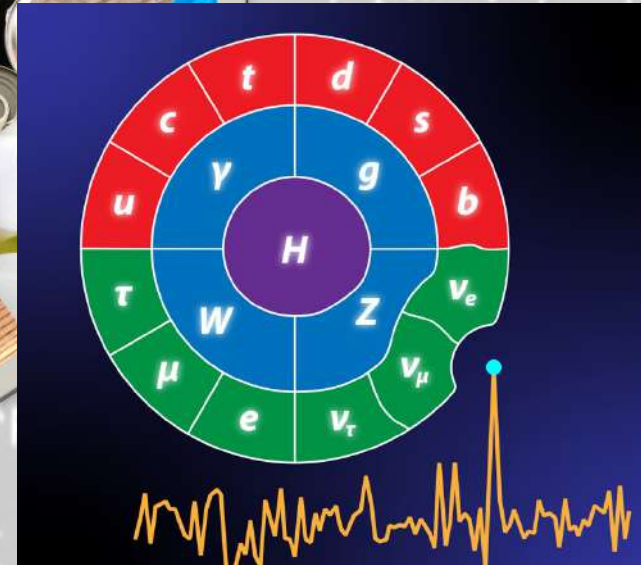
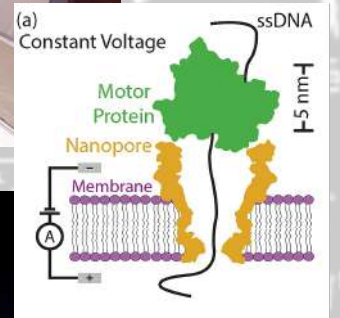
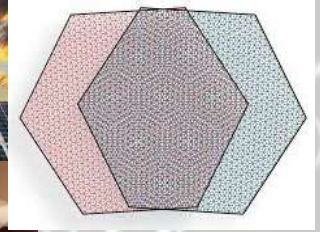
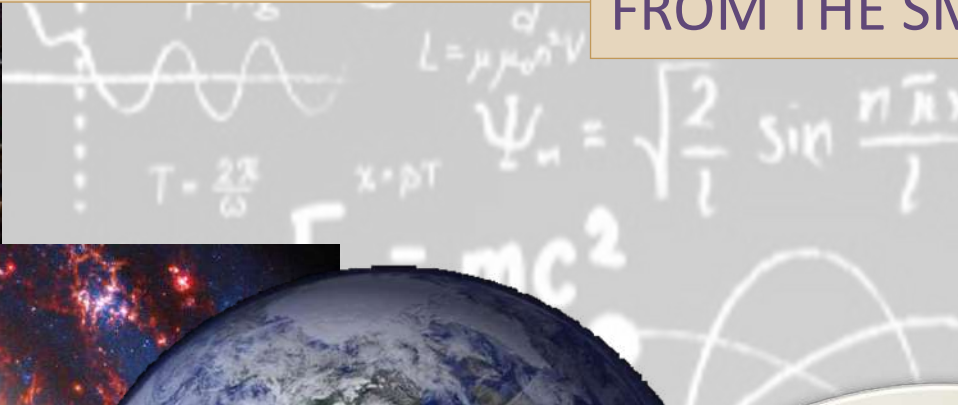


