Université Concordia University

GINA CODY SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

Department of Chemical and Materials Engineering

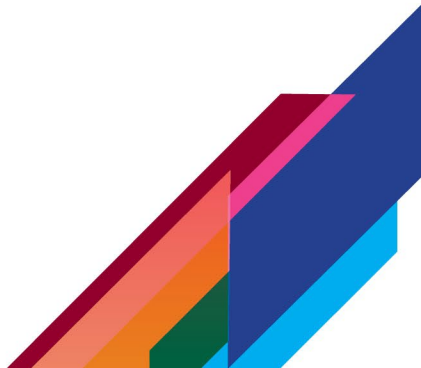
Orientation session Winter 2025

Department of Chemical and Materials Engineering – Academic and Community Conduct

Academic and community conduct

- My advice:
  - Be honest at all times
    - Plagiarism is not tolerated
      - Don’t cheat on exams
      - Don’t copy from others
      - Always cite every source you use
  - Be respectful at all times
    - Rudeness or bullying is not tolerated
    - Concordia encourages and celebrates diversity
  - Be responsible at all times
    - Inform yourself of the rules and follow them
      - Read your admission letter – in its entirety
      - Read your course outlines – in their entirety
    - Safety: Part of Chemical Engineering culture

CONCORDIA.CA



UNIVERSITÉ Concordia UNIVERSITY

CME Thesis-based Graduate Programs

Dr. Zhibin Ye

Department of Chemical and Materials Engineering

Concordia University, Montreal, Canada

CME thesis-based programs

- **MASc**

45 credit program: courses + thesis; typically, 2 years

- **PhD**

90 credit program: courses + thesis; typically, 4 years

Read the CME Graduate Student Handbook. You will find detailed information on all programs offered by the Department and the guidelines you need to follow.

MASc program requirements

https://www.concordia.ca/academics/graduate/chemical-engineering-masc.html

➢ **Courses – 16 credits**

Mandatory:

**** CHME 6981 Chemical Engineering Research Protocols and Safety (4 cr.)**
– required prior to lab access; take ASAP

**** minimum 1 course (4 cr.) from**

CME MASc core courses:

- CHME 6011 Advanced Transport Phenomena (4 cr.)
- CHME 6021 Advanced Chem. Eng. Thermodynamics (4 cr.)
- CHME 6031 Chemical kinetics and Reaction Engineering (4 cr.)
- CHME 6041 Chemical Process Dynamics and Control (4 cr.)
- CHME 6051 Chemical Process Engineering and Design (4 cr.)
- CHME 6071 Materials Science and Engineering (4 cr.)
- CHME 6081 Advanced Separation Processes (4 cr.)
- CHME 6121 Nanomaterials Science and Engineering (4 cr.)
- ENCS 6021 Engineering Analysis (4 cr.)

Discuss with your supervisor on course selection!!!

MASc program requirements

https://www.concordia.ca/academics/graduate/chemical-engineering-masc.html

➢ Courses – 16 credits

Other 8 credits:

**** any courses from CME MASc core course list and electives list;**

MASc electives:
(> 24; expanding)

- CHME 6061 Advanced Biochemical Engineering (4 cr.)
- CHME 6091 Statistics for Chem. Eng. (4 cr.)
- CHME 6101 Advanced Battery Materials and Technologies (4 cr.)
- CHME 6111 Polymer Chemistry and Engineering (4 cr.)
- CHME 6131 Advanced Colloid and Interface Science and Engineering (4 cr.)
- CHME 6911 Topics in Chemical Engineering I (4 cr.)
- ENCS 6111 Numerical Methods (4 cr.)
- ENGR 6201 Fluid Mechanics (4 cr.)
- MECH 6131 Conduction and Radiation Heat Transfer (4 cr.)
- MECH 6141 Heat Exchanger Design (4 cr.)
- ….

**** possible to take 1 course outside the Electives list (get permission of GPD); courses at other departments at Concordia or other universities;**

Note: If you take a 3-cr. course, you must take 1-cr. CHME 6001 – Project in CME to obtain the missing credit.

MASc program requirements

https://www.concordia.ca/academics/graduate/chemical-engineering-masc.html

- **Research and thesis**

ENGR 8901 MASc Research and Thesis (29 cr.)

