Graduate Studies Opportunities

The Energy and Emissions Research Lab (EERL) at Carleton University, Ottawa, Canada is seeking highly motivated M.A.Sc. and Ph.D. students to further pioneering research in methane measurement and mitigation as part of our team. Specific tasks and activities vary by thesis project, but successful candidates will have the opportunity for significant research impact, contributing to new and ongoing methane emissions inventory development; measurement technology development; monitoring, reporting, and verification (MRV) protocols; mitigation policy and regulatory impact analysis; and formal and informal dissemination of insights to stakeholders across government, industry, and academia. They will collaborate closely with senior research associates, research partners, and will have the opportunity to support a wide range of existing projects relevant to quantifying and reducing anthropogenic methane emissions. All graduate students in EERL are encouraged to participate in national and international conferences as part of creating impactful, publishable research that contributes to science and society.

Candidate Qualifications:

Candidates must have an undergraduate or master's degree in mechanical, aerospace, civil or environmental engineering or in a closely related field.

Desired Technical Skills & Experience:

Please clearly outline in your cover letter how you meet selected (*or all!*) of the following criteria:

- Excellent written and oral communication skills (English);
- Experience with or willingness to learn advanced measurement techniques;
- Strong data analysis skills and statistical background (e.g. methods/models for the characterization and propagation of uncertainty, such as Monte Carlo, Bayes);
- Proficiency in ArcGIS or QGIS; MATLAB, C++ or Python (e.g., NumPy, pandas, SciPy) or other relevant software / applications;
- Fieldwork experience (oil and gas industry or waste sector is an asset);
- Experience in drone operation (Transport Canada advanced drone pilot certificate and regulatory knowledge is an asset);
- Knowledge of major equipment in upstream oil and gas industry;
- Ability to take initiative and work independently in a dynamic environment;
- Willingness to travel for field experiments and perform technical tasks under field conditions.

The candidate will stand out if they have direct research experience in the following areas:

- Emissions characterization in the oil and gas industry
- Ground-based / airborne / mobile emissions measurements

- Data acquisition systems, communication systems, electronics
- Spectroscopy and laser-based measurement techniques
- Data analytics and/or image processing

Position and Salary Conditions:

M.A.Sc. and Ph.D. graduate research assistants are full-time positions based at Carleton University in Ottawa, ON, Canada. The positions are open immediately based on competitive funding as outlined below. The funding is secured for at least two-years as an M.A.Sc student appointment or three-years for a Ph.D. appointment and can be extended provided funding availability. Additional financial assistance is available to current graduate students (GPA 10.5 and higher), through EERL's Women in Engineering Research scholarship. and through Carleton's Graduate Assistantship.

Applications:

Please direct applications to: Professor Matthew Johnson (Scientific Director of EERL)
eerl@carleton.ca

Applications will be accepted and reviewed on an ongoing basis. Applications **must include a CV, publication history, and a cover letter** clearly outlining how past research and experience provide the essential qualifications to undertake the project. Additionally, contact information for three references should be available upon request. We encourage you to apply even if your skills and experience don't *exactly* match the qualification requirements. Please explain in your cover letter how your skills are relevant to the posted position.

The Energy and Emissions Research Lab (EERL) is committed to fostering diversity within its community as a source of excellence, cultural enrichment, and social strength. We especially welcome those who would contribute to the further diversification of our group and university including, but not limited to: qualified women; visible minorities; First Nations, Inuit and Métis peoples; persons with disabilities; and persons of any sexual orientation or gender identity and expressions.

Energy & Emissions Research Lab (EERL):

Carleton University's Energy and Emissions Research Lab (EERL) conducts cutting-edge, internationally renowned, highly-cited interdisciplinary research designed to understand, quantify, model, and mitigate airborne pollutant emissions associated with global upstream energy production. Headed by Prof. Matthew Johnson, EERL combines advanced experimentation and simulation in both large-scale controlled lab experiments and field work, leveraging a range of advanced optical diagnostics and experimental capabilities unparalleled in Canada.

Graduate Student Funding
(Master's student / PhD candidates)

EERL Research Assistantship (RA):

- GPA of 10.5 or higher
- M.A.Sc.: ~ $20,000 per year
- PhD: ~ $35,000 per year
- English-language proficiency (minimum requirements)

Teaching Assistantship (TA)

- Awarded by the Department of Mechanical & Aerospace Engineering
- GPA of 10.5 or higher
- ~ $10,000 per year
- English-language proficiency (minimum requirements)
- Maximum of 10 hours / week
- Depending on availability of TA spots

Entrance scholarships:

- Awarded by Carleton University / Faculty of Engineering & Design (no application required)
- GPA 10.5 or higher
- M.A.Sc.: $2,000
- Ph.D.: $3,000
- Domestic graduate students only

Additional Merit-Based Funding Opportunities

EERL Women in Engineering Research Scholarships (WERS):

- GPA 10.0 and up
- MA: $5,000
- PhD: $5,000
- Application required (no deadline)

Further University Support Merit Scholarships:

- Highest GPA / top-of-the-class students
- Recommended by department during the application process
- Additional $1,000 – $12,000 per year beyond above totals

Donor-Funded Awards:

- Awarded based on academic merit, financial need and/or specific research areas
- Applications open Aug. 27 and close Sept. 30