**Why GRADUATE STUDIES in PHYSICS, ENGINEERING PHYSICS & ASTRONOMY?**

Our department provides exciting opportunities for graduate students to study in many stimulating research environments. In addition to a large number of high-profile professors, we have recently recruited many new world-class physicists who are setting up exceptional research programs in cutting-edge areas of theoretical, applied and experimental physics. In 2016 we had a record intake of excellent new graduate students, bringing our department total to over 75 Canadian and International students.

**Why QUEEN’S?**

The Department of Physics at Queen’s University is one of the leading Canadian research institutes in Physics. Our faculty includes high-profile, world-class physicists who work on cutting edge areas of theoretical, applied and experimental physics. Our staff and students carry out their research on campus as well as at external facilities including some of the largest astronomical and astro-particle observatories in the world, such as the Gemini Observatory in Hawaii, the Sudbury Neutrino Laboratory (SNOLAB), and the High Performance Computing Virtual Lab (HPCVL supercomputer).

**Program STRUCTURE**

PhD (4 years): Course work, research project, thesis & defense, seminar series.

**RESEARCH Areas**

- Condensed Matter Physics & Optics
- Engineering & Applied Physics
- Astrophysics & Astronomy
- Particle Physics & Particle Astrophysics

We encourage you to identify an area of research interest and contact a potential supervisor before applying.

Visit the [Department of Physics, Engineering Physics & Astronomy website](http://www.queensu.ca/physics) to read faculty profiles and learn more about faculty members’ research areas. When you find a faculty member with similar research interests to yours, contact him/her and tell them about your interest in graduate work and related experience.
**DOCTOR OF PHILOSOPHY (PhD)**

**ACHIEVE YOUR ACADEMIC GOALS**

- Meet early with your supervisor to set expectations and discuss roles, responsibilities, program requirements, resources, research/occupational goals, timelines, and any required accommodation plans.
- Look to the Student Academic Success Services for a variety of supports.
- Attend and participate in graduate seminars and colloquia hosted by the department.
- Write and defend your thesis proposal.
- Embark on your substantive research.
- Set up regular meetings with your supervisor to discuss progress and obstacles to timely completion.
- Find your way through the academic process with the help of Expanding Horizons.
- Seek experiences/professional development opportunities.
- Continue to meet regularly with your supervisor, review research progress, and write your dissertation.
- Check out the SGU Dissertation Boot Camp or Dissertation on the Lake.
- Consider publishing elements of your research. Learn from the Expanding Horizons Publishing workshop.
- Begin discussion of potential thesis defense examiners.
- Plan date of thesis submission for examination.
- Present your research to graduate students and faculty or at conferences and work with supervisor to prepare for defence.
- Review submission and examination guidelines.
- Secure necessary oral defence accommodations.
- Discuss career pathways, references, letters, and publication options with your supervisor.

**MAXIMIZE RESEARCH IMPACT**

- Think about audiences for your research.
- Complete ROMEO online module on research ethics if doing research with living people or sensitive topics.
- Apply to NSERC, OGS, and other funding.
- Attend conferences in your field, such as the Canadian Association of Physics Annual Congress.
- Present your work at graduate conferences, through professional associations, or topic conferences.
- Expand your research audience through social media such as Twitter or a blog.
- Apply for the Graduate Dean’s Travel Grant for Doctoral Field Research.
- Continue to present at conferences.
- Consider participating in the 3 Minute Thesis (3MT) competition.
- Contact the Queen’s Media Centre for guidance on speaking to news outlets about your work.
- List yourself on the Arts and Science University Research website.
- Practice articulating the skills you have been developing in settings outside the university, such as casual conversation, networking, and interviews.
- Get help from a Career Services workshop.
- Plan and prepare for external professional development.
- Consider participating in the Doctoral Field Research.
- Continue to meet regularly with your supervisor, review research progress, and write your dissertation.
- Check out the SGU Dissertation Boot Camp or Dissertation on the Lake.
- Consider publishing elements of your research. Learn from the Expanding Horizons Publishing workshop.
- Begin discussion of potential thesis defense examiners.
- Plan date of thesis submission for examination.
- Present your research to graduate students and faculty or at conferences and work with supervisor to prepare for defence.
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**BUILD SKILLS AND EXPERIENCE**

- Serve on departmental, faculty or university committees. Talk to the Society for Graduate Students for tips on getting involved.
- Consider positions in student services, the SGPS, or media outlets like the Queen’s Journal CFRL and the SGS Blog. Look in the AMS Clubs Directory.
- Like a Teaching Assistant or Research Assistant position to develop your skills and experience.
- Hone skills for non-academic employment by continuing involvement on committees and in the community.
- Keep up with your grad student’s community.
- Find opportunities for extra training through CTL, Expanding Horizons, Mitacs, or other sources to boost your skills. Investigate internships from Mitacs and other sources.
- Prepare for work or studies in a multi-cultural environment by taking QUEC’s Intercultural Competency Certificate.
- Practice articulating skills that you have developed in settings outside the university, such as casual conversation, networking, and interviews.
- Get help from a Career Services workshop.
- Consider joining professional societies like the Canadian Association of Physicists.
- Join groups on LinkedIn reflecting specific careers or topics of interest.

