

Graduate Studies Info Session

Department of Physics

November 26, 2024

Why Go to Graduate School?

Why did you pursue an undergraduate physics degree?

- aptitude for logical/mathematical and abstract thinking
- interest in understanding at a deeper level how the universe works

undergrads tend to develop tunnel vision to stay focused on studies

Why go to graduate school?

- you want to make your own discovery and developments!
- It gives you a higher starting point and enables you to go further in your career with a more advanced degree.

What is different as a graduate student?

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- Research! Courses are a minor part
- Become a world-expert in your field
- Contribute to teaching (TA jobs)

you get paid!

What field interests you?



At Carleton we offer:

- Particle Physics
 - Theoretical
 - Experimental
- Medical Physics
 - Radiation therapy
 - Medical imaging
 - Bio-photonics
 - Dosimetry
 - Radiation biology

Subject specific breakout sessions in a few minutes.

What you need to apply?

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- application cost is \$100
- 'soft' deadline is **January 15**...in fact we can still process offers as long as there is still opening
- your **academic history**: transcripts! (Official one not needed at first.)
- a CV (academic history, work history, skills, awards, publications, talks, interests, etc)
- option to list/rank preferred areas of research
- option to list potential supervisor (if you have someone specific in mind)
- a statement of interest/purpose
 - Why do you want to pursue these studies at that place?
 - Such a statement can help them align you with just the right supervisor/thesis topic.
 - Demonstrate that you write well.
- referee information (letters submitted by your reviewers)
 - at least 2 letters of reference from your professors: **academic letters!**
 - *Get a prof who knows you!*
 - More important than the prof where you got an A+ but who doesn't know you!
 - Make sure at least one gives significant details on research experience/potential
 - Summer research professor? Honours project professor?

Program details & requirements

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Master's program:

- Five 0.5 credit courses + research thesis (2 years) degree in medical or particle physics
 - 6 semesters (3 semesters....year round)
 - students excelling could be invited to switch directly to PhD after 12 months in the program

Master's Program admission requirements:

- **4-year (honours) bachelor's degree**
 - *Honours BSc in Physics or a BEng in Engineering Physics.* A Combined Honours BSc degree is usually OK: *Hons BSc Physics + Math, Hons BSc Physics + Computer Science, Hons BSc Physics + Chemistry, and Hons BSc Physics + Biology.*
 - BEng degree that is not in Engineering Physics is not usually prepared for graduate studies in Physics, because typically these do not include physics after the first year.
 - *Our EngPhys degree is fine for admission to our grad programme!*
- **B+ or better in your major subjects (math & physics)**
 - It is the minimal requirement to pass the preliminary review
- We will also look at **your honours senior project/summer research experience** to see evidence of research capability

Program details and requirements

PhD Program:

- four 0.5 credit courses + research thesis (4 - 6 years)
- comprehensive exam + seminar
- extra courses maybe required for CAMPEP accredited PhD in medical physics

Admission requirements

- an MSc degree in the relevant field
 - MSc grade: B+ overall, no grade below B- (minimal requirement to pass the preliminary review)
- bachelor's degree in Physics or Eng. Phy. or combined degree in Physics
 - BSc grade: B+ or better in your major subjects (minimal requirement to pass the preliminary review)
- Med. Phy. PhD applicants only: If you have taken medical physics courses before, please submit information about those courses (**Portfolio**), so we can better plan your course requirement.

Accelerated pathway to MSc

Accelerated pathway to MSc program

- The Accelerated Pathway is designed for outstanding **undergraduate students starting their last year of undergraduate study in the Fall**. It allows you to take two of your 4th-year courses at the graduate level and count them towards your graduate credit.
- Minimal major CGPA 10.0
- Particle physics accelerated pathway: students must complete [PHYS 5002](#) Computational Physics and [PHYS 5602](#) Physics of Elementary Particles with a grade of B+ or higher in each.
- Medical physics accelerated pathway: students must complete [PHYS 5002](#) Computational Physics and [PHYS 5313](#) Physical Applications of Fourier Analysis with a grade of B+ or higher in each.
- The two courses will be counted as advanced standing towards their MSc study.
- Recommend to align their Honour's project with the intended research area.
- **Approval by the UG Chair and Graduate Chair first.**

Funding support

Funding

- Typically 3 components:
 - TA: students work as teaching assistants during the Fall and Winter semesters
 - RA: professors contribute >1/3 of the funding from their grants (e.g. NSERC)
 - Departmental Scholarships. Amount depends of GPA.
 - ⇒ **Minimum** annual funding (Additional scholarship for high GPA)
 - ⇒ domestic MSc student starting in Fall 2024: ~ **\$34,585+ additional amount for high GPA**
 - ⇒ domestic PhD student starting in Fall 2024: ~ **\$38,835 + additional amount for high GPA**
 - ⇒ Funding for international students will be higher to help with the higher tuition fees (MSc) and short of scholarships
- Scholarships:
 - major external awards: NSERC, OGS, QEII
 - (make more overall, but supervisors contribute less RA)
 - Carleton endowments: put students forward each year for these
 - Department awards: decided each Spring and announced the following Fall.
- Tuition and fees:
 - you pay tuition out from the above funding
 - Tuition + fees is about \$12,600 per year for domestic MSc/PhD students and International PhD students (with PhD student tuition support ITDS)
 - Tuition + fees is about \$25,200 for international MSc students

Supervisors and projects

Thesis Supervisors

No need to find a supervisor before apply.

After the application pass the initial assessment, we make the connection between you and a thesis supervisor...

- determined at entry to program
 - we do not admit to a “pool” to find a supervisor later
- choice of supervisor affects choice of courses (especially in med phys)
- students and supervisors choose each other after we have your complete application and referee letters
- Your offer for admission will include
 - Required courses for program
 - Supervisor name
 - Funding package

Breakout Sessions

We will now have subject specific breakout sessions.

- Theory: HP 3310
- ATLAS:
- DEAP:
- Medical physics: