

Arthur B. McDonald Canadian Astroparticle Physics Research Institute QDIUA Internships

The Arthur B. McDonald Canadian Astroparticle Physics Research Institute (McDonald Institute), headquartered at Queen's University in Kingston, Ontario, is a national research network dedicated to advancing Canadian leadership in astroparticle physics. Named in honour of Dr. Arthur B. McDonald, co-recipient of the 2015 Nobel Prize in Physics, the Institute supports groundbreaking research into fundamental questions about the universe, including the nature of dark matter and neutrinos. Through research collaborations, interdisciplinary training, professional development, and outreach, the Institute strengthens research capacity and fosters a vibrant and inclusive physics community.

As one of the largest research institutes on campus, the McDonald Institute offers interns meaningful professional experience within a close-knit, collaborative, and award-winning administrative team supporting a national research network. Interns are valued as colleagues, encouraged to share their perspectives, and supported in taking ownership of projects, developing transferable skills, and building professional connections.

The McDonald Institute has proudly supported the QDIUA Program since its inception, helping students gain valuable early-career experience in research administration within a Canadian workplace. Previous interns are featured on our Administrative Staff webpage.

We welcome applicants from diverse backgrounds, experiences, and fields of study. Recognizing that every intern brings unique strengths, interests, and learning goals, we strive to provide a flexible, inclusive, and supportive environment that accommodates individual needs and encourages professional growth. We invite applicants to apply even if they do not meet every qualification, as we value curiosity, initiative, diverse perspectives, and a willingness to learn.

This year, the McDonald Institute invites PhD students to consider (3) positions with the QDIUA Program:

- **Position 1:** Canadian Astroparticle Physics Community Annual Meeting (CAPCAM) Administrative Intern
- **Position 2:** Finance Intern
- **Position 3:** Communications and Knowledge Mobilization Intern

Position 1: Canadian Astroparticle Physics Community Annual Meeting (CAPCAM) Administrative Intern
Office/Department/Program: Arthur B. McDonald Canadian Astroparticle Physics Research Institute, External Relations and Community Development and Canadian Astroparticle Physics Community Annual Meeting

Overview: Since 2019, the McDonald Institute has organized and hosted an annual multiday research meeting of academic researchers working in Canada and abroad to answer several of science's most persistent unanswered questions linking the properties of the tiniest (fundamental) particles, and the properties of the Universe at the cosmological scale. As of 2025, the size and scope of this meeting is equivalent to a small research conference.

The Institute welcomes PhD student or candidate applicants for the QDIUA from any discipline who are interested in leveraging their skills when learning about the function of a Tier 1 Research Institute at Queen's University. The Institute's operations and programs such as CAPCAM provide practical experience in how administrative processes and talents amplify the ability of academic researchers to accomplish advancements at the scale of multi-national collaborations over multiple decades' duration. The Intern will work with the Associate Director (External Relations) in collaboration with the Scientific Director and Associate Scientific Director, in the designing, planning, organizing, and operation of the annual meeting.

Key Responsibilities:

- In collaboration with the Associate Director and Associate Science Director, co-draft and maintain the conference project plan, which will identify and monitor progress of registrations, vendors, venues, events, volunteers, speakers and special guests.
- Promote the annual community meeting to prospective attendees across Canada (CAPCAM) in collaboration with the Senior Communications Officer.
- In collaboration with the Associate Director, co-draft and maintain an INDICO conference site, along with supplementary data tables. The intern will learn intermediate-to-advanced methods of spreadsheet analysis.
- Solicit quotations for key conference services, adhering to rules for procurement, Tri-Council research expenditures, and internal budget requirements
- Refer financial and legal issues to the Associate Director
- Regularly progress of project plan and provide 1 formal project update to the McDonald Institute administrative team during the last month of the internship
- The Institute may offer extended paid work after the term of the internship ends, depending on the availability of the candidate to help operate the CAPCM event in Summer 2027.

Learning Outcomes:

- The high-level practical learning outcome for the successful applicant will be learning how to convene, organize, and operate medium-to large-scale purpose driven multi-institutional meetings, conferences, etc. in a manner that is efficient and effective.
- The principle transferrable skill that the intern will acquire is experience driven capabilities in collaborative project management, using both agile and waterfall frameworks.
- At the end of the internship, the incumbent should be confident in planning, operating, monitoring and trouble-shooting medium complexity collaborations at the scale of 20-200 people.
- The intern will gain experience in budgeting, cost estimation, and risk-sensitivity analysis

- The intern will gain experience in the use of open academic conference organizing tool (INDICO), and supplementary tools used to manage conference engagement (spreadsheets, concept maps, mail merges).
- Intern(s) develop a more comprehensive understanding of how university led networks develop and support national scale research.
- Interaction and network with administrative staff, students, and faculty across Queen's University, expanding their connections internally and externally.
- Understand the policies and practices for contracting, payments, and receipts.
- Understanding (and implementing) policies for insurance, health & safety.
- Strategizing and actualizing I-EDIAA principles in a national-level research Conference

Qualifications:

- **Required:** PhD student or candidate in any discipline, with interest in project management and analysis.
- **Additional:** Adaptable to new technologies with a desire to learn and being self-motivated. Keen interest in time and project management skills, communication skills, service and support responsibilities.