PHYSICS IS A WINDOW TO THE UNIVERSE

FROM THE SMALLEST PARTICLES TO GALAXY CLUSTERS



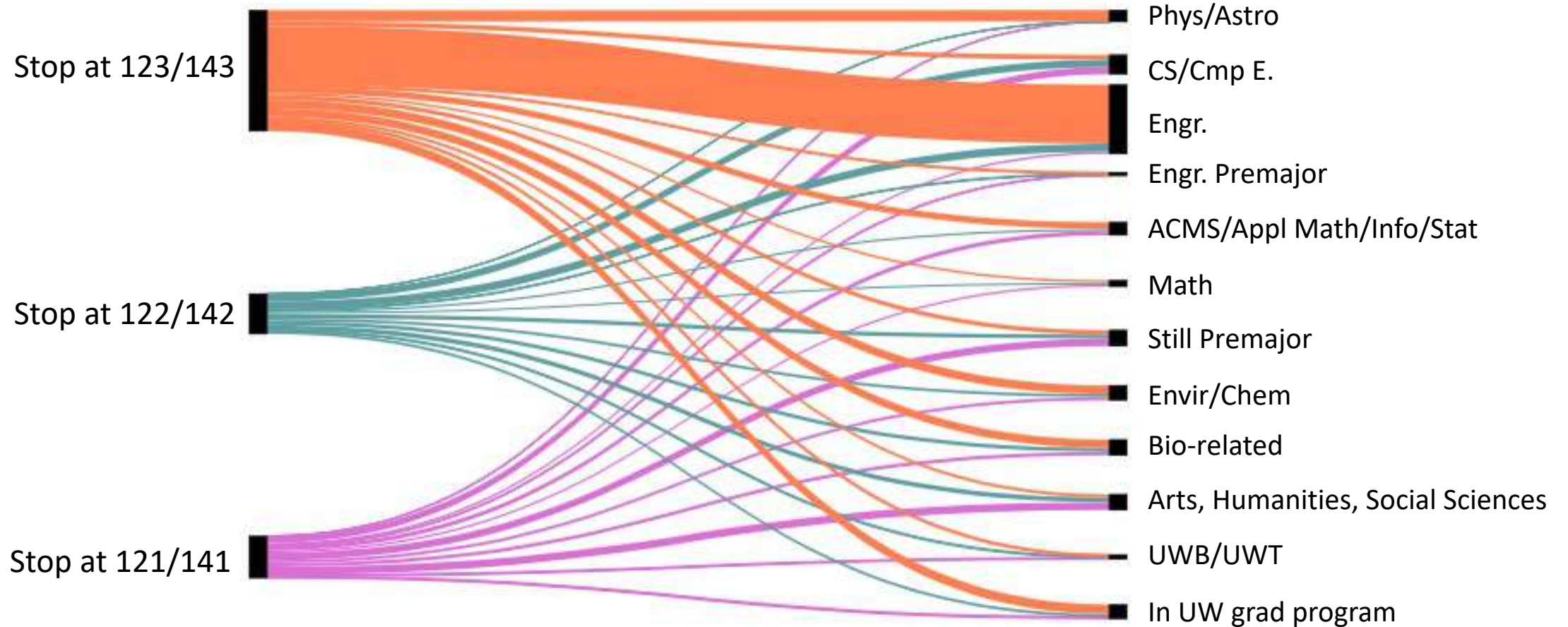
Prof. Marjorie Olmstead
Department of Physics, University of Washington