Discuss with your supervisor on your thesis research (topic, objectives, methodology, timeline) !!!

Department seminars by invited speakers: mandatory to attend 80%.

PhD program requirements

https://www.concordia.ca/academics/graduate/chemical-engineering-phd.html

➢ **Courses – 12 credits**

Discuss with your supervisor on course selection!!!
Choose courses that best align with your research areas and interest you most.

Mandatory:

**** CHME 6981 Chemical Engineering Research Protocols and Safety (4 cr.) – required prior to lab access; take ASAP**

**** at least 4 cr. from CME PhD courses (> 30)**

- CHME 6011 Advanced Transport Phenomena (4 cr.)
- CHME 6021 Advanced Chem. Eng. Thermodynamics (4 cr.)
- CHME 6031 Chemical kinetics and Reaction Engineering (4 cr.)
- CHME 6041 Chemical Process Dynamics and Control (4 cr.)
- CHME 6051 Chemical Process Engineering and Design (4 cr.)
- CHME 6061 Advanced Biochemical Engineering (4 cr.)
- CHME 6071 Materials Science and Engineering (4 cr.)
- CHME 6081 Advanced Separation Processes (4 cr.)
- CHME 6121 Nanomaterials Science and Engineering (4 cr.)
- ….

PhD program requirements

https://www.concordia.ca/academics/graduate/chemical-engineering-phd.html

- **Courses – 12 credits**

Optional:

**** You may take 1 course outside the PhD course list (get permission of GPD);**

It can be a course at other departments at Concordia or at other universities

Note: If you take a 3-cr. course, you must take 1-cr. CHME 6001 – Project in CME to obtain the missing credit.

PhD program requirements

https://www.concordia.ca/academics/graduate/chemical-engineering-phd.html

- **Comprehensive and proposal exams, and Seminar - 8 credits**

ENCS 8501 Comprehensive Exam (0 cr.) – Critical Literature Review

Generally, within 1st year of PhD program; submit a critical literature review report and defend

ENCS 8511 Doctoral Research Proposal (6 cr.)

Generally, within half a year after passing Comprehensive Exam; submit a research proposal and defend

ENCS 8011 PhD Seminar (2 cr.)

Generally, after passing Doctoral Research Proposal; deliver a seminar and attend other seminars (by other PhD students and invited department seminar speakers)

Discuss with your supervisor on your comprehensive exam!!!

PhD program requirements

https://www.concordia.ca/academics/graduate/chemical-engineering-phd.html

- **Research and thesis**

ENGR 8911 Doctoral Research and Thesis (70 cr.)

Discuss with your supervisor to plan on your doctoral thesis!!!

Student resources

- **Scholarship and bursary opportunities available**

  Announced from time to time; will forward once announced

- **International Student Office**

  https://www.concordia.ca/students/international.html

- **Student Hub**

  https://www.concordia.ca/students/services.html

CME Thesis Graduate Program Staff

- **Antonios Daskalakis, Graduate Programs Coordinator**
  cme-grad@concordia.ca

- **Erica Howse, Department Administrator**
  Erica.Howse@concordia.ca

- **Harriet Laryea, Technical Supervisor**
  harriet.laryea@concordia.ca

- **Kerri Warbanski, Chemical Laboratory Technician**
  kerri.warbanski@concordia.ca

- **Zhibin Ye, Graduate Program Director (GPD) – Thesis programs**
  Zhibin.ye@concordia.ca

- **Department chairs**

Help available at CME department

- **Administrative questions**

  Programs Coordinator, Antonios Daskalakis
  Department Administrator, Erica Howse

- **Academic questions**

  GPD, Department Chair

- **Lab safety questions**

  Technical supervisor, Harriet Laryea, and Chemical Laboratory Technician, Kerri Warbanski, as well as EHS staff

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Wish you best success in your study at CME !

CME Non-thesis Graduate Programs

CME Graduate Student Orientation
Winter 2025

Deniz Erol, Graduate Program Director, Non-thesis Programs

Graduate Certificate in Chemical Engineering

General requirements:

- Certificate program consists of completing a minimum of **15 credits** of course work.

