

Professional Master of Science in Physics

Online Information Session

September 10, 2018

UW Physics Department

UW Professional & Continuing Education

Website: <http://www.physicsmasters.uw.edu>

Today's presentation

Professor Jeffrey Wilkes,
PMSP Faculty Coordinator
UW Department of Physics

These slides will be available after today's session, at
depts.washington.edu/emsp/infosessions/InfoSession180910.pdf

UW Professional MS in Physics Program

Agenda

- 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

UW Physics Department

- Offers BS, Professional 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 – program upgraded in 2009
 - 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 studies
 - However, MSP alumni have gone on to PhD programs at UW and elsewhere
 - All courses taught by full time UW Physics faculty (regular and research professors)

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 physical science, mathematics, or engineering
 - Not limited to applicants who majored in Physics as undergraduates
 - Not limited to students who got top grades as undergrads... (tell your friends)
 - 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
 - Physical science and most engineering (EE, ME, CE, ChemE, etc) BS programs include appropriate courses
- Statement of purpose
 - Your reasons to join the MSP
 - How the MSP will connect to your career goals
 - **NOT an essay contest**: used only for better advising
- 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 try out the program
 - May apply later for transfer to the MS degree program
 - Up to 12 GNM credits can be applied to the MS
 - OR 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 you may start in Winter or Spring (but not Summer) Quarter*
 - Apply for admission in the next academic quarter, or to start later
- New applications are reviewed every quarter (summer also)
 - Quarterly deadlines listed on website are the latest date we can *ensure* processing in time to start 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,
Autumn and Winter

} Alternate years,
Spring term
- 2 - Complete at least 18 credits in *graded* courses
 - MSP offers one core and one elective course per quarter
 - You may take elective courses in other departments, with prior approval
- 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 meet evenings, on the UW Seattle campus
- However, *all lecture* classes offer optional online attendance
 - If you prefer, you can attend classes from home, work, or anywhere with an internet connection, using any common browser
 - *Zoom video conferencing* provides audio and video of the instructor, slides, chat window, and recordings of class sessions
 - Classes are not designed as online-only; we recommend in-person attendance when you can
- For courses with labs or other hands-on work, we try to limit required on-campus attendance to a few 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
 - Customize your studies to match your personal goals
 - Choose a topic of your own, select from a list of suggested topics, or work with faculty on their research program prepare for a final project
- Final Independent Study Project (typically 8—18 credits)
 - Work with faculty in Physics, or professors in other departments
 - 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 2~8 credits/term)
- Prepare written report to summarize project and findings
 - Typically 20 -- 50 pp, formatted as a technical report
 - Final oral examination:
 - Presentation of project and findings (typically 30 min.)
 - Questions posed by panel of two or more 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 <https://phys.washington.edu/research>

Physics Adjunct Faculty in other departments

- See the Physics Department website for a complete 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 \$725/credit
 - Tuition is intended to match UW resident graduate tuition
 - Total course fees/tuition for degree program (36 credits) is about \$26K
- Loans are available for some MS students

Contact Information

Website: www.physicsmasters.uw.edu

For any academic questions, or questions about course offerings, prerequisites, the independent study component, and qualifications:

- **Jeffrey Wilkes**, Faculty Coordinator for PMSP
(206) 543-4232 (but email is best):
emsp@uw.edu

Mail sent to emsp@uw.edu goes to *both* Provost and Wilkes – either may reply

For questions about program, requirements, applications and admissions process:

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

For questions about registration and payment options:

- **Brian Cox**, Program Coordinator
(206) 616-5104
bc26@uw.edu

Questions ?

- For further info please visit our website,
www.physicsmasters.uw.edu
or email emsp@uw.edu

These slides will be available after today's session, at
depts.washington.edu/emsp/infosessions/InfoSession180910.pdf