

Graduate Studies at the TTU Department of Physics & Astronomy

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Welcome to the Physics Graduate Program!

- Congratulations on continuing your science career at Texas Tech!
- I will cover graduate program basics: degree requirements, courses, research, milestones, financial assistance, etc
- More details can be found in the Graduate Booklet. Check the current version of the Booklet at <http://www.depts.ttu.edu/phas/Academics/>

The Path to Ph.D.

- Fulfill course requirements
- Pass the Prelim Exam
- Choose your Research Advisor (normally PHAS faculty)
- Perform pilot studies and build a research plan
- Form Ph.D. advisory committee and defend your thesis proposal
- Research, research, research (also scratch your head, have eureka moments, present your findings, write papers, apply for grants and scholarships, collaborate, compete, network, become accepted in your field...)
- Find your next job
- Write and defend your thesis
- These steps are not necessarily sequential

Core Courses

- All graduate programs (M.S. and Ph.D.):
 - Classical Dynamics (Fall)
 - Quantum Mechanics I (Fall)
 - Electromagnetic Theory (Spring)
 - Statistical Physics (Spring)
- The Ph.D. program:
 - Quantum Mechanics II (Spring)
 - Advanced Electromagnetic Theory (Fall)
- TTU core course GPA must be at least 3.0 (required for both M.S. and Ph.D.)

Other Common Courses

- Seminar (required for the first three semesters)
- Tool courses (recommended):
 - Methods in Physics I
 - Computational Physics
- **Finish your required coursework as soon as you can!**
- Additional courses will be up to you and your Research Advisor. Overall GPA in all courses/research taken in the graduate program must be at least 3.0.
- At some point, you will likely need to enroll in thesis/dissertation hours (required if you plan to defend M.S. thesis/Ph.D. dissertation)
- To be a full-time student at TTU, you must enroll in at least 9 credit hours per regular semester (this includes research and thesis/dissertation hours)

The Ph.D. Prelim Exam

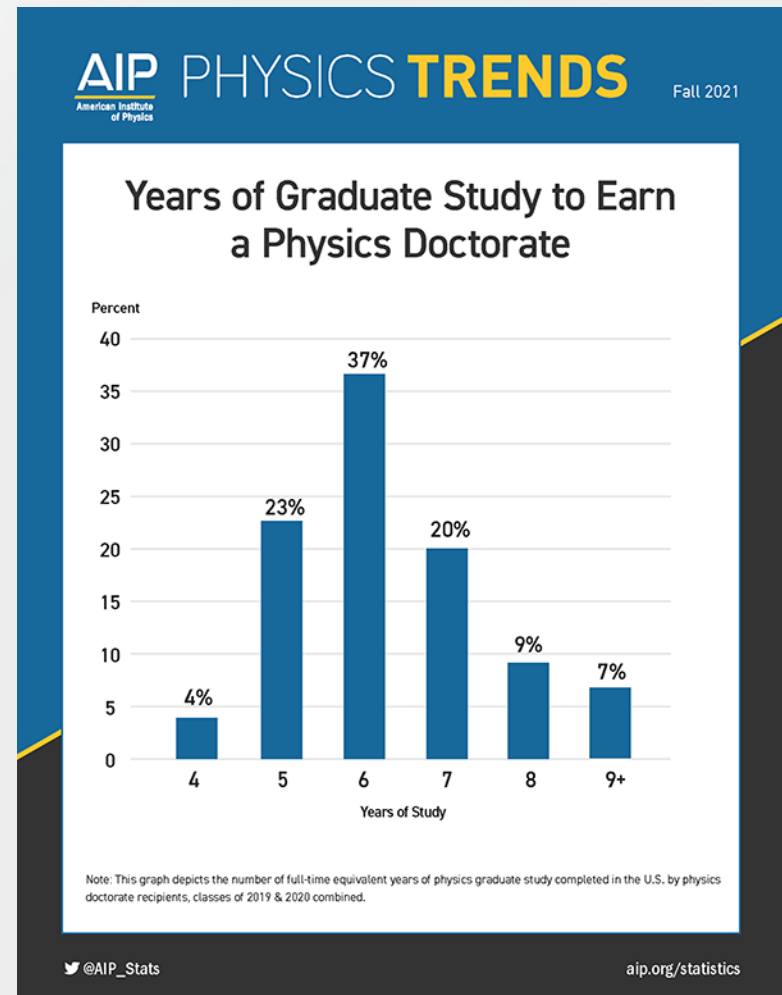
- A fairly comprehensive exam on the topics of the four core courses plus some general physics
- Consists of written and oral parts
- The outcome is the pass/fail decision made by the examination committee
- Typically offered before the start of the Fall semester
- Normally taken by the students after one year in the graduate program
- Can be retaken once if the first attempt results in a fail
- A prelim-prep course is usually offered in the Summer (taught last Summer by Profs. Huang and Sanati)

Research

- Find a Research Advisor as soon as possible
- Think of your research not only in terms of its intellectual challenges and scientific merit but also in terms of propelling your career as a scientist
- While attaining M.S. or Ph.D. degree is your near-term goal, you should definitely look beyond that
- The book *A PhD is Not Enough!: A Guide to Survival in Science* by Peter J. Feibelman offers good advice on various aspects of research and scientific career planning

Typical Timeline

- Completion of M.S.-level core courses – one year after enrollment
- Selecting Research Advisor – one year
- Prelim Exam – one year (two years if the first attempt fails)
- Completion of Ph.D.-level core courses – two years
- M.S. degree – two years
- Thesis proposal and advancement to candidacy – three years
- Thesis defense and graduation – five to seven years



Financial Assistance

- TA, RA, or GPTI assistantships
- TTU fellowships and scholarships
 - TTU general fellowships (application deadline Jan 15, 2024)
 - Dissertation completion fellowship
 - Graduate student research support scholarship
 - PHAS graduate scholarships
 - Graduate school and PHAS travel funds
- External fellowships and awards
- You can apply for some of these scholarships yourself. For others, convince your Research Advisor or some other faculty to nominate you. Apply early.
- See <http://www.depts.ttu.edu/gradschool/> (click on “Financial Support”)



apply
here

People

- Department Chair: **Sung-Won Lee**
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