Course requirements: 4 courses

- CHME 6011 – Advanced Transport Phenomena (4 credits)
- ENCS 6021 – Engineering Analysis (4 credits)
- One of the following courses:
  - CHME 6021 Advanced Chemical Engineering Thermodynamics (4 credits)
  - CHME 6031 Chemical Kinetics and Reaction Engineering (4 credits)
- One technical elective course (min. 3 credits, max. 4 credits):
  - You can choose courses from the following list, or any course offered in the Diploma or Master of Applied Science (MASc) programs that are not currently included in the core course list of the Certificate program.

Graduate Certificate in Chemical Engineering

A list of elective courses:

- CHME 6061 – Advanced Biochemical Engineering (4 credits)
- CHME 6081 – Advanced Separation Processes (4 credits)
- CHME 6091 – Statistics for Chemical Engineering (4 credits)
- CHME 6101 – Advanced Battery Materials and Technologies (4 credits)
- CHME 6111 – Polymer Chemistry and Engineering (4 credits)
- CHME 6131 – Advanced Colloid and Interface Science and Engineering (4 credits)
- CHME 6911 – Topics in Chemical Engineering I (4 credits)
- ENCS 6111 – Numerical Methods (4 credits)
- ENGR 6201 – Fluid Mechanics (4 credits)
- MECH 6131 – Conduction and Radiation Heat Transfer (4 credits)
- MECH 6141 – Heat Exchanger Design (4 credits)
- MECH 7101 – Convection Heat Transfer (4 credits)

Graduate Certificate in Chemical Engineering

Recommended Course Plan for Students Starting in Winter:

Option 1

Winter 2025:

- CHME 6011: Advanced Transport Phenomena (4 credits)
- Technical elective

Fall 2025:

- ENCS 6021: Engineering Analysis (4 credits)
- CHME 6021: Advanced Chemical Engineering Thermodynamics (4 credits)

Option 2

Winter 2025:

- CHME 6011: Advanced Transport Phenomena (4 credits)
- CHME 6031: Chemical Kinetics and Reaction Engineering (4 credits)

Fall 2025:

- ENCS 6021 – Engineering Analysis (4 credits)
- Technical elective

Graduate Certificate in Chemical Engineering

If you are in need of a 1-credit course to meet the credit requirements of your program, School of Graduate Studies has started offering 1-credit, professional development courses.

- GSPD 601 – Graduate Academic Fundamentals (1 credit)
- GSPD 602 – Essential Leadership Skills (1 credit) – Currently being offered.
- GSPD 603 – Career Exploration (1 credit)
- GSPD 604 – Furthering Your Professional Skills (1 credit)

Additional requirements: Attendance at 80% of the CME departmental seminar series. Attendance is taken with a sign-in sheet. The schedule of the seminars is communicated by email.

Graduate Certificate in Chemical Engineering

Students can transfer up to 15 credits from the Graduate Certificate to Graduate Diploma program.

If you wish to transfer, talk to your GPD and refer to the Graduate Student Handbook for the transfer process.

Graduate Diploma in Chemical Engineering

General requirements:

- Certificate program consists of completing a minimum of **30 credits** of course work.

Course requirements: 8 courses

- CHME 6011: Advanced Transport Phenomena (4 credits)
- CHME 6021: Advanced Chemical Engineering Thermodynamics (4 credits)
- CHME 6031: Chemical Kinetics and Reaction Engineering (4 credits)
- ENCS 6021: Engineering Analysis (4 credits)
- One of the following courses:
  - CHME 6041: Chemical Engineering Process Dynamics and Control (4 credits)
  - CHME 6051: Chemical Process Engineering and Design (4 credits)

Graduate Diploma in Chemical Engineering

Course requirements (continued):

- 3 electives:
  - At least one materials course
  - One complementary course
  - One elective of your choice

For a list of technical elective and complementary courses, refer to the Graduate Student Handbook.

For advice on course selection, please contact Deniz Erol, deniz.erol@concordia.ca

Additional requirements: Attendance at 80% of the CME departmental seminar series. Attendance is taken with a sign-in sheet. The schedule of the seminars is communicated by email.

Graduate Diploma in Chemical Engineering

Recommended Course Plan for Students Starting in Winter:

Winter 2025:

- CHME 6011: Advanced Transport Phenomena (4 credits)
- CHME 6031: Chemical Kinetics and Reaction Engineering (4 credits)
- Technical elective

CHME 6011 and CHME 6031 are only offered in the Winter.

