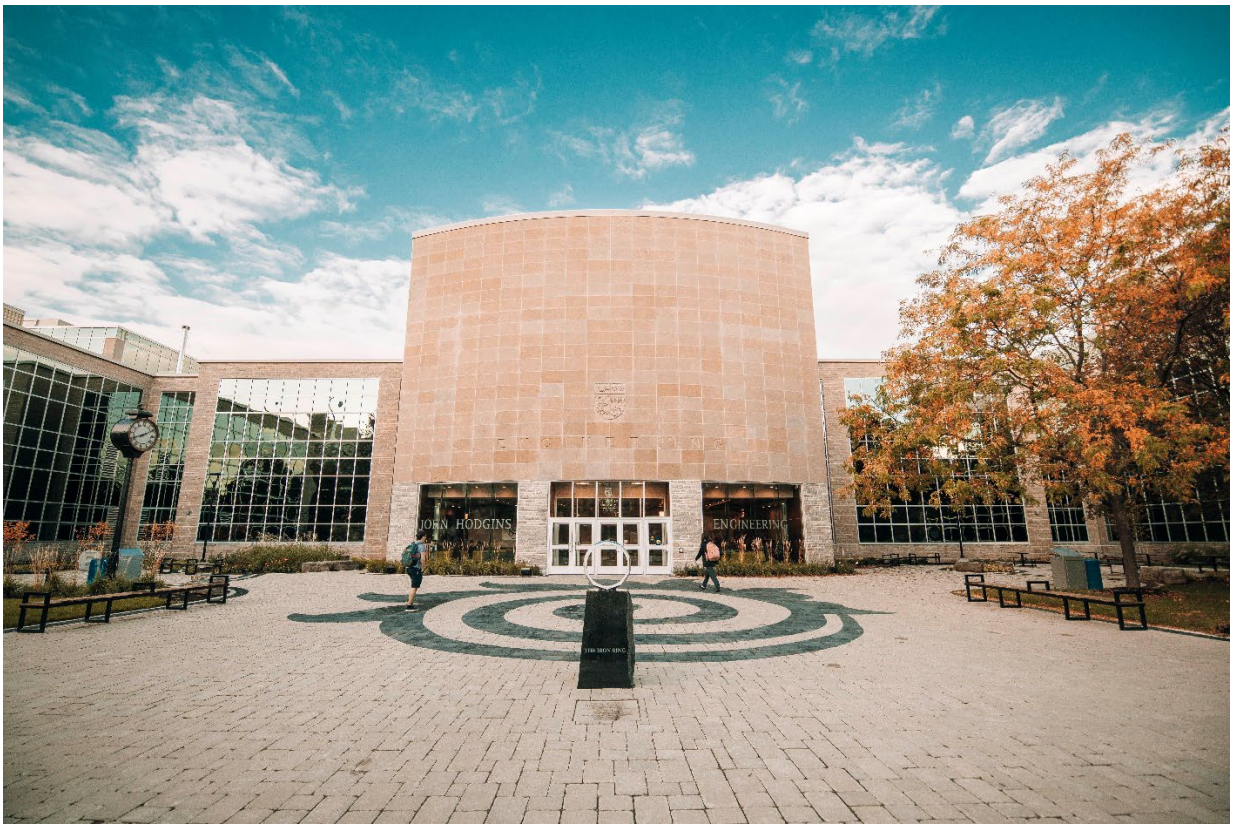
DEPARTMENT OF CIVIL ENGINEERING
GRADUATE STUDENT HANDBOOK*

2024-2025 ACADEMIC SESSION



McMaster University

Hamilton, Ontario, Canada
L8S 4L7

***Please note that if there is any discrepancy between this document and the 2024-2025 Graduate Calendar, the Graduate Calendar prevails.**

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Department of Civil Engineering Graduate Program Contact Information

Amelia Brook
Graduate Program Administrative Assistant
JHE-301
brookam2@mcmaster.ca
x24287

Amelia Brook is your first point of contact for all graduate program-related questions or concerns. Amelia is available to meet one-on-one with students to discuss policies, examinations, courses, and degree progression. She is the person you should contact prior to the individuals below.

Sarah Sullivan
Academic Department Manager
JHE-301A
sullivsb@mcmaster.ca
x24746

Sarah Sullivan is your point of contact for teaching assistantship or funding questions.

Dr. Benzhong (Robin) Zhao
Associate Chair of Graduate Studies
JHE-336
robinzhao@mcmaster.ca
x24172

Dr. Benzhong (Robin) Zhao is your point of contact for supervisory or policy related graduate program questions or concerns.

Dr. Lydell Wiebe
Acting Department Chair
JHE-301B
wiebe1@mcmaster.ca
x23824

Dr. Lydell Wiebe is the Acting Department Chair and can be contacted regarding questions or concerns you may have that could not be answered by the Associate Chair of Graduate Studies or Graduate Administrative Assistant.

Department of Civil Engineering Personnel

FACULTY

Dr. Adedapo Awolayo — Assistant Professor, JHE 338 — **awolayoa@mcmaster.ca**
Reservoir engineering and simulation, enhanced oil recovery, geochemical modeling transport in porous media

Dr. Samir E. Chidiac — Professor, JHE-A414 — **chidiac@mcmaster.ca**
Durability/service life modeling of engineering materials, modeling heat and mass transfer in porous media, concrete technology, stone masonry, energy efficiency of buildings

Prof. Cameron Churchill — Director of Engineering and Society, Assistant Professor, JHE 316/C — **church@mcmaster.ca**
Design of sustainable communities.

Dr. Paulin Coulibaly — Professor, GSB-235 — **couliba@mcmaster.ca**
Hydrologic modelling and forecasting, hydroinformatics, water resources engineering, environmental and climatic data analysis

Dr. Sarah Dickson-Anderson — Associate Dean of Engineering – Academic, Professor, JHE-H323, — **sdickso@mcmaster.ca**
Hydrogeology, contaminant fate & transport, local water security, coupled-systems (social) hydrology.

Dr. Wael W. El-Dakhakhni — Professor, JHE-303 — **eldak@mcmaster.ca**
Martini, Mascarin and George Chair in Masonry Design
Complex systems simulation, data analytics, interdependence and resilience quantification, systemic risk mitigation, infrastructure performance in multi-hazard environments

Dr. Mohamed Ezzeldin — Associate Professor, JHE-224 — **ezzeldms@mcmaster.ca**
Earthquake engineering, system-level performance quantification, experimental dynamic testing, numerical and analytical modelling, nonlinear simulation models, reinforced concrete block systems, reinforced concrete structures, resilient systems, risk assessment, structural dynamics, data analytics

Dr. Peijun Guo — Professor, JHE-A411 — **guop@mcmaster.ca**
Geomechanics, geotechnical engineering seismic soil-structure interaction and finite element applications

Dr. Yiping Guo — Professor, JHE-226 — **guoy@mcmaster.ca**
Uncertainty and trend analysis in water resources engineering, urban hydrology, and urban stormwater management

Dr. Sonia Hassini — Assistant Professor, JHE-225 — **hassinis@mcmaster.ca**
Sustainable stormwater management, stochastic modelling, climate change adaptations, resilience quantification of water resource systems, and uncertainty analyses

Dr. Hisseine Ousmane — Assistant Professor, JHE-227 — **hisseino@mcmaster.ca**mailto:
Sustainable and novel construction materials, civil infrastructure sustainability and resilience

Dr. Mohamed Hussein — Associate Professor, JHE 228 — **hussem9@mcmaster.ca**
Road safety, active road users, road user interactions, Bayesian safety models, agent-based modeling, applications of AI, machine learning, computer vision in transportation, AV/CV safety applications, risk-based design, and ITS

Dr. Younggy Kim — Professor, JHE-334 — **younggy@mcmaster.ca**
Canada Research Chair (II) Water and Health
Biological wastewater treatment, nutrient recovery, PHA (polyhydroxyalkanoate) production, heavy metal separation, microbial electrochemistry, anaerobic digestion, electrodialysis, water quality monitoring

Dr. Zoe (Zhong) Li — Associate Professor, JHE-335 — **zoeli@mcmaster.ca**
Reliability, vulnerability and risk of environmental infrastructure, climate change modeling and impact assessment, hydrological risk modeling and probabilistic forecasting.