While successful candidates will already have acquired some of the skills listed in this section, we understand that no candidate will hold all of them. We encourage all who have an interest in project-driven work to apply for the role, conveying both which skills they do hold and their interest in learning new ones. Not sure you meet all the qualifications listed here? Let us decide! Research shows that women and other under-represented groups tend not to apply to jobs when they think they may not meet every qualification, when, in fact, they often do! We are committed to creating a diverse and inclusive environment and strongly encourage you to apply.

Position 2: Finance Intern

Office/Department/Program: Arthur B. McDonald Canadian Astroparticle Physics Research Institute, Finance Department

Overview:

The Finance Internship provides hands-on experience in the finance and research administration operations of a Tier 1 Research Institute. The successful candidate will work alongside the McDonald Institute's finance team and gain exposure to the financial processes supporting large-scale research programs.

The role provides practical experience in financial reporting, budgeting, procurement, and grant management, while developing an understanding of research funding and compliance.

Key Responsibilities

- **Financial Analysis & Accounting:** Prepare reclassification journal entries and review supporting documentation to ensure accurate financial records.
- **Process Improvement:** Review existing processes, identify opportunities to improve efficiency and accuracy, and support implementation of improvements.
- **Procedures & Documentation:** Develop and update SOPs, process guides, and other financial documentation.
- **Grant Financial Analysis:** Analyze grant activity to identify trends, discrepancies, and errors, and support corrections to financial records and reporting.
- **Data Analysis & Reporting:** Review financial data, prepare assets for reports, and identify trends or areas requiring further investigation.

Learning Outcomes

- **Financial Systems & Operations:** Gain hands-on experience with Queen's financial systems, including FAST, PeopleSoft, acQuire, and ERS.
- **Research Funding Administration:** Develop an understanding of research funding, including budgeting, expenditure monitoring, reporting, procurement, and compliance.
- **Process Improvement:** Develop skills in evaluating processes, identifying inefficiencies, and implementing improvements.
- **Financial Analysis & Excel:** Strengthen skills in analyzing, reconciling, and presenting financial data using Microsoft Excel.
- **Accounting & Reporting:** Gain practical experience with journal entries, reconciliations, supporting documentation, and financial reporting.
- **Professional Skills:** Develop experience working with finance, research, and administrative teams and communicating financial information clearly.

Qualifications**Required:**

- PhD student or candidate in any discipline, with an interest in financial management, research administration, or organizational operations, with strong organization skills and attention to detail.

Additional

- Proficiency with Microsoft Excel or willingness to develop advanced Excel skills.
- Adaptable to new technologies and processes, with a willingness to learn new systems.
- Self-motivated, with the ability to work independently and collaboratively.
- Strong written and verbal communication skills.

Position 3: Communications and Knowledge Mobilization Intern

Office/Department/Program: Arthur B. McDonald Canadian Astroparticle Physics Research Institute (McDonald Institute), Communications Office

Fellowship Mentor (if identified at this time):

Zachary Kenny is the Communications Officer for the McDonald Institute and manages the Institute's website, and communications channels, develops communications strategies and direction, and advises other members on the team in the coordination and promotion of various programs. Zachary offers interns the unique experience of critically examining communications approaches and alignment with current strategies and considerations of new ideas, maintaining a responsive and informed perspective while always making time for passion projects and requests from the research community.

Dr. Nikhil Arora is the Education & Public Engagement Officer for the McDonald Institute. Trained as an Astrophysicist, I will share insights into the McDonald Institute's scientific goals and mission. Additionally, opportunities will include tools and techniques for communicating complex scientific concepts to a diverse audience and running events for at varying scales.

Overview: In this role, the intern will work alongside the McDonald Institute's Communications Officer to enhance the visibility of the Institute's programs, showcase research achievements, and strengthen engagement across its national network. This internship provides an opportunity to develop skills in internal and external communication strategies for an organization and alumni engagement.

This internship offers considerable flexibility in terms of projects and will be responsive to the talents and professional goals of the incumbent. Previous QDIUA interns have done work in visual science communication, designing educational materials, writing press releases and web articles, and network building. The McDonald Institute's wide variety of communications products represents a diversity of professional specializations in the comms industry. Applicants will be encouraged to identify short- and long-term career aspirations in communications and public science engagement, including but not limited to science writing, promotion and marketing, digital asset (image/video/audio) creation, research community support and network building, and strategic communications planning.

Key Responsibilities:

- Support the updating, enhancement, and promotion of recruitment initiatives, including the astroparticle physics careers website and video.
- Contribute to the creation of promotional materials, including newsletters, social media content, and event announcements.
- Collaborate with other administrative staff to strategize promotion of science outreach efforts and professional development series.

Learning Outcomes:

- Develop professional competencies in communication strategies, both written and digital.
- Gain insight into how a research institute communicates its initiatives and engages with partners and stakeholders.
- Network with professionals in the field of communications and science outreach.

Qualifications:

- **Required:** PhD student or candidate with a focus on communications, public relations, or a related field.
- **Additional:** Strong writing and organizational skills, with a keen interest in digital communications.