Summer 2025:

- Technical elective (can take Engineering Analysis if offered)
- Complementary course

Fall 2025:

- CHME 6021 – Advanced Chemical Engineering Thermodynamics (4 credits) (only offered in the Fall)
- ENCS 6021 – Engineering Analysis (4 credits) (typically offered year-round)
- CHME 6051 – Chemical Process Engineering and Design

Graduate Diploma in Chemical Engineering

Students can transfer up to 12 credits from the Graduate Diploma to the Master of Applied Science (MASc) program.

Please note that securing a supervisor is required for admission to the MASc program. Refer to the Graduate Student Handbook for the transfer process.

Important for all students:

- **Good academic standing: Minimum GPA of 2.70**
- **Most courses are offered once a year.**
- **Minimum pass grade is B-.**
- **One C rule. F is NOT allowed. If you think you will fail, DISC the course. DISC deadline: April 12, 2025**
- **To have a full-time student status in any semester, you should be taking 9 or more credits of course work.**

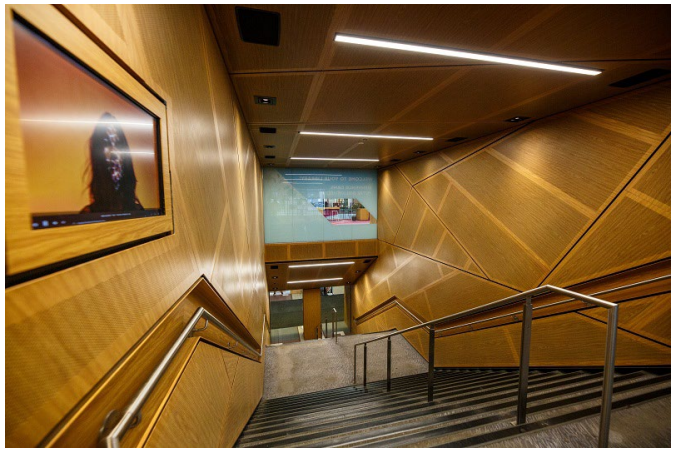
Welcome to Your Library!

Chemical and Materials Engineering Graduate Orientation

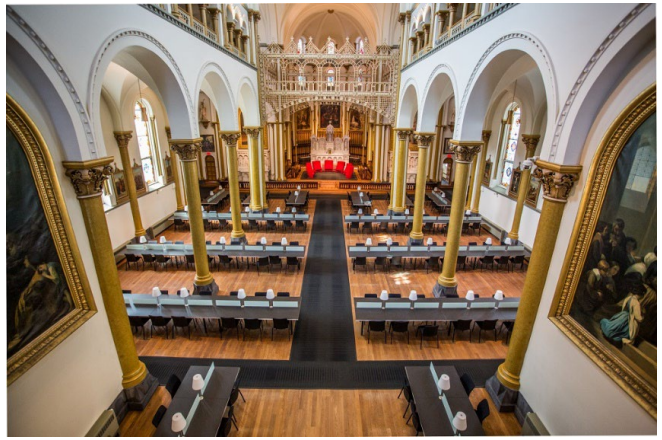
Chloe Lei
Teaching & Research Librarian, Engineering & Computer Science
chloe.lei@concordia.ca

CONCORDIA

Library Spaces



Webster (SGW)