Dr. Moataz Mohammad — Associate Professor, JHE-230 — **mmohame@mcmaster.ca**
Electrification of transit systems, transit modelling, transportation-energy nexus, electric and autonomous mobility, unmanned aerial vehicles (drones), optimization models and adaptable systems, system impacts, last-mile delivery

Dr. Ramla Qureshi — Assistant Professor, BSB B107 — **quresr11@mcmaster.ca**
Structural resistance against extreme hazards, experimental mechanics, real-time hybrid simulation, structural resilience and sustainability, risk assessment, uncertainty modelling, and reliability analyses for performance-based design

Dr. Saiedeh Razavi — Professor, JHE-337 — **razavi@mcmaster.ca**
Chair in Heavy Construction
Automation in construction, intelligent transportation systems, AI-driven logistics, data-driven supply chain

Dr. Michael Tait — Professor, JHE-143 — **taitm@mcmaster.ca**
Joe Ng-JNE Consulting Chair in Design, Construction and Management of Infrastructure Renewal
Structural dynamics, passive structural control systems, base isolation, structural health monitoring, retrofit/rehabilitation

Dr. Susan Tighe — Provost and Vice-President (Academic), — **tighes1@mcmaster.ca**
Sustainable pavement engineering, long-life infrastructure, solar technology in roads and pavement infrastructure, application of asset management to highway and airport operations

Dr. Lydell Wiebe
Professor, JHE-333 — **wiebel@mcmaster.ca**
Endowed Chair in Effective Design of Structures
Earthquake engineering, structural dynamics, nonlinear dynamic modelling techniques, steel structures, self-centering systems, large-scale physical testing, sustainable and resilient infrastructure

Dr. Cancan Yang — Assistant Professor, JHE-339 — **cancanyang@mcmaster.ca**
Prestressed/reinforced concrete highway bridges, precast concrete components for accelerated bridge construction, corrosion of concrete structures in a changing climate, implementation of advanced materials in structural design for seismic resiliency, vehicle collision with concrete highway bridges

Dr. Hao Yang — Assistant Professor, JHE-229 — **haoyang@mcmaster.ca**
Connected and autonomous vehicles, big data analytics, energy and environment sustainability, and transportation operations and control

Dr. Benzhong (Robin) Zhao — Associate Professor, JHE-336 — **robinzhao@mcmaster.ca**
Climate change mitigation, renewable energy, water security, energy storage, carbon storage, multiphase flow, porous media, electrochemistry

PROFESSORS EMERITUS

Dr. Brian W. Baetz — Professor Emeritus — **baetz@mcmaster.ca**
Design of sustainable communities.

Dr. Robert G. Drysdale — Professor Emeritus — **drysdale@mcmaster.ca**
Reinforced and prestressed concrete; building science; properties of masonry; design of masonry structures.

Dr. Ahmed Ghobarah — Professor Emeritus — **ghobara@mcmaster.ca**
Dynamic analysis of structures and earthquake engineering. Rehabilitation of structures and seismic upgrade of existing structures using advanced composites.

Dr. F. L. Hall — Professor Emeritus

Dr. Arthur C. Heidebrecht — Professor Emeritus — **heidebr@mcmaster.ca**
Earthquake engineering and structural dynamics; seismic analysis of buildings and nuclear power plant structures; seismic qualification of equipment in nuclear power plants.

Dr. Robert M. Korol — Professor Emeritus — **korol@mcmaster.ca**
Plastic theory of metal structures; inelastic buckling; limit analysis; environmental assessment and life cycle analysis methodologies.

Dr. Moncef Nehdi — Professor Emeritus — **nehdim@mcmaster.ca**
Cement-based materials, concrete technology, durability/repair/rehabilitation, recycling byproducts, Net Zero – low carbon construction materials, sustainability, machine learning and data driven models.

Dr. Stanislaw Pietruszczak — Professor Emeritus, ITB-108 — **pietrusz@mcmaster.ca**
Structural and geotechnical materials – constitutive relations and finite element applications; biomechanics.

Dr. A. Ghani Razaqpur — Professor Emeritus — **razaqpu@mcmaster.ca**
Reinforced and prestressed concrete, fibre reinforced polymer (FRP) applications in structures, advanced numerical modelling of structures, durability of concrete and reinforcement corrosion, design of structures against blast loads, bridge engineering.

Dr. K.S. (Siva) Sivakumaran — Professor Emeritus, JHE-119 — **siva@mcmaster.ca**
Advanced composite material structures, cold-formed steel structures, structural dynamics, finite element analysis.

Dr. Dieter F. E. Stolle — Professor Emeritus, JHE-119 — **stolle@mcmaster.ca**
Applied mechanics; geotechnical engineering and finite element applications

Dr. Ioannis K. Tsanis — Professor Emeritus, — **tsanis@mcmaster.ca**
Hydraulics, air-water interaction, lake hydrodynamics, diffusion and dispersion of pollutants.

Dr. John C. Wilson — Professor Emeritus — **jcwilson@mcmaster.ca**
Structural dynamics and earthquake engineering, bridge engineering

TECHNICIANS

Michael Fox	Technician, Geotech/Soils Lab, JHE-113, Ext. 24839	**foxm11@mcmaster.ca**
Monica Han	Technician, Environmental/Water Labs, JHE-201, Ext. 27074	**hanm7@mcmaster.ca**
Paul Heerema	ADL Supervisor and Senior Technician, ADL-105, Ext. 22031	**heeremp@mcmaster.ca**
Haseeb Raja	Technician, ADL, ADL-105, Ext. 22031	**rajah@mcmaster.ca**

ADMINISTRATIVE STAFF

Sarah Sullivan	Academic Department Manager, JHE–301/A, Ext. 24746	**sullivsb@mcmaster.ca**
Amelia Brook	Administrative Assistant - Graduate, JHE-301, Ext. 24287	**brookam2@mcmaster.ca**
Olive Pare	Administrative Assistant - Undergraduate, JHE-301, Ext. 24315	**pareok@mcmaster.ca**

ADJUNCT MEMBERS

Dr. Georgios Balomenos	Associate Professor (Adjunct), Hellenic Open University
Dr. Zhuohao Cao	Research Scientist, Environmental & Climate Change Canada
Dr. Yonas Dibike	Professor (Adjunct), Delft
Dr. Monica Emelko	Professor (Adjunct), Waterloo
Dr. Vimy Henderson	Assistant Professor (Adjunct), Waterloo
Dr. Shayne Love	Assistant Professor (Adjunct), McMaster University
Dr. Waleed Mekky	Assistant Professor (Adjunct)
Dr. SeonHong Na	Professor (Adjunct), Inha University
Dr. Li Ningyuan	Assistant Professor (Adjunct)
Dr. Corrine Schuster-Wallace	Assistant Professor (Adjunct), McMaster University
Dr. Spencer Snowling	Professor (Adjunct), Hydromantis, INC
Dr. Taylor Steele	Assistant Professor (Adjunct**)**
Dr. Thomas Tannert	Professor (Adjunct), University of Northern British Columbia
Dr. Fei Tong	Assistant Professor (Adjunct), University of Northern British Columba
Dr. Sina Varamini	Assistant Professor (Adjunct), CRM Co LLC
Dr. Teng Wu	Associate Professor (Adjunct), University of Buffalo

ASSOCIATE MEMBERS

Dr. Altaf Arain	School of Geography and Earth Sciences
Dr. Carlos Filipe	Chemical Engineering
Dr. Zhen Gao	W. Booth School of Engineering Practice and Technology
Dr. Antonio Paez	School of Geography and Earth Sciences
Dr. Chi-Keung Tang	W. Booth School of Engineering Practice and Technology
Dr. Tom Wanyama	W. Booth School of Engineering Practice and Technology