Consider your options ... Consider PHYSICS

Students who took 12x/14x series 2017-18 through 2021-22

> 275 major combinations

Major as of Autumn 2022



Physics Interconnections

Fundamental

Computational

Fluids

Plasma

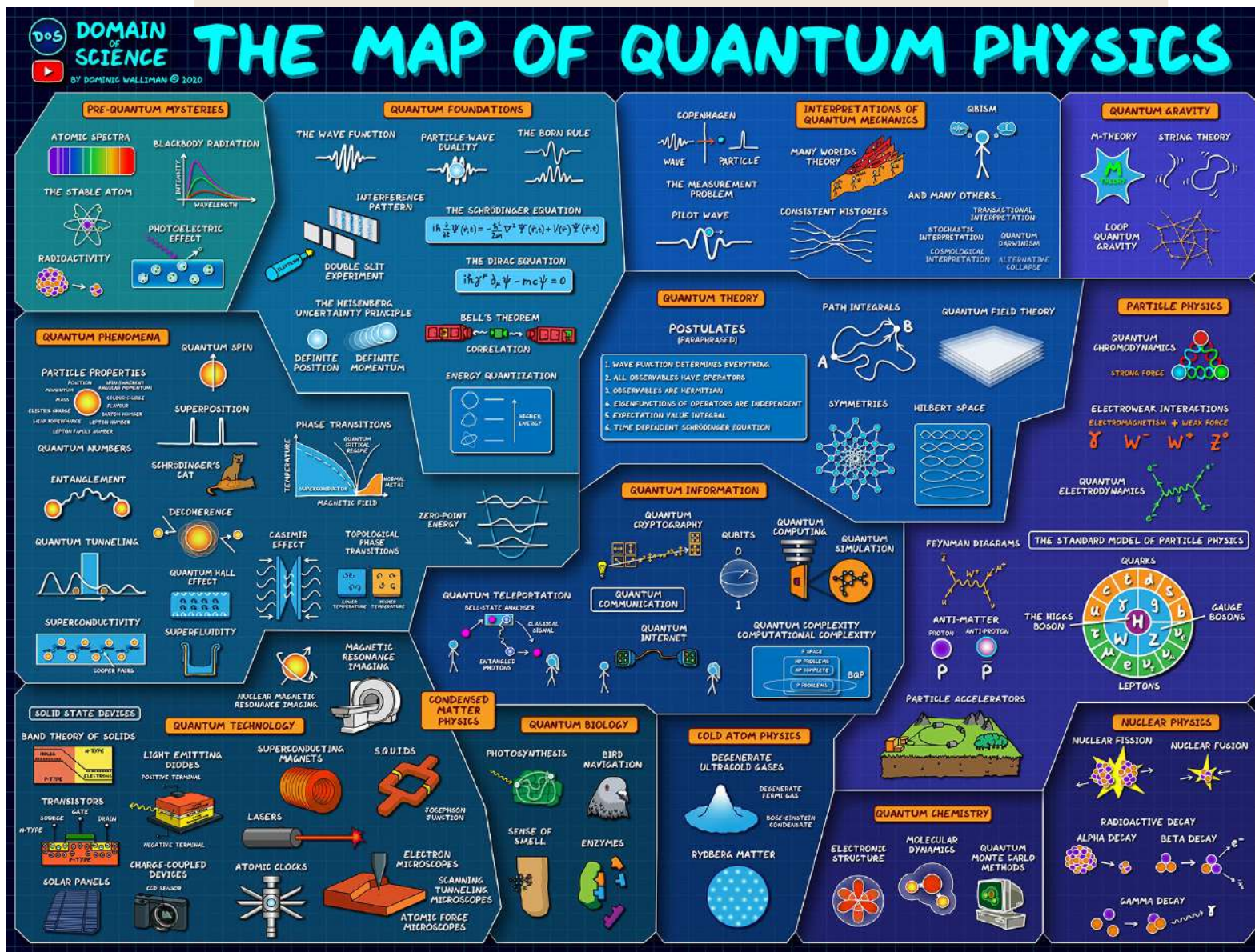
Condensed
Matter

Quantum
Information

Materials

Device

Optical



Gravitational

Astro

Cosmological

Particle

Nuclear

Chemical

Biological

Polymer

Atomic

PHYSICS WELCOMES YOU

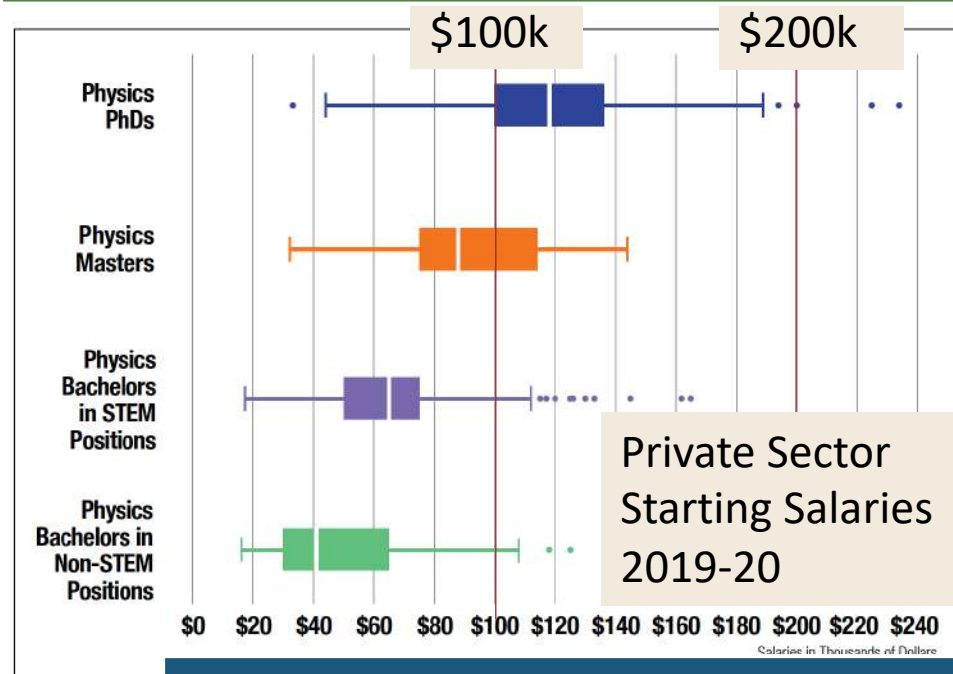
- Every one of you has the capability to graduate with a bachelor of science in physics.
- Every one of you is welcome, regardless of other identities you hold in addition to that of physics student
- Every one of you can pursue any of the myriad opportunities that physics provides