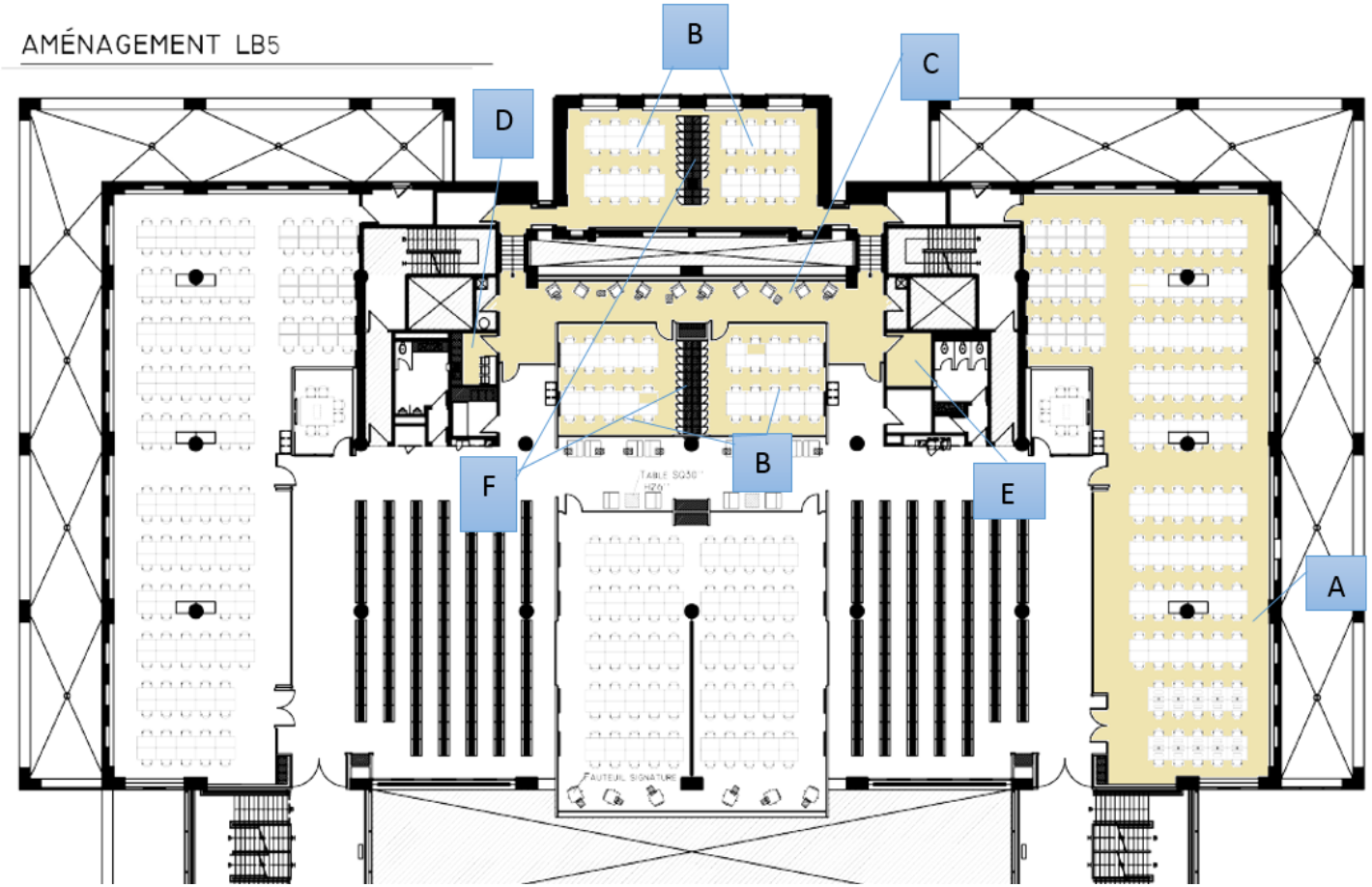
Grey Nuns Reading Room (SGW)

Vanier (LOY)

Webster Library (SGW)

Webster Library, Graduate spaces, 5th floor

A. Quiet reading room
B. Four dissertation writing rooms
C. Lounge
D. Kitchenette
E. Dedicated printer/copier/scanner
F. Lockers & Shelves