INDUSTRY PROFESSOR

Mr. Youngseck Hong	Professor (Industry), GE Water
Dr. Ayman Saudy	Professor (Industry), McMaster

Websites of Interest

School of Graduate Studies	https://gs.mcmaster.ca/
McMaster Engineering Graduate Society	http://egs.mcmaster.ca/
Civil Engineering Graduate Society	cegs@mcmaster.ca (website to come)
McMaster Graduate Students Association	https://gsa.mcmaster.ca/
Civil Engineering Graduate Course Schedule	Available via Mosaic.
Graduate Studies Sessional Dates and Deadlines	https://academiccalendars.romcmaster.ca/content.php?catoid=55&navoid=11130
Leaves of Absence	https://academiccalendars.romcmaster.ca/content.php?catoid=55&navoid=11123#2-5-7_leaves_of_absence
Graduate Forms and Resource Links	https://gs.mcmaster.ca/current-students/forms-and-policies-for-graduate-students-staff-and-faculty/ https://www.eng.mcmaster.ca/civil/resources/#tab-content-graduate-students https://gs.mcmaster.ca/current-students/resources/
Health and Safety Training including WHMIS	https://hr.mcmaster.ca/employees/health_safety_well-being/our-safety/health-and-safety-training/
Faculty of Engineering Future Graduate Students Information Site	https://www.eng.mcmaster.ca/future-students/future-graduate-students/incoming-graduate-students/
SGS Orientation Hub (setting up email, enrollment, etc.)	https://gs.mcmaster.ca/ive-accepted-my-offer/graduate-student-orientation-fall/ https://msumcmaster.ca/info/hsr-bus-pass/
International Student Services	https://studentsuccess.mcmaster.ca/international-students/ https://gs.mcmaster.ca/ive-accepted-my-offer/international-students/
Travelling to McMaster University	https://gs.mcmaster.ca/international-students-travelling-to-mcmaster-university/
UHIP	https://studentsuccess.mcmaster.ca/international-students/health-insurance/
Parking and Transportation Services	Parking: http://parking.mcmaster.ca/ Office of Sustainability – Alternative Transportation: https://facilities.mcmaster.ca/sustainability/transportation/
Student Accessibility Services	https://sas.mcmaster.ca/ Student Accessibility Services (SAS) provides academic accommodation assistance and related supports to students with disabilities at McMaster. SAS is available to assist graduate students. Approved accommodations of previous undergraduates at McMaster do not automatically apply during graduate studies. Students who need accommodations should return to SAS at the start of their graduate program to implement or update your status and accommodations.
Student Wellness Centre	https://wellness.mcmaster.ca/ The Student Wellness Centre is where you can go to address all your wellness needs. They provide a range of counselling options, medical services, and wellness programs.
TALKSPOT (Faculty of Engineering Mental Health Support)	https://www.eng.mcmaster.ca/current-students/talkspot/
SWHAT (Student Walk Home Attendant Team)	https://msumcmaster.ca/service/swhat/
OMBUDS Office	https://www.mcmaster.ca/ombuds/
Human Rights and Equity Services	https://equity.mcmaster.ca/

GENERAL INFORMATION FOR NEW GRADUATE STUDENTS

2024-2025 Academic Year

The following information is offered to assist incoming graduate students in establishing their programmes of study and research.

Programme Counselling:

The Associate Chair of Graduate Studies is Dr. Benzhong (Robin) Zhao who can be reached at robinzhao@mcmaster.ca. Dr. Zhao will advise students on the design of programmes of study and will be available to answer questions concerning general graduate student issues. The Graduate Administrative Assistant, Amelia Brook, will be available to assist with registration and general inquiries.

Students should discuss course content and research interests with their supervisor(s) so that study programmes can be developed to best suit the student's particular area of interest. All course descriptions are available in the Graduate Calendar, and a list of those offered by the department this year can be found on Mosaic.

Courses:

Graduate courses will commence on or after September 1, 2024. All students should register in their chosen courses, or indicate if they are working on their research, thesis/project for Terms I, II and III via MOSIAC by September 20, 2024.

Students should note that certain courses available for graduate credit are offered concurrently with undergraduate courses. These are designated as 600-level in the Graduate Calendar and 400-level courses in the Undergraduate Calendar. Since all undergraduate classes commence on September 3rd, graduate students contemplating registration in such a course(s) should try to attend the first lectures in that week. Timetable and room schedule details are available in MOSAIC. Similarly, it should be noted that students taking graduate classes outside of the department (e.g. in Chemical Engineering) should ensure that their enrolment intentions are made known to the appropriate department. The most effective liaison is by personal contact with the course instructor. Students may be required to submit a request for In-Program Course Adjustments.

Professional Development

Graduate students are also encouraged take training module courses offered by the Faculty of Engineering. To register for the courses, students will need to access Avenue2Learn, click on the 'Discover' tab and search for the title of the course to find it.

a) 'Discover the *Technical Communications for Graduate Students' Course*
    i. Topics that students will learn about include the art/science of persuasion, audience analysis, writing for publications, proposing and reporting a project, presentations and visualizing data, and how to give an oral presentation.

Co-op Program:

The Co-op Program for Graduate students is an optional program for full-time domestic and international Masters and Ph.D. students in good academic standing that allows students to gain engineering work experience prior to graduation. Students are required to complete a minimum of 8 months of work experience for master's students, and 12-months of work experience for Ph.D. students prior to graduation. It is administered by the Career Development & Relationship Manager - Graduate Studies. https://www.eng.mcmaster.ca/co-op-career/co-op-program#FAQs

First Time Teaching Assistants (TA):

All first time TA's at McMaster are required to complete **five hours of paid mandatory TA training** which will include instruction on topics in pedagogy and anti-oppression. This mandatory training is a **one-time** requirement separate from, and in addition to, other training that you may be expected to complete as part of your employment (which may include general orientations, institution-wide mandatory health and safety training, and assignment-specific health and safety training required by your Employment Supervisor).

You need to register for this training on **Mosaic**, through the Regulatory Training Tile on the homepage, and then carefully follow the directions under on the welcome page on **Avenue to Learn.** More detailed instructions will be emailed to students before the beginning of each semester.

Important notes:

1. Training should be completed within two weeks of your assignment.
2. A short quiz follows each module on Avenue to Learn, and a score of 100% is required on each quiz. These quizzes can be taken repeatedly until the required score is reached. *These quizzes trigger the payment process - if the quizzes are not successfully completed (i.e. 100%), you risk not being paid for these five hours.*
3. This training is a one-time requirement for the first time that you TA at McMaster. You will not be paid for more than 5 hours of training, even if you TA for multiple Faculties
4. Students can find more information on TA Training materials on the Fireball Academy website: https://fireballacademy.mcmaster.ca/for-students/on-the-job/ta-training-materials

ADMINISTRATIVE INFORMATION

Payment of Scholarships and Teaching Assistantships

Employment income from TA assignments will be paid bi-weekly by direct deposit to the employee, based on when the student is scheduled to work. TA payments are normally in term 1 (September to December) and/or term 2 (January – April). For more information about when you are scheduled to work, please refer to your employment contract.

Research scholarships paid by Supervisors from a research grant will be paid via lump sum instalments via direct deposit at the beginning of each term, unless otherwise specified by your supervisor. All other scholarships will be disbursed to the student in lump sum instalments via direct deposit at the beginning of each term. Funding for new M.A.Sc. students entering the program in 2024-2025 extends for 24 months. The funding period is 48 months for the Ph.D. program.
If a student is currently enrolled and wins a major graduate scholarship (NSERC, Vanier, OGS, CREATE, QEII GSST, CSC [China], CNPQ-Brazil, KASP [Saudi Arabia], and EAA [Egypt]) the total stipend provided by the department cannot be reduced by more than $2,500 per term for each term in which the student holds the award (i.e., a maximum stipend adjustment of $7,500 per year). If the student is a new applicant who brings with them a major graduate scholarship, the total support per year provided to the student cannot be less than the Faculty of Engineering minimum stipend. The stipend re-adjustment mentioned above does not apply. It is strongly recommended the applicant receive an offer covering their tuition at least for the duration of the major graduate scholarship, provided by a teaching assistant position, with the remainder provided by the department and supervisor.

