ASTROPHYSICS

Physics at Queen's combines high-calibre research with an intermediate-scale learning setting, enabling attention and care towards undergraduate teaching as well as exposure to a broad range of topics and expertise. Our students will learn in an engaging environment with the opportunity to conduct interdisciplinary research in state-of-the-art laboratories, and work on projects involving international collaborators such as the experiments in dark matter and neutrinos happening below the surface of the Earth at the Sudbury Neutrino Observatory.

ALUMNI JOBS

- 11% of alumni work in GOVERNMENT
- 18% of alumni work in TECHNOLOGY
- 18% of alumni work in BUSINESS & LAW
- 31% of alumni work in EDUCATION & RESEARCH

4.0-accredited Physics and Astronomy degree plan

One of Canada’s leading teaching and research institutes in Physics and Astronomy.
Award-winning physics educators such as 3M National Teaching Fellow James Fraser.
Our internship program (QUIP) offers a wide range of careers to explore and companies to learn from.
Brand new astroparticle physics institute named after Queen’s Nobel Prize Laureate Art McDonald.
25+ summer research assistant positions offered by the department to students every summer.

Note that degree requirements are revised regularly. The most current requirements, including course lists and options, are found in the Academic Calendar at: QUartsci.com/academic-calendar

* Please note if you were admitted to the Plan prior to May 2018 your requirements are slightly different.

About the Plan

1ST YEAR
- PHYS 104/6.0 or PHYS 106/6.0
- MATH 110/6.0 or MATH 111/6.0
- CHEM 112/6.0
- 6.0 units from MATH 120/6.0, MATH 121/6.0, (MATH 123/3.0 and MATH 124/3.0)
- 6.0 units of electives

2ND YEAR
- PHYS 206/3.0
- PHYS 212/3.0
- PHYS 213/3.0
- PHYS 216/3.0
- PHYS 239/3.0
- PHYS 242/3.0
- PHYS 250/3.0
- MATH 221/3.0 or MATH 280/3.0
- MATH 225/3.0 or MATH 231/3.0
- 3.0 units of electives

3RD YEAR
- PHYS 315/3.0
- PHYS 316/3.0
- PHYS 317/3.0
- PHYS 321/3.0
- PHYS 344/3.0
- PHYS 345/3.0
- PHYS 350/6.0
- PHYS 372/3.0
- 3.0 units of electives

4TH YEAR
- PHYS 414/3.0
- PHYS 432/3.0
- PHYS 435/3.0
- PHYS 453/3.0
- PHYS 590/6.0
- 6.0 units from PHYS at the 400 level or above
- 6.0 units of electives

GET THE COURSES YOU NEED

2018-19 thresholds

2.7 cGPA AUTOMATIC ACCEPTANCE
min B- in PHYS 101
N/A PENDING LIST
min pass in PHYS 101

THRESHOLDS ARE MADE ON A COMPETITIVE BASIS AND ARE UPDATED ANNUALLY. FOR THE LATEST INFORMATION PLEASE VISIT: QUartsci.com

*Thresholds are made on a competitive basis and are updated annually. For the latest information please visit: QUartsci.com
ASTROPHYSICS SPECIALIZATION MAP

**SPECIALIZATION BACHELOR OF SCIENCE (HONOURS)**

**1ST YEAR**
- **GET THE COURSES YOU NEED**
  - In first year you will have the chance to explore the foundations of Physics in biology, chemistry and math along with some electives.
  - See the back page for specific courses to consider.
  - Attend Majors Night in the Winter term to learn more about Plan options.

**GET RELEVANT EXPERIENCE**
- Join teams or clubs on campus such as Queen's Astronomy Club, Queen's University Experimental Sustainability Team (QUEST), Queen's Space Engineering Team (QSET), or Queen's Solar Design Team.
- See the AMS Clubs Directory or the Queen's Get Involved page for more ideas.

**GET CONNECTED WITH THE COMMUNITY**
- Volunteer on or off-campus with different community organizations such as Science Rendezvous or Let's Talk Science. Consider joining an intramural sport or an athletics team. Off-campus community organizations welcome Queen’s students — see what's out there!
- Get involved with the Departmental Student Council (DSC). Connect with professors at socials or attend departmental public lectures.
- Start or continue volunteering with organizations such as Women in Science and Engineering (WISE).

**GET THINKING GLOBALY**
- Prepare for work or studies in a multi-cultural environment by taking QUC’s Intercultural Competency Certificate and research possible immigration regulations.
- Speak to a QUC advisor to get involved in their programs, events, and training opportunities.

