



Lite-Version for PH 198

Physics WIC Requirement
Senior Thesis
or PH 317

<https://physics.oregonstate.edu/wic-course-information>

Physics Major Timeline



- Junior Year
 - Paradigms
 - Computational Physics
 - Electronics Lab
 - Research or PH 317
- Senior Year
 - Capstones (EM, QM, Thermo, Optics)
 - Senior Thesis or PH 317
 - Electives
 - Research
- Job / Grad School

WIC



- OSU Baccalaureate Core
- Writing Intensive Curriculum (WIC)
 - Major specific
 - Physics majors: PH 317 or PH 403 (3) thesis
 - OSU info: <https://wic.oregonstate.edu>

PH 317



- Writing Intensive Curriculum (WIC) Course
- Experimental Physics Course
- Winter Term – 3 credit lab course & writing
- Times MWF 2-4, Limited space (12)
- Research-type experience focused on 2 experiments only: X-ray crystallography, Brownian motion
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<https://physics.oregonstate.edu/ph317-experimental-physics-w2021>

Senior Thesis Requirements



- Physics Research - 3 units PH 401 (Jr/Sr)
- Writing Intensive Curriculum (WIC)
 - PH 403 Thesis
 - 1 unit Fall term of Senior year
 - 1 unit Winter term of Senior year
 - 1 unit Spring term of Senior year
- THESIS
- ORAL Presentation at end of Spring

Timeline, Action Items



- JR year Fall term: Gather info, Seek project
- JR year Winter term: Seek project, **WIC Fair**
 - Apply for summer REU
 - Contact OSU profs
 - other ...
- JR year Spring term: Start: PH 401
- JR-SR Summer: DO RESEARCH, PH 401
- SR year Fall term: PH 403, PH 401
- SR year Winter term: PH 403, PH 401
- SR year Spring term: PH 403

Research Options



- OSU Physics Faculty
- OSU Faculty in other depts
 - Engineering
 - Oceanography
 - Chemistry
 - Ag
 -
- REU (need OSU co-advisor)
- Internships (need OSU co-advisor)

OSU Physics Faculty



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|------------------------------|---------------------------------------|
| • Prof. Liz Gire | Physics Education Research |
| • Prof. Matt Graham | Experimental Condensed Matter Physics |
| • Prof. Henri Jansen | Theoretical Condensed Matter Physics |
| • Prof. David Lazzati | Theoretical Astrophysics |
| • Prof. Yun-Shik Lee | Experimental Atomic & Optical Physics |
| • Prof. Corinne Manogue | Physics Education Research |
| • Prof. David McIntyre | Experimental Atomic & Optical Physics |
| • Prof. Ethan Minot | Experimental Condensed Matter Physics |
| • Prof. Oksana Ostroverkhova | Experimental Atomic & Optical Physics |
| • Prof. Weihong Qiu | Experimental Biophysics |
| • Prof. David Roundy | Theoretical Condensed Matter Physics |
| • Prof. Heidi Schellman | Particle Physics |
| • Prof. Guenter Schneider | Theoretical Condensed Matter Physics |
| • Prof. Xavier Siemens | Astrophysics |
| • Prof. Bo Sun | Experimental Biophysics |
| • Prof. Janet Tate | Experimental Condensed Matter Physics |

<https://physics.oregonstate.edu/senior-thesis-projects-20202021>

OSU Physics Faculty (contd)



- Dr. Kathy Hadley Theoretical Astrophysics
- Dr. K.C. Walsh Physics Education Research
- Prof. Pavel Kornilovich (HP) Theoretical Condensed Matter Physics
- Prof. David Craig Theoretical Quantum Physics
- Prof. Tevian Dray (Math) Relativity
- Prof. Douglas Keszler (Chem) Experimental Solid State Chemistry
- Prof. Chong Fang (Chem) Experimental Physical Chemistry

<https://physics.oregonstate.edu/senior-thesis-projects-20202021>

OSU Physics Research



- Learn about OSU Research at talks:
- Colloquium: Monday 4:00 Weniger 116
 - Coffee/Tea/Cookies at 3:30 in Weniger 379
 - <http://physics.oregonstate.edu/colloquium>
- Seminar: Wednesday 4:00 Weniger 304
 - <http://physics.oregonstate.edu/departments-seminar>
- Talk to students in groups
- Web
 - <https://physics.oregonstate.edu/research-department-physics>
 - <https://physics.oregonstate.edu/senior-thesis-projects-20202021>

PH 403 Activities



PH403 (Thesis) concerns the writing aspect of the research, and students enroll in 1 unit of PH403 in each of Fall, Winter and Spring of the senior year. You will need permission from the Physics office to register.

A typical thesis is about fifteen to twenty pages, or about 3,000 to 5,000 words. The goal is to have the thesis ready by week 6 of Spring term. T

Recent OSU Physics Theses



See Full list at <https://physics.oregonstate.edu/wic-course-information>
with links to digital copies

- Computing Wavefunctions of Silicon Donor Qubits with Density Functional Theory
- Theoretical and Experimental Analysis of the Length of Actin Filaments in Cancer Cells
- Analysis of Upper Ocean Surface Wave Structure in the Bay of Bengal using Ξ -SOLO Floats
- Project BoxSand: Impact of Course Website Interactions on Exam Performance in a Flipped Classroom Environment
- Using an Optical Trap to Measure Brownian Motion on 3 μm Polystyrene Microspheres
- Synchronized Cellular Mechanosensing due to External Periodic Driving
- The Effect of Annealing Parameters on the Electrical Properties of Fluorine Doped Tin Oxide

Contacts



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- PH 317 Instructors: Janet Tate
- Dept. Chair: Heidi Schellman
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