Further information about student accounts, timing of payments and payment schedule for the 2024-2025 academic year can be found at https://gs.mcmaster.ca/current-students/fees-and-payment/. Information regarding the funding model can be found here: https://gs.mcmaster.ca/current-students/scholarships/. Should you have questions concerning your monthly payment, please contact our Academic Department Manager, Sarah Sullivan, at ext. 24746 (E-mail: sullivsb@mcmaster.ca).

Major Scholarship Policy

For the purposes of this policy, a "major graduate scholarship" includes the following: NSERC CGS-M, CGS-D, PGS-D, Vanier Graduate Scholarship, OGS, QEII GSST, or any other award valued at $10,000 or greater.
If you hold a major graduate scholarship, the total stipend provided by the program cannot be reduced by more than $2,500 per term for each term in which you hold the award (i.e., maximum stipend claw back of $7,500 per year).
In no case can the total support provided to the student be less than the greater of the Faculty of Engineering minimum support level or the value listed in the admission letter for the student.

For information on scholarships available please visit https://www.eng.mcmaster.ca/future-students/future-graduate-students/funding-awards/ and https://gs.mcmaster.ca/current-students/scholarships/

Civil Engineering Department Civil Seminar Series

The Department will host several seminars in the Fall and Winter terms. As part of their degree requirements, all graduate

students will be required to attend a minimum of 2 seminars in each of the Fall and Winter terms. Attendance will be tracked.

Grace Periods

Per Section 3.2.5 of the 2024-2025 Graduate Calendar, 'Tuition fees continue to be assessed until all degree requirements are met, including the successful submission of the final approved thesis to MacSphere. If a student uploads their final thesis mid-term or -month, their tuition will be assessed to the end of that month and any future enrolment will be removed during the clear to graduate process (e.g., student uploads in February, they will be refunded for March and April). Note that there is no grace period at the end of December or April for final thesis submission and completion of degree requirements.

Attendance and Vacations of Full-time Graduate Students

***New for 2023/2024* A 'Request to be Full-Time Off Campus Form' is no longer required to be submitted for vacation requests that are longer than 2 weeks.**

As indicated in the *School of Graduate Studies 2024-2025 Calendar, Section 2.5.8. Vacations*: "Full-time graduate students are expected to be on campus for all three terms of the university year, as specified in Section 1.3. In addition to statutory holidays (see Sessional Dates) and the closure of the University normally late December until early January, normal vacation entitlement for a graduate student is two weeks of vacation during the year to be scheduled by mutual agreement with the research supervisor. An exception to this allotment requires approval from the supervisor or in the supervisor's absence a member of the supervisory committee. Students who are also employees of the University must seek vacation approval from their employment supervisor and are entitled to vacation time pursuant to the terms of their employment contract.

A period of absence longer than 4 weeks that is not Full Time Off Campus requires the student to withdraw in good standing or go on a leave of absence.

For the purposes of record keeping, **the department requires grad students taking an extended vacation to submit the Full Time Off Campus form with their supervisor's signature** to the graduate administrative assistant at least one month before the vacation is to happen.

As per Section 1.3 and Section 2.5.6 of the Academic Calendar, if a student wishes to leave campus for the purpose of research work or exchange at another university, the "Request to be Full-Time Off Campus Form" will need to be submitted and approved by their supervisor, the department and the Associate Dean of Graduate Studies.

Per Section 2.5.7, a student requires time away from campus for personal reasons can request a Leave of Absence. Students can apply for one of four different leaves: Medical/Disability leave, Parenting leave, Compassionate/personal leave or No Course available leave. To request a leave, students must submit a 'Petition for Special Consideration' form and receive approval from their supervisor, the department, and the Associate Dean of Graduate Studies.

Health and Safety Requirements

Provincial legislation requires that all people employed in a workplace where hazardous materials are used attend the W.H.M.I.S. training session. The training is ***mandatory***, not optional, for all graduate students in the Department.

All graduate students are ***required*** to complete the following courses:

- SAFE (covers asbestos awareness, ergonomics, fire safety, and slips, trips and falls)
- Health and Safety Orientation
- WHMIS 2015
- Violence & Harassment Prevention in the Workplace
- Job Hazard Analysis

Note that additional safety training courses may also be required depending on your research plans. Safety training plans should be discussed with your supervisor.

Departmental Photocopying

The department has a photocopier in Room 302. To use this copier, you must first obtain permission to do so from your supervisor and then request a copying account code. For further information regarding photocopying accounts, please see the Undergraduate Administrative Assistant, Olivia Pare (pareok@mcmaster.ca).

Computer Facilities

Graduate students who need to use computers for their research will be provided access to a computer by their research supervisors. For larger scale computation, access can be gained to the SHARCNET supercomputer facilities at McMaster. All graduate students' rooms are equipped with high-speed internet connections.

Your McMaster Email Address

As soon as you are issued your McMaster email address, please notify Amelia Brook (brookam2@mcmaster.ca). All email communication to students is done through your McMaster email account. We are unable to send emails to YAHOO, Hotmail, Gmail accounts, or those offered by other providers, as per university policy.

Convocating Students

Please see Amelia Brook to obtain our Departmental Exit Sign-Off sheet when you have completed all the requirements for your degree and you are about to submit the final electronic copy of your thesis, revised as directed by your defence examining committee, to the School of Graduate Studies. Additionally, we will be happy to forward your mail via Canada Post for up to three months after you have left if you provide us with your forwarding address.

Plagiarism Checking Software:

Effective October 1st 2023 the university requires all Master's and Doctoral theses to be reviewed by iThenticate, a plagiarism checking software, before being seen by an external reviewer (Doctoral) or the finished copy submitted (Master's). This requirement can be found in the University's Research Plagiarism Checking Policy. Please note, this requirement is not meant to catch plagiarism, but rather to prevent it. By helping students detect sections of text requiring revision before the document is released to the public, the use of this tool can avoid otherwise serious allegations.

Documents with high overlap in content with other bodies of work does not necessarily mean that plagiarism has occurred and for this reason, it is important that the supervisor sees the report and reviews it with the student. Students are expected to change their theses accordingly and re-scan if necessary. The sign off by the supervisor is the final step before submission to SGS.

As of December 1st, 2023, each faculty member has been given an iThenticate account. Students who are looking to use the software, will need to contact their supervisor to have them submit the documents on their behalf. Faculty can find SGS's iThenticate How-to-Guide on the SGS website at https://gs.mcmaster.ca/current-students/forms-and-policies-for-graduate-students-staff-and-faculty/#tab-content-faculty-staff. Please reach out to the School of Graduate studies at gthesis@mcmaster.ca if you have any questions about iThenticate.

Student Ownership

More than roughly 80% of the research carried out in the Faculty of Engineering is done with industry. The university signs intellectual property and ownership agreements with a company and hence the terms of these agreements apply to all members of McMaster, not just the project supervisor. Students are encouraged to talk to their supervisors about the terms covering their research project to understand how their contributions will be weighted in the intellectual property generated and whether any review of theses and papers is required by the industrial sponsor before public disclosure.

COURSE INFORMATION

General Information

All required courses must be consistent with the content within the areas of research outlined by the department in the School of Graduate Studies Calendar. Courses outside the seven academic departments of Engineering are generally not eligible for use towards graduate degree requirements unless approved by the department and supervisory committee. **Courses in SEPT are not acceptable towards a degree requirement. Professional skills and other complementary type courses like EDU 750 (Principles and Practices of University Teaching) are also not acceptable towards a degree requirement.** If your supervisor requires you to take a course outside of the established list approval must be granted by the department. Please see Amelia Brook, Administrative Assistant – Graduate Program for details on how to request approval.

600-level half courses are offered for graduate credit and are also available to senior undergraduate students. In accordance with the School of Graduate Studies regulations, no program may allow more than one-third of their course requirements to be filled at the 600 level.