What comes next for a physics bachelors graduate?

You can take any job where they want you to solve complex problems

optical-scientist
quality-engineer
technical-services
data-analyst
product-manager
equipment-operator
high-school-physics-teacher
middle-school-science-teacher
software-developer
investment-associate
design-engineer
physics-tutor
it-consultant
engineer
research-assistant
lab-technician
project-manager
lab-consultant
systems-engineer
manufacturing-technician
business-analyst
data-scientist
accelerator-operator



You can attend any graduate program that builds on a physics base.

pharmaceuticals
materials-science
mechanical-engineering
astronomy
international-relations
data-science
library science
chemistry
medicine
biophysics
aeronautical-engineering
math
physics
applied-math
electrical-engineering
information-science
philosophy
neuroscience
bioengineering
law

Why major in physics?

- **GOOD reasons**
 - Because you REALLY want to know WHY the world works
 - Because the list of courses you REALLY want to take at UW gets you a physics degree (or at least close to one)
 - Because you explored several other options, and you like physics the best
- **Reasons that tend not to work out well ...**
 - Because you decided to do so in middle school
 - Because engineering or computer science turned you down
 - Because family or friends told you to

If you are smart enough to go to UW,
you are smart enough to be a physicist.

What does it take to be a physics major?

- **Interest –**

- Keen to learn about how and why matter interacts
- Enjoy “mathematization” of events and processes, and using the results to predict the future
- Proactive participation in your own learning
- Desire to pursue a career that uses physics knowledge and skills

- **Skills –**

- Time management and organization
- Problem solving
- Mathematical facility

- **Knowledge base –**

- Algebra, Trigonometry, Calculus
- Introductory physics series
(mechanics, electricity, magnetism, waves, optics, quanta, heat)

Typically apply Autumn or Spring of
Sophomore Year during 22x courses
Acceptance rate over 75%

Early Pathway: during 123/143

Learning Physics at UW

- One of the largest undergraduate programs in the country. Lectures are large, but have breakout sessions in 100-and 300-level courses and in all lab courses
- 80% of recent grads did for-credit research/project
- Society of Physics Students and Mentoring Program provide community and peer support



Intro Tutorial



UG Collaborate on Research



Advanced Lab



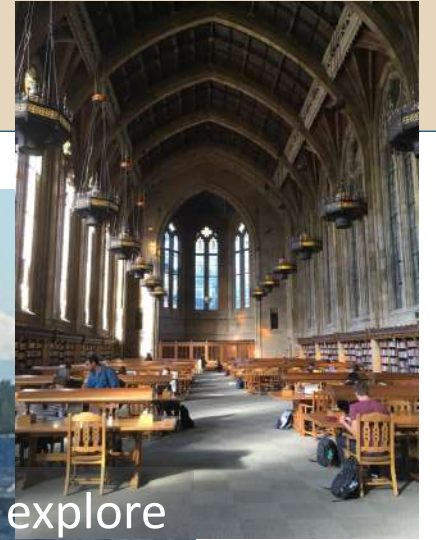
It's YOUR Education



Ten years from now, what will you wish you had done/learned/experienced while in college?