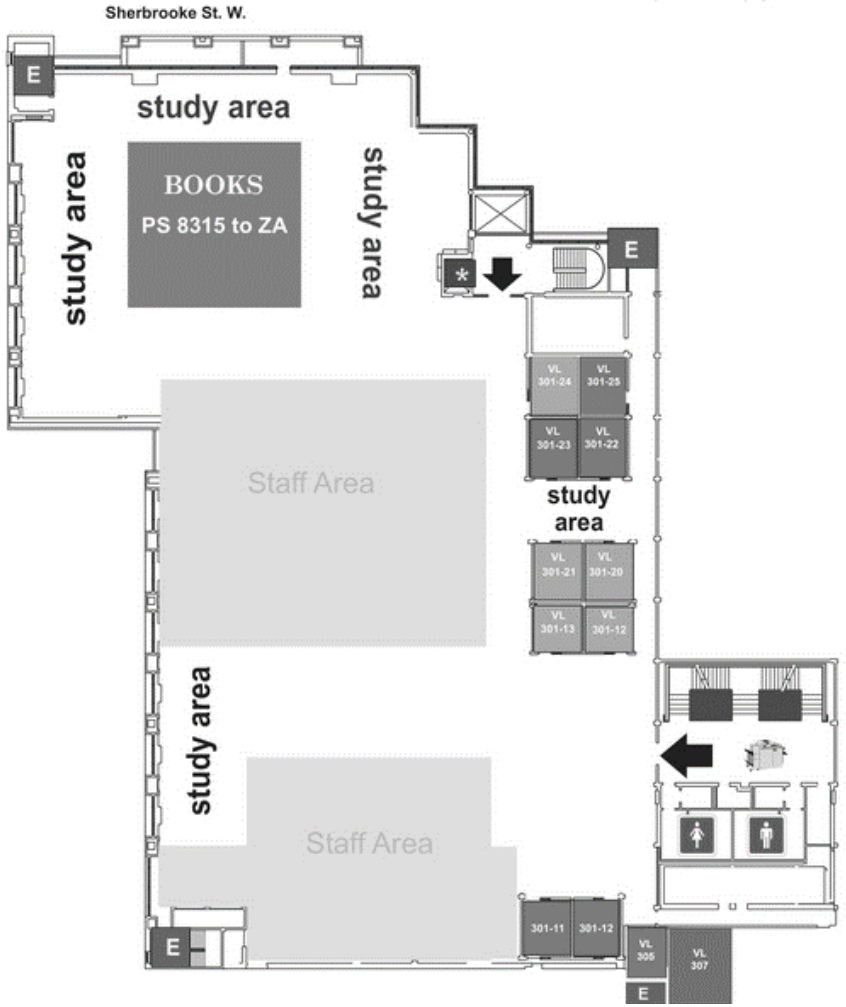
Vanier Library (LOY)

Vanier Library, Graduate spaces, 3rd floor

Obtain access codes when you arrive

A. Graduate study room (VL-307)
   - Assigned shelves

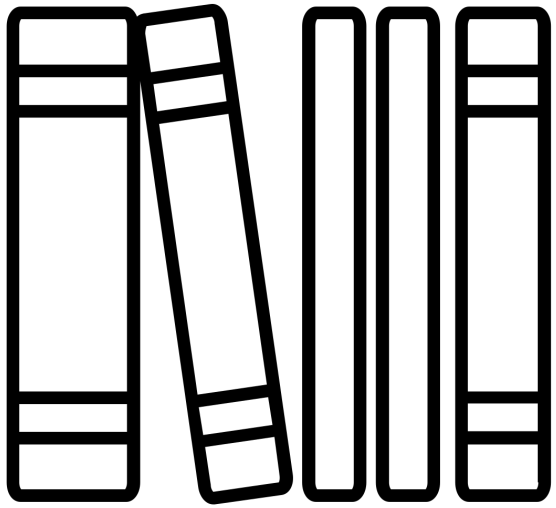
B. Graduate group study room (VL-305)



Your Concordia ID card is your Library card

How many items can you borrow?

Loan item limit	Hold item limit
100	50



Item type	Loan duration
Regular items	30 days (+ renewals)
Daily course reserves	1 day
3-hour course reserves	3 hours
Accessories (e.g. mobile chargers, headsets…)	1 day
Equipment (e.g. calculators, white board markers…)	1 day
Laptops	3 day
Tablets	3 days
Technology Sandbox items	7 - 14 days