For Ph.D. students who started their degree program September 2023 onwards, please note that you **CANNOT** put any 600-level courses towards your degree requirements. You can only take a 600-level course as an elective.

Course Registration

Each term there is a deadline for registration and change in course registration (drop/add). Students adding a course after the appropriate deadline will not receive academic credit for that course. Also, students dropping a course after the deadline will receive a failing grade in that course. Students wishing to drop/add extra courses must do so in accordance with the School of Graduate Studies deadlines. Deadlines for such drop/adds are detailed on School of Graduate Studies website at https://gs.mcmaster.ca/current-students/dates-and-deadlines/.

Students are to register for their courses through MOSAIC. All students must meet with their supervisors and gain their approval before registering for courses online. If a student wishes to take "extra credit" courses, they must submit a petition via MOSAIC. More information can be found in Section 2.6.4 of *the School of Graduate Studies 2024-20254 Calendar*

Note: Any change in a student's program requires the approval of the student's Supervisor, the Graduate Student Advisor and the Associate Dean of Graduate Studies, Engineering.

Master of Applied Science (M.A.Sc.) Degree Requirements

Graduate Career Planning:

As of September 1, 2015, all new graduate students in Masters or Doctoral programs within the Department of Civil Engineering and the Faculty of Engineering, are required to complete a career planning exercise. Students must produce a report by the end of their first year. The report should be no more than two pages and must be submitted to the department's Associate Chair of Graduate Studies for approval. In preparation for writing this career planning exercise, students will be required to attend a session hosted by the Engineering Co-op and Career Services Team. Sessions are held at the beginning of each term and information will be sent out by the Faculty of Engineering's Graduate Coop team a couple weeks before each term starts.

M.A.Sc. Course Requirements:

Candidates will be required to complete satisfactorily the equivalent of 4 half courses (3 units each), of which 50% must be taken from within the Department of Civil Engineering at McMaster University. Please note that additional course work may be prescribed if deemed necessary by the candidate's research supervisor. If a student wishes to take "extra credit" courses they must submit a petition via Mosaic. More information can be found in Section 2.6.4 of *School of Graduate Studies 2024-2025 Calendar.*

Additional Requirements:

In addition to the above course requirements, all full-time master's candidates must attend and participate in the annual Department of Civil Engineering's Graduate Student Seminar Day for the first two years of their study. Upon completion of all degree requirements, and after the approval of the supervisor, a thesis must be presented which embodies the results of an original investigation usually in the form of one journal paper; and the dissertation is to be defended in an oral examination. Information pertaining to the thesis defence procedures can be found in the Master of Applied Science Examination Regulations section of this document.

As of Sept 2022, all master's students will be required to complete a degree audit form once a year. Completion of this form will take place prior to the start of an academic calendar year. Students will be required to meet with their supervisors to complete and receive approval of the form. Completed forms must be sent to the department by the specified deadlines.

Supervision:

Supervision of M.A.Sc. students is governed by the regulations set by the School of Graduate Studies. These are outlined in Section 3.1 of the *School of Graduate Studies 2024-2025 Calendar*

Preparation of Theses (Regular and Sandwich):

The general requirements for the production of a master's thesis can be found in the Guide for the Preparation of Master's and Doctoral Theses provided by of the School of Graduate Studies. The link to this document can be found here: https://gs.mcmaster.ca/app/uploads/2019/10/Prep_Guide_Masters_and_Doctoral_Theses_August-2021.pdf

Defence & Submission of M.A.Sc. Theses:

Information on how to write, defend and submit your Master's thesis can found at https://gs.mcmaster.ca/current-students/completing-your-degree/masters-thesis/. Please ignore Step 2 and contact the graduate administrative assistant when you are ready to defend.

DEPARTMENT OF CIVIL ENGINEERING

McMaster University

Hamilton, Ontario

MASTER OF APPLIED SCIENCE EXAMINATION REGULATIONS

RESEARCH THESIS

All M.A.Sc. (thesis) candidates are required to present a thesis, which embodies the results of an original research investigation. The following regulations apply to theses submitted in partial fulfillment of the M.A.Sc. degree requirements.

1. Examination Committee

Each M.A.Sc. candidate must successfully defend her/his thesis in an open oral examination before a committee appointed by the Department Chair. The committee shall be composed of at least three voting members (at least two from the Department), including the candidate's supervisor, and chaired by a non-voting member.

Proposed examination committee voting membership will be made known to each candidate, who has the right to express her/his own opinion concerning this membership to the Graduate Student Advisor. It is the responsibility of the supervisor to inform the candidate of the proposed voting membership of the examination committee.

2. Thesis Examination

It will be the responsibility of the candidate to submit the thesis to members of the examination committee a minimum of two (2) weeks prior to the tentative date of the oral defence.

Prior to the thesis defence, before sending out the draft to the examiners, the entire document must be reviewed for its originality using the University's paid subscription to iThenticate. The program/supervisor will review the originality report generated by iThenticate, and either recommend changes to the document or approve it for the defence. A thesis may not be seen by the thesis examining committee (including the external reviewer in the case of a doctoral thesis) until the iThenticate, generated report was reviewed and approved by the supervisor or the program, unless authorized by the Associate Dean of Graduate Studies.

In the event that a voting member indicates that gross deficiencies exist in the thesis, the examination committee chair will convene a meeting of the voting members to discuss the thesis at least two (2) days before the anticipated date of defence. The purpose of that meeting will be to recommend one of the following courses of action, based on a majority vote:

(a) that the thesis is not acceptable for defence in its present form and return it to the candidate with explicit comments as to why it is not acceptable.

(b) that specific modifications in the thesis are required prior to formal defence, and direct the candidate to effect those changes; or

(c) that the thesis be formally defended with/without minor modifications.

3. Seminar

Each M.A.Sc. candidate must present a seminar on the completed research work. For M.A.Sc. thesis candidates, this seminar will normally be held on the day of the oral examination. Attendance at that seminar is open to all interested persons.

4. Oral Defence

The examining committee chair will convene an oral defence only after receiving from voting members written confirmation that the thesis is acceptable for defence. Formal presentation of the thesis work will normally not be required during an oral examination. **The examination will be open to all interested persons.**

5. Examination Outcome

A successful defence will include acceptance, by a majority of voting members, of the written thesis and of the oral defence. The outcome of the oral defence will be limited to one of the following, based on majority vote:

(a) the oral defence and thesis are satisfactory; the candidate passes;

(b) either the thesis or the oral defence is unsatisfactory, and the candidate is given an opportunity to be re-examined only once; or

(c) the thesis and/or the oral defence is unsatisfactory; the candidate fails.

Master of Engineering (M.Eng.) Degree Requirements

Graduate Career Planning:

As of September 1, 2015, all new graduate students in Masters or Doctoral programs within the Department of Civil Engineering and the Faculty of Engineering, are required to complete a career planning exercise. Students must produce a report by the end of their first year. The report should be no more than two pages and must be submitted to the department's Associate Chair of Graduate Studies for approval. In preparation for writing this career planning exercise, students will be required to attend a session hosted by the Engineering Co-op and Career Services Team. Sessions are held at the beginning of each term and information will be sent out by the Faculty of Engineering's Graduate Coop team a couple weeks before each term starts.

M.Eng. Course Requirements:

Candidates who begin their studies on September 1st, 2018, or later will be required to complete satisfactorily the equivalent of at least 8 half courses (3 units each), of which at least 50% must be taken from within the Department of Civil Engineering at McMaster University. This 50% includes CIVENG 700, the required research project course. CIVENG 700, which is equivalent to 2 half-courses (6 units), is to be taken when students are working on their project, typically after the completion of all academic coursework. Additional course work may be prescribed if deemed necessary by the candidate's project supervisor. If a student wishes to take "extra credit" courses, they must submit a petition via MOSAIC. More information can be found in Section 2.6.4 of the *School of Graduate Studies 2024-2025 Calendar.*

Additional Requirements:

In addition to the above course requirements, all full-time master's candidates must attend and participate in the annual Department of Civil Engineering's Graduate Student Seminar Day for the first two years of their study. Upon completion of all degree requirements, and after the approval of the supervisor, a report must be presented on a project that demonstrates the candidate's ability to carry out independent study and reach a satisfactory conclusion. The report must be approved by the department and presented orally to the department. Information pertaining to the project presentation procedures can be found in the Master of Engineering Project Report Guidelines section of this document.