Build in time to learn and explore



Join activities that build community

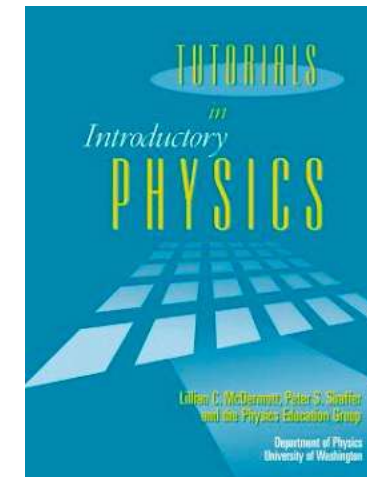
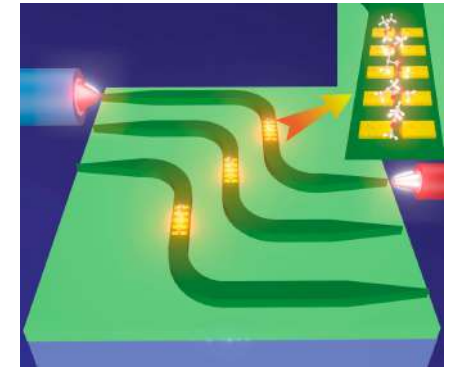
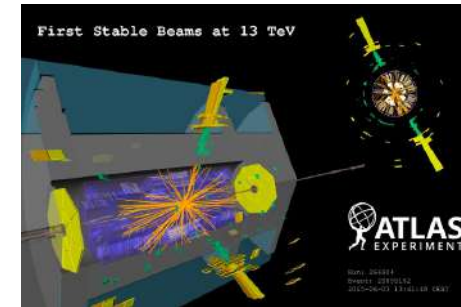


Get to know faculty and staff

It is YOUR job to introduce yourself
Profs can help you get involved in research
Summer REUs and Grad School require letters of rec
Jobs require references

UW Physics Degree 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/data science
 - More flexibility in electives
- **Teaching**
 - Communicate science to HS or general audience
 - Physics by Inquiry sequence
- **Biological**
 - Medical school, grad school in biophysics, biomed industry
 - 7 quarters of biology and chemistry in addition to physics core



<https://phys.washington.edu/declaring-major>

Physics as a Minor or Second Major

- Almost all Astronomy majors double major in Physics
- Other current double majors
 - Math
 - Chemistry
 - Computer Science
 - Economics
 - Music
 - Design
 - Oceanography
 - Civil Engineering
 - Computer Engineering
 - Electrical and Computer Engineering
 - Dance
 - ACMS
- Other recent double majors
 - Biology, Classics, Materials Science, Aeronautics and Astronautics, Philosophy, Russian, ...

Minor:

- Take the core 121-2-3/224-5
- Choose three UD courses in a specialization:
 - Teacher Preparation
 - Advanced Lab
 - Mathematical Physics

Majors of our Current Minors:

- Earth and Space Sciences
- Philosophy
- Computer Science
- Math
- Materials Science & Engineering
- Aero & Astro
- Chemistry
- Art
- Economics
- Computer Engineering
- Electrical and Computer Engineering

Physics has Broad Course Offerings

- **Full Suite of “Call me a physicist” Courses**
 - 3 quarters of Quantum Physics
 - 3 quarters of advanced Electricity and Magnetism
 - Statistical Mechanics
 - Special Relativity and Particles
 - Advanced Classical Mechanics
- **9 Intermediate and Advanced Lab Courses**
 - Electronics
 - Signal Processing
 - Optics
 - Condensed Matter
 - Atomic
 - ...
- **Specialty Courses that Integrate Core Knowledge**
 - Atomic Physics
 - Nuclear and Particle Physics
 - Biophysics
 - Condensed Matter Physics
 - Quantum computing
 - Neural Network Analysis for Big Data

Physics Capstone

- Spirit of the Requirement:
Use critical thinking to independently apply skills and knowledge acquired in the physics curriculum to an activity outside the classroom
- Ways to meet the requirement:
 - Research for credit in physics or astronomy
 - Pedagogy course icw learning assistant in intro classes
 - Directed reading in physics course
 - Senior seminar courses
 - Research outside the building[†]
 - Engineering team (or equivalent)[†]
 - Internship[†]

[†]requires a paper and credits to assign
(either extra elective or research credits outside dept)