**GET READY FOR LIFE AFTER GRADUATION**
- Grappling with program decisions? Go to Majors Night or get some help wondering about career options from Career Services.
- Build your transferable skills in time management, organization, writing and more with Student Academic Success Services.
- Explore different careers of interest by reading books in the Career Services Career Advising and Resource Area, such as Another Career in Science. For more information check out Career Cruising or by finding and connecting with alumni on LinkedIn.

**2ND YEAR**
- **GET THE COURSES YOU NEED**
  - Start going deeper into the discipline of Astrophysics, while considering a certificate such as French for Professionals. Attend Degree 2 in the Fall term to learn more about Certificates and Internship options.
  - Want to make sure your academics are where you want them to be? Visit SASS (Student Academic Support Services) and the Writing Centre for some help.

**GET RELEVANT EXPERIENCE**
- Look into summer jobs by talking to the department or Career Services about work through SWEP or Work Study.
- Consider entrepreneurial opportunities via programs like the Queen’s Innovation Connector Summer Initiative (QICS).

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**3RD YEAR**
- **GET THE COURSES YOU NEED**
  - A chance to start grouping courses in areas of interest, or to keep it more general and explore many areas of Astrophysics. Meet with an Academic Advisor to make sure you are on track and have planned out your courses for next year — for some ideas, see the back page.

**GET RELEVANT EXPERIENCE**
- Consider applying to do a 12-16 month QUIP internship between your third and fourth year.
- Investigate off-campus summer jobs involving research such as at SNOLAB. Apply for NSERC USRA, or directly to individual faculty members and research groups in Physics and Astronomy. Many Physics students volunteer with the on-campus Observatory in Ellis Hall.

**GET CONNECTED WITH THE COMMUNITY**
- Do targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen’s Connects. Check out Career Services networking workshops.
- Connect with professors at events hosted by the DSC, or directly to individual faculty members and research groups in Physics and Astronomy. Many Physics students volunteer with the on-campus Observatory in Ellis Hall.

**GET THINKING GLOBALY**
- Is an exchange in your future? Start thinking about where you would like to study abroad. Apply in January for a third year exchange through the International Programs Office.
- Physics research is often international and collaborative. Pursue summer research with faculty members to explore those global connections.

**GET READY FOR LIFE AFTER GRADUATION**
- Start focusing on areas of interest. Research education requirements for careers of interest. If needed, prepare to take any required tests (like the LSAT or GMAT) and get help thinking about Grad School from Career Service.

**4TH OR FINAL YEAR**
- **GET THE COURSES YOU NEED**
  - In fourth year you will have the chance to participate in research-based courses that can lead to Graduate School or to your future career path. Make sure to finish up all your courses for your degree and your optional certificate(s).

**GET RELEVANT EXPERIENCE**
- Investigate requirements for full-time jobs or other opportunities related to careers of interest. Assess what experience you’re lacking and fill in gaps with volunteering, clubs, or internships — check out the Career Services skills workshop for help.
- Check out InquiryQueen’s to present your past summer research work.

**GET CONNECTED WITH THE COMMUNITY**
- The Canadian Undergraduate Physics Conference is hosted by and for undergraduates.
- Consider joining professional associations like the Canadian Association of Physicists (CAP), or the Canadian Astronomical Society (CASCA).
- International students interested in staying in Canada can speak with an International Student Advisor.

**GET THINKING GLOBALY**
- Apply to jobs or future education, or make plans for other adventures. Get help from Career Services with job searching, resumes, interviews, Grad School applications, or other decisions.

**GET READY FOR LIFE AFTER GRADUATION**
- What will I learn? A degree in Physics can equip you with valuable and versatile skills, such as:
  - Knowledge of physics theories and mathematical models
  - Proficiency in mathematics
  - Facility for quantitative mathematical and computational analysis
  - Experience with laboratory equipment
  - Design experiments and develop and write research proposals
  - Review scientific literature
  - Draw conclusions from data and evaluate sources of error
  - Explain technical information clearly in writing and verbal communication
  - Use statistical software
  - Adopt a systematic, analytical approach to problems

- Where can I go? A degree in Physics can take your career in many directions. Many students choose to continue their academic inquiry with a Master’s. Our students are equipped with a strong foundation for careers in:
  - Aerospace
  - Astrophysics
  - Computer simulations
  - Forensic science
  - Geophysics
  - Imaging
  - Nanoscience
  - Photonics
  - Planetary science
  - Radiology
  - Remote sensing
  - Robotics
  - Space science
  - Technology industry

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