As of Sept 2022, all master's students will be required to complete a degree audit form once a year. Completion of this form will take place prior to the start of an academic calendar year. Students will be required to meet with their supervisors to complete and receive approval of the form. Completed forms must be sent to the department by the specified deadlines.

Supervision:

Supervision of M.Eng. students is governed by the regulations set by the School of Graduate Studies. These are outlined in Section 3.1 of the *School of Graduate Studies 2024-2025 Calendar*

Submissions of M.Eng. Projects:

Once you have successfully presented your M.Eng. project and all corrections have been made, as required by your examination committee, you must submit an electronic copy of your project to our department. This electronic copy must be in a PDF format. Submissions are to be emailed to the Graduate Administrative Assistant. Once this document is received, the appropriate paperwork indicating that you have successfully completed the degree requirements will be submitted to the School of Graduate Studies.

DEPARTMENT OF CIVIL ENGINEERING

McMaster University

Hamilton, Ontario

MASTER OF ENGINEERING PROJECT REPORT GUIDELINES

All Master of Engineering (project) candidates are required to complete CIVENG700 and submit a project report.

CIVENG 700 - M.Eng. INDEPENDENT RESEARCH PROJECT

The M.Eng. Independent Research Project is supervised by a faculty member, and involves either: an experimental investigation, an analytical investigation, a design project, a state-of-the art review, or a combination of these elements in a chosen topic matter in civil engineering. A faculty member (from the Department of Civil Engineering) must agree to supervise the project, and it is a student's responsibility to obtain prior consent of a supervisor. The supervisor may request a project proposal.

The student must submit a project report which demonstrates ability to carry out independent study and reach a satisfactory conclusion. The written report will be evaluated by the supervisor and an independent reader (another faculty member). Upon approval of the written report, the student must orally present the report to the department. A McMaster letter grade will be assigned by the supervisor and the reader based on the written report and the oral presentation.

All project reports submitted for examination will be subject to the same standards as theses. The format and style will comply with the School of Graduate Studies guidelines for thesis preparation. See the Guide for the Preparation of Master's and Doctoral Theses provided by of the School of Graduate Studies for more information: https://gs.mcmaster.ca/app/uploads/2019/10/Prep_Guide_Masters_and_Doctoral_Theses_August-2021.pdf

Should the candidate desire clarification of any matter related to the project report, the Associate Chair of Graduate Studies should be contacted.

PROJECT REPORT

Project reports submitted in partial fulfillment of the Master of Engineering degree requirements will be examined in the following manner:

1. Examination Committee

The project report will be examined by at least two faculty members of the Department, appointed by the Department Chair, including the candidate's supervisor. A third examining member will only be appointed when required to cast a determining vote for an examination outcome in 4 below.

2. Project Report Examination

The examination will consist of a detailed review of the project report by the examination committee. The examination committee may require an oral defence.

3. Seminar

Each M.Eng. candidate must present a seminar on their project topic. For M.Eng. candidates, this seminar will normally be held on the day of the oral defence. Attendance at that seminar is open to all interested persons.

4. Examination Outcome

A McMaster letter grade will be assigned by the supervisor and the reader based on the written report and the oral presentation.

A successful examination will include acceptance, by a majority of voting members, of the written project report. The outcome of the examination will be limited to one of the following:

(a) the project is satisfactory, and the candidate passes.

(b) the project report is unsatisfactory, and the candidate is given an opportunity to have the report re-examined only once; or

(c) the project report is unsatisfactory, and the candidate is failed.

Doctor of Philosophy (Ph.D) Degree

STUDENTS WHO STARTED IN 2022-23 OR PRIOR

Degree Requirements

****If you are starting your Ph.D. degree in September 2023, please refer to the section titled 'Students starting September 2023 onwards'****

Graduate Career Planning:

As of September 1, 2015, all new graduate students in Masters or Doctoral programs within the Department of Civil Engineering and the Faculty of Engineering, are required to complete a career planning exercise. Students must produce a report by the end of their first year. The report should be no more than two pages and must be submitted to the department's Associate Chair of Graduate Studies for approval. In preparation for writing this career planning exercise, students will be required to attend a session hosted by the Engineering Co-op and Career Services Team. Sessions are held at the beginning of each term and information will be sent out by the Faculty of Engineering's Graduate Coop team a couple weeks before each term starts.

Ph.D. Course Requirements:

Candidates will be required to complete satisfactorily the equivalent of 4 half courses (3 units each) in addition to the course requirements for an M.A.Sc. degree (see page 16 of this handbook). 50% of this courseload must be taken from within the Department of Civil Engineering at McMaster University. Additional course work may be prescribed if deemed necessary by the candidate's research supervisor. If a student wishes to take "extra credit" courses, they must submit a petition via Mosaic. More information can be found in Section 2.6.4 of the *School of Graduate Studies 2024-2025 Calendar*.

Students entering the Ph.D. program in Civil Engineering directly with a bachelor's degree or via a transfer from the M.A.Sc. program in Civil Engineering must fulfil the M.A.Sc. course requirements plus complete the course requirements for the Ph.D. program.

Additional Requirements:

In addition to the above course requirements, all full-time Ph.D. candidates must attend and participate in the annual Department of Civil Engineering's Graduate Student Seminar Day for the first four years of their study. The candidate must also pass a Comprehensive Examination which has 2 parts: Part A and Part B. The purpose of this examination is to test the candidate's acquisition of knowledge and maturity of approach to problems in the major field of study, as well as in appropriately chosen cognate subject areas. The detailed regulations governing these examinations is discussed in the *Ph.D. Comprehensive Examination Regulations-2022/23 and prior* section of this document. Upon completion of all degree requirements, and after the approval of the supervisor, a thesis must be presented which will embody the results of

an original investigation usually in the form of one journal paper; and the dissertation is to be defended in an oral examination.

As of Sept 2022, all Ph.D. candidates will be required to complete a degree audit form. The student must complete this form at each annual committee meeting with their supervisory committee. Approval of the completed form from the supervisor will be required. Completed forms must be sent to the department after each committee meeting.

Supervision:

Supervision of Ph.D. candidates is governed by the regulations set by the School of Graduate Studies. These are outlined in Section 3.1 of the *School of Graduate Studies 2024-2025 Calendar*

Preparation of Theses (Regular and Sandwich):

The general requirements for the production of a Doctoral thesis found in the Guide for the Preparation of Master's and Doctoral Theses provided by of the School of Graduate Studies. The link to this document can be found here: https://gs.mcmaster.ca/app/uploads/2019/10/Prep_Guide_Masters_and_Doctoral_Theses_August-2021.pdf

Defence & Submission of Ph.D Theses:

Information on how to write, defend and submit your Ph.D. thesis can found at https://gs.mcmaster.ca/current-students/completing-your-degree/doctoral-degree/.

Prior to the thesis defence and, in the case of a doctoral thesis, before sending out the draft to the external examiner, the entire document must be reviewed for its originality using the University's paid subscription to iThenticate, The program/supervisor will review the originality report generated by iThenticate, and either recommend changes to the document or approve it for the defence. A thesis may not be seen by the thesis examining committee (including the external reviewer in the case of a doctoral thesis) until the iThenticate, generated report was reviewed and approved by the supervisor or the program, unless authorized by the Associate Dean of Graduate Studies.

Ph.D. Comprehensive Examination Regulations – Degree Entry in 2022-23 and Prior

1. Purpose

The purpose of this examination is to test the candidate's acquisition of knowledge and maturity of approach to problems in the major field of study, as well as in appropriately chosen cognate subject areas. It is intended that this examination will also be used to test the candidate's competence and ability to conduct research in the chosen speciality.

The comprehensive examination will consist of two parts – Part A and Part B.