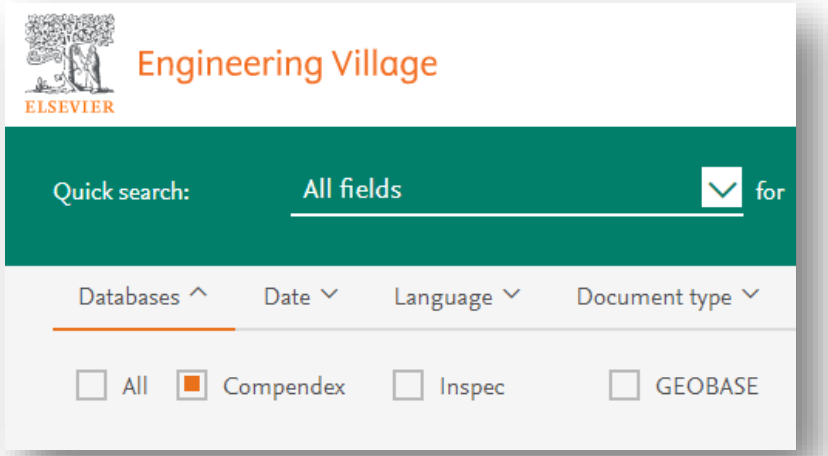
Technology & Equipment

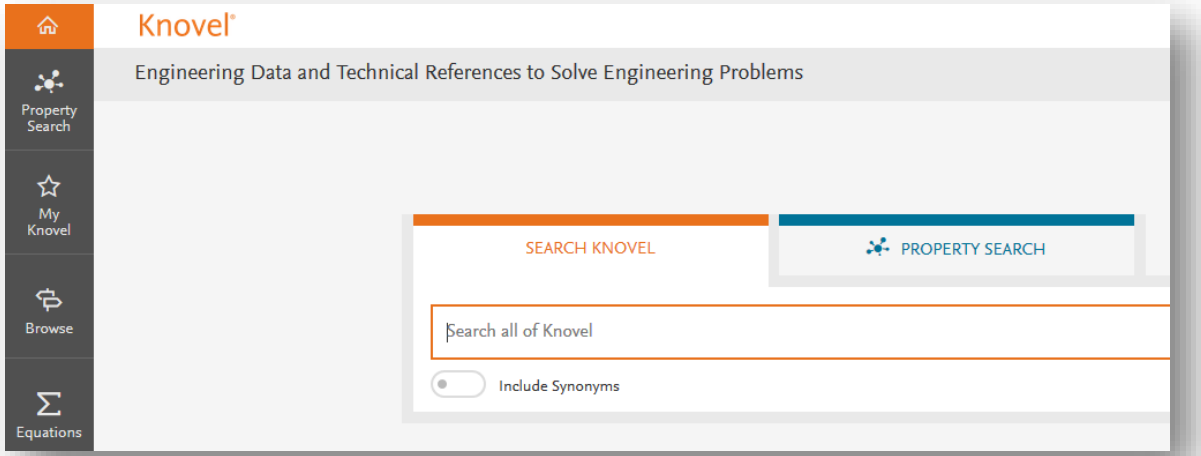
Technology Sandbox

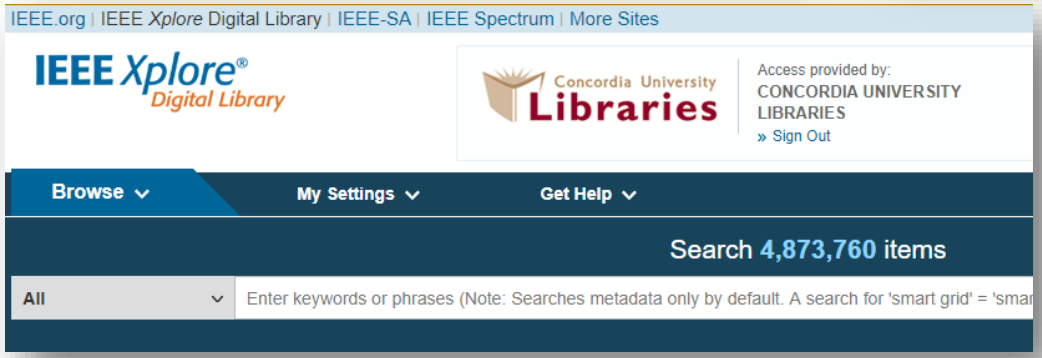