**ENGAGE WITH YOUR COMMUNITY**

- Consider volunteering with different community organizations, such as Martha’s Table, Loving Spoonful.
- Take advantage of the facilities linked to the department, including Cancer Research.
- Consider volunteering with different community organizations, such as the Cancer Centre of Southeastern Ontario, the Sudbury Neutrino Observatory (SNOlab), or Kingston Nano Fabrication Laboratory (KNFL), and more.
- Participate in your graduate and professional community through activities such as graduate student outreach programs, organizing conferences, and research groups like Matter Matters.
- Do some targeted networking with people working in careers of interest, through CareerConnect or LinkedIn, the Queen’s Alumni Association, professional associations, and at conferences. Get help from a Career Services workshop.
- Consider joining professional societies like the Canadian Association of Physicists.
- Join groups on LinkedIn reflecting specific careers or topics of interest.

**LAUNCH YOUR CAREER**

- Finding career fits starts with knowing yourself. Take a Career Services career planning workshop or meet with a career counselor for help. Check out books like So What Are You Going To Do With That? or Planning a Scientific Career in Industry from the Career Resource Center for advice on various career options.
- Start reading publications like University Affairs and the Chronicle of Higher Education.
- Browse non-academic labor market websites.
- Stay on the lookout for special events like Graduate Student Career Week to explore your career pathways.
- Start building your teaching portfolio including student evaluations, and seeking mentorship.
- Explore different careers of interest by reading alumni profiles on the SGS website, and using QueenConnects on LinkedIn to connect with Queen’s alumni or find alumni in various career paths through Ask an Alum. For more information check out Career Cruising.
- Investigate requirements for professional positions or other opportunities related to careers of interest.
- Participate in hiring committees and attend job talks. Research academic careers of interest. Craft your CV and job application materials.
- Start focusing on non-academic areas of interest. Research organizations of interest and start putting together your resume for potential positions of interest.
- Check out the free online modules at MyGradSkills to help you plan your career.
- Build connections with faculty outside of your department. Pursue interviews for faculty positions and apply for post-doctoral fellowships and positions.
- Apply to jobs or make plans for other adventures. Get help from Career Services with job searching, resumes, or interviews.
- If considering jobs abroad, research possible immigration regulations. If you are an international student interested in staying in Canada, consider speaking with an International Student Advisor.

**WHAT WILL I LEARN?**

- A graduate degree in Physics, Engineering Physics & Astronomy can equip you with valuable and versatile skills, such as:
  - Knowledge and technical skills: effective communication skills in multiple forms for diverse audiences.
  - Information management: prioritize, organize and synthesize large amounts of information.
  - Time management: meet deadlines and manage responsibilities despite competing demands.
  - Project management: develop ideas, gather information, analyze, critically appraise findings, draw and act on conclusions.
  - Creativity and innovation.
  - Perseverance.
  - Independence and experience as a collaborative worker.
  - Awareness, an understanding of social and ethical practices, social responsibility, impossible research and cultural sensitivity.
  - Professionalism in all aspects of work, research, and interactions.
  - Leadership: initiative and vision leading people and discussion.

**WHERE CAN I GO?**

- A PhD in Physics, Engineering Physics & Astronomy can take your career in many directions. In Canada, less than 40% of all PhDs will work in post-secondary education – the majority will work in industry, government, or non-profits.
  - Academia and research.
  - Consulting.
  - Medical technologies: radiation physics, x-ray physics.
  - Renewable energy.
  - Technology sector.

- Taking time to explore career options, build experience, and network can help you have a smooth transition to the world of work after graduation.

Visit careers.queensu.ca/gradmaps for the online version with links!
Application FAQs

What do I need to know to APPLY?

ACADEMIC REQUIREMENTS
- Master's degree in Science or Applied Science.
- Grade requirements: minimum B+ standing.

ADDITIONAL REQUIREMENTS
- Two official transcripts for all post-secondary studies.
- At least 2 letters of reference.
- Curriculum vitae.
- If English is not a native language, prospective students must meet the English language proficiency requirements in writing, speaking, reading, and listening. The School of Graduate Studies requires the following minimum scores: TOEFL (paper-based): 550, (2) TOEFL iBT: Writing (24/30); Speaking (22/30); Reading (22/30); Listening (20/30), for a total of 88/120 (applicants must have the minimum score in each test as well as the minimum overall score), or (3) IELTS: 7.0 (academic module overall band score), or (4) PTE Academics: 65.

KEY DATES & DEADLINES
- Application due: February 15th.
- Notification of acceptance: 4 weeks after the full application has been received.

Before you start your application, please review the graduate studies application process.

What about FUNDING?

The minimum funding guarantee for Physics PhD students is $27,022 per year, throughout years 1-4. This basic level funding consists of graduate awards, external scholarships, teaching assistantships, and support from your supervisor.

We encourage all students to apply for external funding from OGS, NSERC and other sources. Queen's will automatically issue a $10,000 award to incoming PhD students who have won federal government tri-council awards. For more information, see the School of Graduate Studies’ information on awards and scholarships.

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