2. Membership of the Ph.D. Examination Committee

The Part A Ph.D. Examination Committee shall consist of a non-voting Committee Chair, and **three voting members** as follows: the supervisor, one representative from the candidate's supervisory committee (this representation will be decided by the members of the supervisory committee), and one departmental representative who is not part of the candidate's Supervisory Committee.

The Part B Ph.D. Examination Committee shall consist of a non-voting Chair, and the three voting members of the Ph.D. Supervisory Committee.

In case of a re-examination the provision of 6(b) shall also apply.

3. Chair of the Ph.D. Examination Committee

The position of the Examination Committee Chair shall be taken by rotation of the departmental faculty. The candidate's supervisor(s), the Graduate Student Advisor or the Department Chair shall in no instance be the Ph.D. Examination Committee Chair.

4. Part A: Breadth and Depth of Knowledge

Objective: The objective of Part A, consisting of a written examination and an oral examination, is to test the candidate's knowledge of undergraduate material in the major field of study, with graduate level understanding and the ability to think independently.

Time: Students shall take Part A normally within **10 months** of admission to the doctoral program.

Written part**:

This is a 4-hour open-book/closed-door examination, with questions in three selected subject areas. For each question, the candidate must demonstrate a graduate-level understanding of undergraduate material. The three subject areas shall be selected by the Examination Committee. The candidate shall be informed of the three areas **at least two months** prior to the exam. Without restricting the reference materials that candidates may choose to bring to the examination, candidates shall be notified at least two months before the examination of any references that they are required to bring. The use of computers/tablets during the examination will be allowed however access to communication platforms and internet will be strictly prohibited.

Oral part:

The oral exam shall be conducted within 48 hours following the written part.

The oral examination will mostly be based on the questions from the written part of the examination. However, the scope of the oral part may extend to examine the depth of knowledge in the candidate's discipline area and possible deficiencies in the candidate's academic background.

The oral exam shall not exceed two hours in duration.

5. Part B: Research Proposal and Oral Exam

Objective: The objective of Part B is to test the candidate's competence and ability to conduct research in the chosen specialty.

Time: Within **8 months** of passing Part A Examination.

Written part:

The candidate shall submit a research proposal, a minimum of two weeks before the Part B examination, up to a maximum of 25 pages in length. This page length does not include the cover page or references.

Oral part:

The candidate will be required to present the research proposal in a summary fashion (approximately 20 minutes) to the committee, followed by questions directly related to the proposal and the candidate's specific area of research. The oral part is an open examination and shall not exceed two hours in duration.

6. Outcome of the Examination

The evaluation and outcome of the examination applies to both Parts A and B of the examination.

There shall only be two possible outcomes of the first Ph.D. Comprehensive examination. The committee shall render one of the following decisions:

a. When there are two or more passing votes then the Committee rules that the candidate passed the examination. The Committee may add to this pass conditions to correct any weaknesses detected (e.g., take a specific course). [Designation of 'Pass']

b. When there are two or more "Unsatisfactory" votes there shall be a re-examination.
   i) For Part A, the re-examination shall be within **4 months** of the initial attempt. The Part A re-examination shall contain only three questions. In the event of a re-examination for Part A, one new member shall be added to the original examination committee.
   ii) For Part B, the re-examination shall be within **3 months** of the original examination and within **20 months** of admission to the doctoral program, whichever is earlier. [Designation of 'Re-Examination']
   iii) There shall only be two possible outcomes of a re-examination. The committee shall render one of the following decisions:
      i. For Part A, when there are three or more passing votes then the Committee rules that the candidate passed the examination.
      ii. For Part B, two or more passing votes are required for a pass. The Committee may add to this pass conditions to correct any weaknesses detected (e.g., take a specific course). [Designation of 'Pass']
      iii. When there are two or more "Unsatisfactory" votes, the candidate will fail. The candidate will be required to withdraw from the Ph.D. programme for a "Fail" in the re-examination of either Part A or Part B. [Designation of 'Fail']

The Re-Evaluation and Outcome of the Examination apply to both Part A and B of the Comprehensive Examination.

7. Notification of Outcome

The Chair of the Ph.D. Examination Committee shall verbally inform the candidate of the Committee's decision based on one of the two possible outcomes above. That decision shall be conveyed to the candidate immediately after the Committee has concluded discussion.

Formal written notification of the Committee ruling will be provided by the Graduate Student Advisor upon receipt of the Committee report.

Doctor of Philosophy (Ph.D) Degree

STUDENTS STARTING SEPTEMBER 2023 ONWARDS

Degree Requirements

****If you started your Ph.D. degree prior to September 2023, please, please refer to the previous section titled 'Students who started in 2022-23 and earlier****

Graduate Career Planning:

As of September 1, 2015, all new graduate students in Masters or Doctoral programs within the Department of Civil Engineering and the Faculty of Engineering, are required to complete a career planning exercise. Students must produce a report by the end of their first year. The report should be no more than two pages and must be submitted to the department's Associate Chair of Graduate Studies for approval. In preparation for writing this career planning exercise, students will be required to attend a session hosted by the Engineering Co-op and Career Services Team. Sessions are held at the beginning of each term and information will be sent out by the Faculty of Engineering's Graduate Coop team a couple weeks before each term starts.

Ph.D. Course Requirements:

Candidates will be required to complete satisfactorily the equivalent of 2 700-level half courses (3 units each) in addition to the course requirements for an M.A.Sc. degree (see page 16 of this handbook). 50% of this courseload must be taken from within the Department of Civil Engineering at McMaster University. Additional course work may be prescribed if deemed necessary by the candidate's research supervisor/supervisory committee for the student's research or to address an identified gap in the student's background. If a student wishes to take "extra credit" courses, they must submit a petition via Mosaic. More information can be found in Section 2.6.4 of the *School of Graduate Studies 2024-2025 Calendar*.

Students entering the Ph.D. program in Civil Engineering directly with a bachelor's degree or via a transfer from the M.A.Sc. program in Civil Engineering must complete satisfactorily 4 half courses, at the 700-level, beyond the requirements of the bachelor degree.

*****Please note, that 600-level courses CANNOT be put towards course requirements. They can only be taken as additional electives*****

Additional Requirements:

In addition to the above course requirements, all full-time Ph.D. candidates must attend and participate in the annual Department of Civil Engineering's Graduate Student Seminar Day for the first four years of their study. The candidate must also pass a Comprehensive Examination. The purpose of this examination is to test the candidate's acquisition of knowledge and maturity of approach to problems in the major field of study, as well as in appropriately chosen cognate subject areas. The detailed regulations governing these examinations are discussed in the *Ph.D. Comprehensive Examination Regulations-September 2023 and Onwards* section of this document. Upon completion of all degree

requirements, and after the approval of the supervisor, a thesis must be presented which will embody the results of an original investigation usually in the form of one journal paper; and the dissertation is to be defended in an oral examination.

As of Sept 2022, all Ph.D. candidates will be required to complete a degree audit form. The student must complete this form at each annual committee meeting with their supervisory committee. Approval of the completed form from the supervisor will be required. Completed forms must be sent to the department after each committee meeting.

Supervision:

Supervision of Ph.D. candidates is governed by the regulations set by the School of Graduate Studies. These are outlined in Section 3.1 of the *School of Graduate Studies 2024-2025 Calendar*

Preparation of Theses (Regular and Sandwich):

The general requirements for the production of a Doctoral thesis found in the Guide for the Preparation of Master's and Doctoral Theses provided by of the School of Graduate Studies. The link to this document can be found here: https://gs.mcmaster.ca/app/uploads/2019/10/Prep_Guide_Masters_and_Doctoral_Theses_August-2021.pdf

Defence & Submission of Ph.D. Theses:

Information on how to write, defend and submit your Ph.D. thesis can found at https://gs.mcmaster.ca/current-students/completing-your-degree/doctoral-degree/.

