

# Professional Master of Science in Physics

## Online Info Session

UW Physics Department

UW Professional & Continuing Education

Website: [emsp.phys.washington.edu](http://emsp.phys.washington.edu)

# UW Professional MS in Physics Program

## Agenda

- Welcome & Introductions
- The MS-Physics (PMSP) degree program at UW
- PMSP Admission and Degree Requirements
- Partnership between UW Physics and UW Professional & Continuing Education (PCE)
- Questions & Discussion

## Today's hosts

- Prof. Jeffrey Wilkes, *UW Department of Physics*
- Mr. René Siegenthaler, *UW Professional and Continuing Education (PCE)*

These slides will be available on our website,  
<http://emsp.phys.washington.edu>

# UW Physics Department

- Offers BS, MS, and PhD programs
- Faculty
  - UW Physics faculty recognized internationally as leaders in theoretical and experimental research
    - 2016 Nobel Prize awarded to Prof. David Thouless!
  - Students can participate in leading-edge research conducted by faculty, and learn about the latest scientific discoveries

## MS-Physics Program (MSP)

- Started in 1970s
  - Originally, Boeing employees were the majority of students
  - Now students come from many sources:
    - Employees of regional high-tech firms
    - High school teachers
    - Military personnel
    - Recent BS graduates
- Program designed for working professionals
  - All evening classes
  - Majority of students enroll in one course per quarter
  - Typically 2-3 years to complete degree program

## Designed as terminal MS degree

- Growing demand for Professional Science Master's degrees in STEM fields
  - Employers (industry, R&D labs) recognize value
  - Separate from Physics PhD program
    - Not designed as preparation for PhD
    - However, MSP alumni have gone on to PhD programs at UW and elsewhere
  - All courses taught by full-time Physics faculty (regular and research faculty)

# Motivations & Results

- Student motivations
  - Professional and career advancement
  - Seek qualifications for more interesting assignments
  - Career re-direction
  - Simple intellectual interest
- Graduates succeed!
  - Promotions with current employer
  - Secure new jobs
  - Define new career paths in R&D or teaching

## Not just for physics majors

- BS degree in any physical science or field of engineering, mathematics, or computer science
  - Not limited to applicants who majored in Physics as undergraduates (tell your friends)
  - Not limited to students who got top grades as undergrads...
  - Not limited to *recent* graduates—some of our students took their BS degree 5 ~ 20 years ago



# Admission Requirements

- **Reasonable** grades in **relevant** courses
  - B (3.0) grade average in 300-400 level undergrad physics courses or equivalent engineering courses
- Statement of purpose
  - Your reasons to join the MSP
    - How the MSP will connect to your career goals
    - NOT an essay contest: intended for advising only
- GRE score is not required (or considered)

## Not sure you are ready?

- Start as a Graduate Non-Matriculated (GNM) student (minimal requirements to start)
  - Take core courses to evaluate the program
  - Option to apply later for admission to the MS degree program
    - Up to 12 GNM credits can be applied to the MSP
  - Take individual courses without committing to degree
- GNM is an option to expand your knowledge without committing to the degree program

# Admissions

- For admission to the *Physics MS Degree Program*, or as *GNM*, submit your application to the UW Graduate School online:  
<http://www.grad.washington.edu/admissions>
- Applications are welcome at any time
  - *Most students start Autumn quarter but this is not required*
  - Apply for admission in the next academic quarter, or to start later
- Admission decisions are made every quarter (summer also)
  - Quarterly deadlines listed on website are the latest date we can ensure consideration in time for the following quarter, but post-deadline applications are welcome.

# MS Degree Requirements

- 1 - Complete three of the four core courses (4 credits each)
  - PHYS 543: Electromagnetic Theory
  - PHYS 441: Quantum Physics
  - PHYS 544: Applications of Electromagnetic Theory
  - PHYS 541: Applications of Quantum Physics

} Offered every year

} Alternate years
- 2 - Complete at least 18 credits in graded courses
  - MSP offers one core and one elective course per quarter
- 3 - Complete a final independent study project
  - Submit project report (not a formal MS thesis)
  - Oral exam on your independent study topic
- 4 - Accumulate at least 36 credits (courses plus independent study)

## Online class attendance

- All classes currently meet in person, on the UW Seattle campus
- However, *most* classes now offer optional online attendance
  - If you prefer, you can attend classes from home, work, or anywhere with an internet connection, using any common browser
    - Adobe Connect provides audio and video of the instructor, slides, chat window and other distance learning facilities
- For courses including lab or other hands-on work , we try to limit required on-campus attendance to one or two sessions per class