Physics Departmental Honors

- Celebrate our top students
- Encourage students to get experiences needed for graduate school
- Requirements:
 - Physics GPA ≥ 3.6 in all courses ≥ 200 level
 - Honors thesis (PHYS 488) based on physics-related research (PHYS 499)[†]
 - Oral and Poster presentation of thesis project (PHYS 488)
 - Participation in Honors Seminar (PHYS 484-5-6) and/or Directed Reading in Physics (PHYS 498)

[†]out of department or off-site OK with prior permission

German Exchange Program

- Year-long Physics Study-Abroad Program
- Justus Liebig Universität, Giessen, Germany
- Before you go:
 - German 103 or higher
 - Either have completed PHYS 322, or have good enough German that you can learn these topics in German.
- Masters-level courses are taught in English
- Apply in December for the following year



Learn and Connect Outside the Classroom

- Physics Mentor Program
- Society of Physics Students
 - Lunchbox Seminars (Monday 12:30)
 - Tutoring/Study Hall
 - Email uwspsofficers@gmail.com to get involved
- League of Astronomers
- Study Groups
- Undergraduate Women in Physics
 - Email uwwomeninphysics@gmail.com to get involved
- Your CAPSTONE Experiences

These also build
community!

Want to learn more?

- Department Web Site:
<https://phys.washington.edu>
- Get on the announcements-physics-majors listserve
<http://mailman12.u.washington.edu/mailman/listinfo/announcements-physics-majors>
- Make an appointment with Prof. Blinov or an academic counselor:
<https://phys.washington.edu/advising-student-services>
- Society of Physics Students: UW Chapter: uwspsofficers@gmail.com
National Organization: <https://www.spsnational.org>

Physics Student Services – PAT C139 – physadvs@uw.edu

- Academic Counselors (physadvs@uw.edu)
 - **Jeanny Mai** (jeanny@uw.edu) and **Brenna Mulvaney** (bcm24@uw.edu)
 - All undergraduate issues
- Introductory Sequence Program Coordinator
 - **Jade Cox** (phys1xx@uw.edu)
 - 100-level course logistics
- Director of Student Services
 - **Catherine Provost** (cuala@uw.edu)
 - All graduate issues
 - Grad school-related UG issues
- Faculty Advisor
 - **Prof. Boris Blinov** (ufaphys@uw.edu)
 - advice from a faculty member
 - waivers and substitutions

Links to Drop-In Zoom and Appointment Calendar
<https://phys.washington.edu/advising-student-services>

For Info about Jobs, Scholarships,
Career Fairs, Talks, etc., sign up for
[announcements-physics-majors]

We look forward to your joining us!!

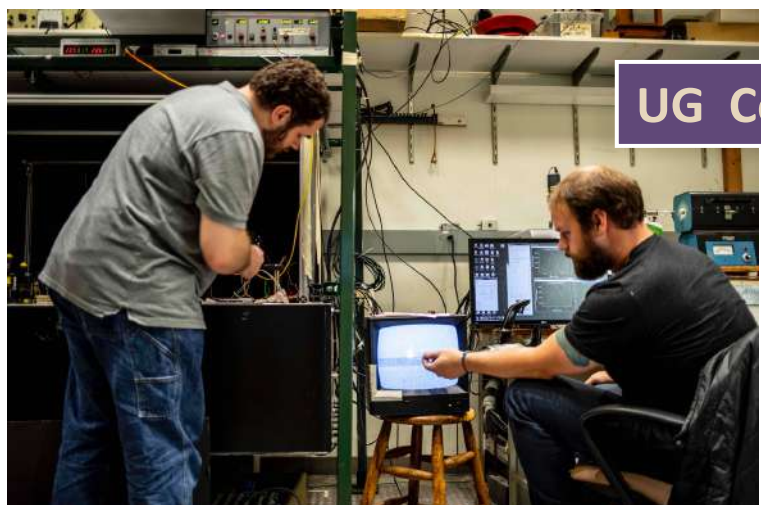


Graduation 2023



Intro Tutorial

To talk with us or get your questions answered :
<https://phys.washington.edu/advising-student-services>. physadvs@uw.edu



UG Collaborate on Research



Advanced Lab