Prior to the thesis defence and, in the case of a doctoral thesis, before sending out the draft to the external examiner, the entire document must be reviewed for its originality using the University's paid subscription to iThenticate, The program/supervisor will review the originality report generated by iThenticate, and either recommend changes to the document or approve it for the defence. A thesis may not be seen by the thesis examining committee (including the external reviewer in the case of a doctoral thesis) until the iThenticate, generated report was reviewed and approved by the supervisor or the program, unless authorized by the Associate Dean of Graduate Studies.

Ph.D. Comprehensive Examination Regulations – Degree Entry in September 2023 and Onwards

1. Purpose

The purpose of this examination is to test the candidate's acquisition of knowledge and maturity of approach to problems in the major field of study, as well as in appropriately chosen cognate subject areas. It is intended that this examination will also be used to test the candidate's competence and ability to conduct research in the chosen speciality. Successful completion of the comprehensive examination is a requirement for the candidate to continue in the Ph.D. program.

2. Membership of the Ph.D. Examination Committee

The Ph.D. Examination Committee is the same as the supervisory committee. A non-voting Committee Chair will be appointed by the Department.

In case of a re-examination the provision of 5(c) shall also apply.

3. Chair of the Ph.D. Examination Committee

The position of the Examination Committee Chair shall be appointed by the Department. The candidate's supervisor(s), the Associate Chair of Graduate Studies or the Department Chair shall in no instance be the Ph.D. Examination Committee Chair.

4. Time and Format of the Examination

Time: The comprehensive examination will normally take place within 12 months, but may be extended to 15 months, of the admission date to the doctoral program. If an examination date has not been set within the 15-month period, the Department Chair will set the date of the examination. There shall be three sittings of examinations in February, June and October each year. Students who begin in May and September shall take the exam in February and June of the following calendar year, while students who begin in January shall take the exam in October of the same calendar year.

Format: The Comprehensive Examination will consist of a research proposal and an oral examination of less than three hours. The candidate is required to submit a written proposal on their Ph.D. research topic that must be approved by their supervisor(s). The proposal, which should be in 12-point font and double-spaced, can be up to 20 pages (excluding References and Appendices) and must be submitted to the examination committee at least two weeks prior to the date of the examination. It should identify the research needs and knowledge gaps, objectives of the research, proposed methodology, anticipated outcomes, progress made thus far, along with a proposed timeframe.

Oral Examination: During the oral examination, the candidates should provide a brief presentation (maximum of 15 minutes) on their research proposal and answer questions of the Examination Committee. The questions will be primarily on the research proposal. However, the scope of the oral part may extend to examining the depth of knowledge in the candidate's discipline area related to the proposed research and possible deficiencies in the candidate's academic background. This part of the examination shall be conducted in two rounds consisting of 10-15 minutes of questions from each of the three Examination Committee members.

5. Outcome of the Examination

There shall only be three possible outcomes of the first Ph.D. Comprehensive Examination. The committee shall render one of the following decisions:

a. When there are two or more passing votes then the Committee rules that the candidate passed the examination. The Committee assesses the performance with a designation of 'Pass'.
b. When there are two or more passing votes, then the committee rules that the candidate passed the examination but may add conditions to this pass to correct any weaknesses detected (e.g., take a specific course).
c. When there are two or more "Unsatisfactory" votes there shall be a re-examination, which shall be at **the next sitting** of the Examinations. In the event of a re-examination, the candidate may, but not mandatory, submit a revised research proposal, unless the research scope is changed.

There shall only be three possible outcomes of a re-examination. The committee shall render one of the following decisions:

a. When there are two or more positive votes then the Committee rules that the candidate passed the examination. The Committee assesses the performance with a designation of 'Pass'.
b. When there are two or more positive votes, then the committee rules that the candidate passed the examination but may add conditions to this pass to correct any weaknesses detected (e.g., take a specific course).
c. When there are two or more "Unsatisfactory" votes the candidate will fail. The Committee assesses the performance with a designation of 'Fail'. The candidate will be required to withdraw from the Ph.D. programme for a "Fail" in the re-examination.

6. Notification of Outcome

The Chair of the Ph.D. Examination Committee shall verbally inform the candidate of the Committee's decision based on one of the three possible outcomes above. That decision shall be conveyed to the candidate immediately after the Committee has concluded discussion.

Formal written notification of the Committee ruling will be provided by the Associate Chair of Graduate Studies upon receipt of the Committee report.

Ph.D. SUPERVISION AND RESPONSIBILITIES OF Ph.D. SUPERVISORY COMMITTEE

Ph.D. students are required to meet with the supervisory committee once per year at the minimum. The 1st supervisory committee meeting is recommended to be held within the first 4-6 months of the program. If the student's start date is in January or May, they need to have the 1st supervisory meeting no later than November 30th of that year and preferably within the first 4-6 months. It is the responsibility of the student to plan their meeting dates and times based on the availability of the committee, and once this is done, they may contact the Graduate Administrative Assistant to book a room. It is the responsibility of the student to communicate the date, time, and location to the committee. It is important to note subsequent meetings must occur within 12 months of the preceding meeting as per the Graduate Calendar.

At each meeting the student is required to submit the electronic supervisory committee meeting report to their respective committee outlining their progress. The link to this electronic report will be sent by the Graduate Administrative Assistant to the student. The student will verify that the committee is correct and if it is found that it is not, they will contact the Graduate Administrative Assistant. If a hard copy of the Ph.D. supervisory committee report form is needed, a copy can be found on the School of Graduate Studies website under 'Resources' or on the Department of Civil Engineering website under 'Resources'.

****NEW AS OF SEPT 2022****

All Ph.D. candidates will be required to complete a degree audit form each year at their annual committee meeting with their supervisory committee. Approval of the completed form from the supervisor will be required. Completed forms must be sent to the department after each committee meeting.

Pertinent McMaster University Policies and Procedures

Academic Integrity Policy:
https://secretariat.mcmaster.ca/app/uploads/Academic-Integrity-Policy-1-1.pdf

Academic Accommodation of Students with Disabilities
https://secretariat.mcmaster.ca/app/uploads/Academic-Accommodations-Policy.pdf

Accessibility Policy:
https://secretariat.mcmaster.ca/app/uploads/2019/05/Accessibility.pdf

Discrimination, Harassment and Sexual Harassment Prevention and Response Policy:
https://secretariat.mcmaster.ca/app/uploads/Discrimination-and-Harassment-Policy.pdf

Fair Dealing Policy
https://copyright.mcmaster.ca/app/uploads/2018/06/Fair-Dealing-Policy-Nov-2013.pdf

Ownership of Student Work
https://secretariat.mcmaster.ca/app/uploads/2019/06/Ownership-of-Student-Work.pdf

Policy on Academic Accommodation for Religious, Indigenous and Spiritual Observances
https://secretariat.mcmaster.ca/app/uploads/2019/02/Academic-Accommodation-for-Religious-Indigenous-and-Spiritual-Observances-Policy-on.pdf

Research Integrity Policy:
https://secretariat.mcmaster.ca/app/uploads/Research-Integrity-Policy.pdf

Sexual Violence Policy:
https://secretariat.mcmaster.ca/app/uploads/Sexual-Violence-Policy.pdf

Sexual Violence Response Protocol:
https://svpro.mcmaster.ca/

Collective Agreement for TA or RA in Lieu of TA:
https://hr.mcmaster.ca/employees/labour-relations/cupe-local-3906-unit-1-tas/

Copyright Information:
https://copyright.mcmaster.ca/

Graduate Student Leaves of Absence:
https://academiccalendars.romcmaster.ca/content.php?catoid=55&navoid=11123#2-5-7_leaves_of_absence

Petition for Special Consideration:
https://gs.mcmaster.ca/app/uploads/2020/02/Petition-for-Special-Consideration.pdf

Incomplete/Failing Grades:
https://academiccalendars.romcmaster.ca/content.php?catoid=55&navoid=11123#2-6-11_milestones

Student Code of Conduct:
https://secretariat.mcmaster.ca/app/uploads/Code-of-Student-Rights-and-Responsibilities.pdf

Student Appeals Procedure:
https://secretariat.mcmaster.ca/app/uploads/Student-Appeal-Procedures.pdf