## Electives recently offered

- Quantum Computing
- Nuclear physics: sources, detectors, and safety
- Physics of Renewable Energy Sources
- Radiation and Radiation Detectors
- Electronics for Physics Research
- Contemporary Optics
- Numerical Methods for Physics & Data Analysis
- Physics of Lasers
- Condensed Matter Physics

## Customize your program with independent study courses

- Exploratory independent study courses (typically 1 or 2 credits)
  - Mentored by a Physics faculty member
  - Choose a topic of your own, or work with faculty on their research program
- Final Independent Study Project (typically 8—18 credits)
  - Work with faculty in Physics, or professors in other departments who are adjunct Physics faculty
    - MS students typically participate in ongoing research projects with faculty and PhD students
  - Or, define your own project topic
    - Some do job-related research under faculty supervision

## Your final project

- Recruit a Physics faculty member to be your supervisor/ adviser
- Schedule and enroll in independent study (PHYS 600) courses each term (typically 2~4 credits/term)
- Prepare written report to summarize project and findings
  - Typically 20 -- 50 pp, formatted as a technical report
  - Oral examination:
    - Presentation of project and findings (typically 30 min.)
    - Questions posed by panel of two physics faculty
    - Submit final written report



# Choose a research area that fits your goals

## UW Physics Department Research Groups

- Browse research group web pages to identify faculty members who may be mentors for independent study projects:

Astrophysics	Nanoscale Physics
Atomic Physics	Neutrino Physics
Biological Physics	Nuclear Experiment
Collider Physics	Nuclear Theory
Condensed Matter Experiment	Particle Experiment
Condensed Matter Theory	Particle Theory
Energy Sciences	Physics Education
Gravitational Physics	Precision Measurement
	Quantum Information

For complete list, see [sharepoint.washington.edu/phys/research/](https://sharepoint.washington.edu/phys/research/)

## Physics Adjunct Faculty in other departments

- See the Physics Department website for a list of faculty in other departments who are adjuncts in Physics (can supervise Physics grad students):

### Astronomy

Aeronautics and Astronautics

Applied Mathematics

Atmospheric Sciences

Bioengineering

Center for Nanotechnology

### Chemistry

Earth and Space Sciences

Electrical Engineering

Materials Sciences

Physiology and Biophysics

Radiology

## Administered jointly by Physics Department and UW PCE

- Upon successful completion, you are awarded the MS in Physics by the UW Graduate School
  - **Same diploma as any full-time/daytime UW MS student**
  - All academic aspects are handled by Physics faculty
- PMSP degree program is administered by UW Professional & Continuing Education (PCE):
  - Course registration is handled by UW PCE
  - PMSP is one of more than 80 graduate degree programs managed by PCE

## Program costs

- PMSP is a self-supporting (not state-supported), fee-based degree program
- Tuition is currently \$693/credit
  - Total course fees/tuition for degree program (36 credits) is about \$25K
  - Tuition intended to track UW resident graduate tuition
- Loans are available for some MS students
  - Assistantships and department-funded fellowships are not available for part-time programs like PMSP

# Contact Information

**Website: [emsp.phys.washington.edu](http://emsp.phys.washington.edu)**

For general information on program, requirements, applications and admissions:

- **Catherine Provost**, Graduate Student Advisor  
(206) 543-2488  
[emsp@uw.edu](mailto:emsp@uw.edu)

For questions about registration and payment options:

- **Chantelle Vollmer**, Program Coordinator  
(206) 685-9586  
[cvollmer@pce.uw.edu](mailto:cvollmer@pce.uw.edu),

For academic issues, or questions on course offerings, prerequisites, the independent study component, and qualifications:

- **Jeffrey Wilkes**, Faculty Coordinator for PMSP  
(206) 543-4232  
[emsp@uw.edu](mailto:emsp@uw.edu)

(Mail sent to [emsp@uw.edu](mailto:emsp@uw.edu) goes to both Provost and Wilkes – either may reply)

## Questions ?

- Program Structure
- Course of Study
- Admission Requirements
- Degree Requirements
- Independent Study Project
- Registration, course and program fees
- Option to start as a Graduate Non-matriculated (GNM) student
  - For further info please visit our website, [emsp.phys.washington.edu](http://emsp.phys.washington.edu)