Physics Graduate Student Orientation Meeting, 2015
Presentations

1. Ray Frey (Head of Physics Department) Official welcome from the Department, introduction of personnel etc

2. Steve Gregory (Director of Graduate Studies) Coursework, exam information and PhD requirements
Teaching Workshops and Credits

All Physics Teaching Assistants are required to sign up for 2 credits (only for this term - it will be for 1 credit in future terms) of PHYS 609, Practical Supervised Tutoring (CRN 15070).

(The extra credit is added for this term because of the extensive TA training you are involved in before term starts.)

Note that, when signing up on DuckWeb you will think it is only letting you sign up for one credit, but you should be able to reload the page (I think) and increase the number of credits to two. Jodi can help if you are having problems.
Ph.D. Requirements (Roughly in Chronological Order)

First Year - take the graduate core courses (unless they are waived, because, for instance, you already have a master’s degree).

PHYS 610 Mathematical Methods of Electricity and Magnetism (Prof Belitz)
PHYS 611, 612/613, 614 Theoretical Mechanics/Statistical Mechanics (Prof Toner)
PHYS 631, 632, 633 Quantum Mechanics (Prof Noeckel)
PHYS 622, 623 Electromagnetism (Prof ???)
Unified Graduate Exam

Master’s and Ph.D. Exams are actually the same exam, given every Spring and Fall. The exam emphasizes advanced undergraduate physics. However, up to a third of the material is at the level of the graduate core courses.

You CAN try the exam right away – in a couple of weeks time.

16 questions in four areas (i.e. four per area), over four 2hr 40min sessions.

The four subject areas are:
Mechanics, Electromagnetism, Quantum Mechanics, Statistical Mechanics & Thermodynamics

Incoming students (this year only) and existing students can choose to take the exam under either “new rules” or “old rules”.
New Version of Exam Rules

Must reach the master’s pass level in all four areas before the master’s level deadline (mentioned in the handbook and below).

Top two scores counted for master’s pass in an area.

Must reach the Ph.D. pass level in all four areas before the Ph.D. level deadline (mentioned in the handbook and below).

Top three scores counted for Ph.D pass.

The percentage score for a pass at either the master’s or Ph.D. level (with either 2 problems or 3 problems counting), is nominally 50%, but is adjusted slightly by Exam Committee.

Each time the exam is offered, you can pass in some areas and then, in future attempts, retake only areas that you have not yet passed.
Old Version of Exam Rules

The old version of the rules involves the same exam, testing the four subject areas, but the grading aggregates your scores across the different areas.

You “only” need to reach the pass level with your aggregate score.
Pass Deadlines

Can take the exam in the Fall of your first year. (This year, on Mon Sep 28th and Tue Sep 29th.)

Must take the exam in the Spring of your first year and keep taking it until you pass.

Master’s Level:
You need to pass at the master’s level by the Spring of the 2nd year of graduate study (4 possible attempts)

Ph.D Level:
You need to pass the exam by the Fall of the 3rd year of graduate study (5 possible attempts)
You are required to take at least six graduate physics courses, or other approved (by SG) graduate science courses - excluding the "core" courses.

Breadth courses are not necessarily taught every year, so you may have to wait an extra year to take something you particularly want. Because we realize this, you only need to have $\geq 3$ courses completed at the time you take your Comprehensive Exam and are "advanced to candidacy".
You need to get connected with a research group as soon as possible.
If the connection has not happened before you pass the Ph.D. qualifying exam it should happen very soon thereafter.

Sign up for PHYS 601 (research) with an advisor and after 6 months or so it should be clear whether you are going to continue with that advisor. If not try somebody else.

Talk to faculty members early!
Departmental Advisory Committee

By Spring Term of your 3rd year you (in consultation with SG) should create your "Departmental Advisory Committee":

- Chair (in your research area but not your advisor)
- (Potential) Advisor
- Another faculty member from your area (usually a theorist if you are an experimentalist or an experimentalist if you are a theorist)

This committee will meet with you right away and then once a year until the Comprehensive Exam, which MUST be passed by the end of Fall term in your 4th year.
Full-Time Load

Definition of a “Full-Time Load”: 9-16 graduate credit hours.

MINIMUM of 9hrs required for graduate teaching fellows, research assistants, and to maintain visa status. (Audits don’t count.)

The Physics Department would like students to take all 16 hrs (because it looks good to the college, possibly).
## Typical First-Year Load

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 courses in &quot;Core&quot; Physics</td>
<td>12</td>
</tr>
<tr>
<td>PHYS 607 Physics Colloquium</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 607 Research Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 609 Pract Superv Tutoring</td>
<td>1 or 2 *</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
</tr>
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</table>

Remember: In first (Fall) term of PHYS 609 you should sign up for 2 credits, but only for 1 credit in future terms.
The First Fall Term

“Core Courses”:

- PHYS 610 Mathematical Methods
- PHYS 611 Theoretical Mechanics
- PHYS 631 Quantum Mechanics

Research Seminars (Choose from):

- Theoretical Science
- Materials Science
- Optics
- High Energy Physics
- Molecular Biology
- Physical Chemistry
- Graduate Students
You can sign up for any seminar series. We ask you to sign up for them mostly to “max out” your credit hours. It isn’t essential that you go to every seminar.

Sometimes you won’t have time, or you may decide you are more interested in something else. You can go to seminars other than the ones for which you signed up.

The seminar organization is pretty informal. There won’t necessarily be one every week.
A Note about GPA

The Graduate School has recently become more of a pain about GPAs. (Strictly interpreted, the GTFF contract requirements will not allow students with GPAs below 3.0 to hold GTF appointments.)

Although there is usually a bit of leeway in the interpretation, the Grad School will block registration and make the Grad Director (me) create a “plan” for increasing a student’s GPA and issue threats about consequences. So... I would like you to pay attention to your GPA and where you might otherwise choose to do research, party more etc, instead try to keep up your grades.

Remember, the longer a GPA is allowed to stay low, the heavier it gets. In the end it MUST get above 3.0 for you to be able to advance to candidacy.

Tell me if you are having difficulties. Sometimes it might be necessary to drop a course rather than get a low grade.
References

Physics Graduate Student Handbook
(physics.uoregon.edu/grad_studies/handbook)
Fall 2015 Schedule of Classes
2015-2016 University of Oregon Catalog
DuckWeb ( https://duckweb.uoregon.edu/ )