognate (may include 1 lab; 1 intro sci)	Sequence for future teachers	Biophysics
Other Sci				1 year intro chemistry 2 qtrs. Intro biology 2 additional bio/chem

Physics Minor

Core	
Motion, Electrcity & Magnetism, Oscillations & Waves, Thermal Physics, Quantum Physics	
Specialization (Pick 1)	
Physics Education	Physics by Inquiry Series
Experimental Physics	Intro Laboratory Analysis Electronics Lab Additional Advanced Lab
Mathematical Physics	Math Physics I and II: Phys 227, 228 Either Electricity & Magnetism (321) or Quantum Mechanics (324)

Physics Student Services: C139/C141

- Staff Advisors
  - Margot Nims
    - All undergraduate issues
  - Catherine Provost
    - All graduate issues
    - Grad school-related UG issues
- Faculty Advisor
  - Prof. Marjorie Olmstead
    - advice from a faculty member
    - petition admission to major
    - waivers and substitutions; transfer credit equivalency
- Program Assistant
  - Paula Newcomer