Off-campus access

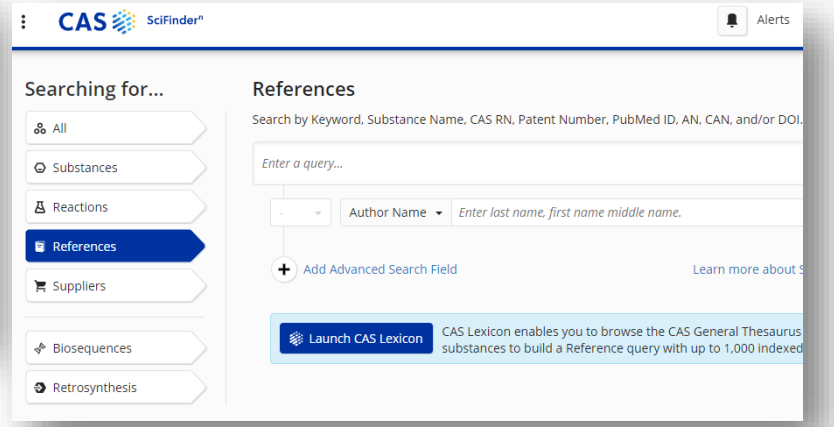
Best place to start searching

Digital Resources

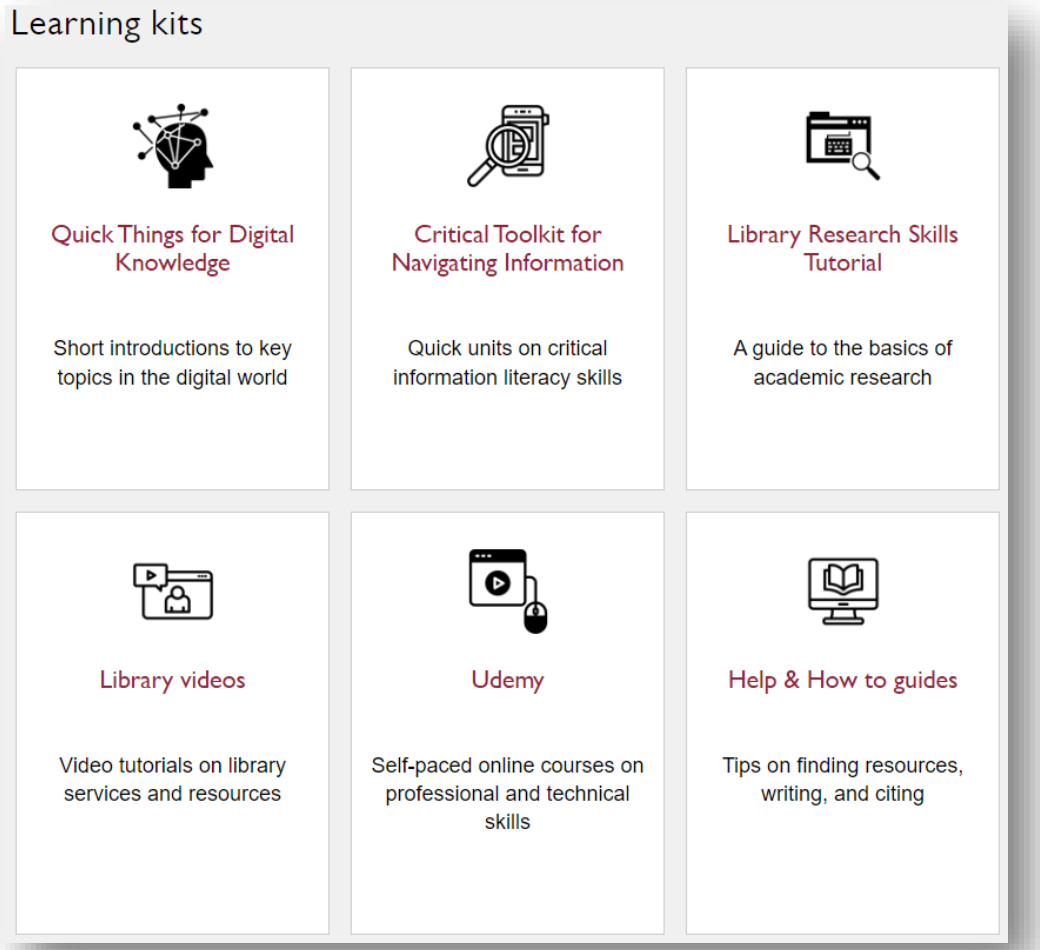


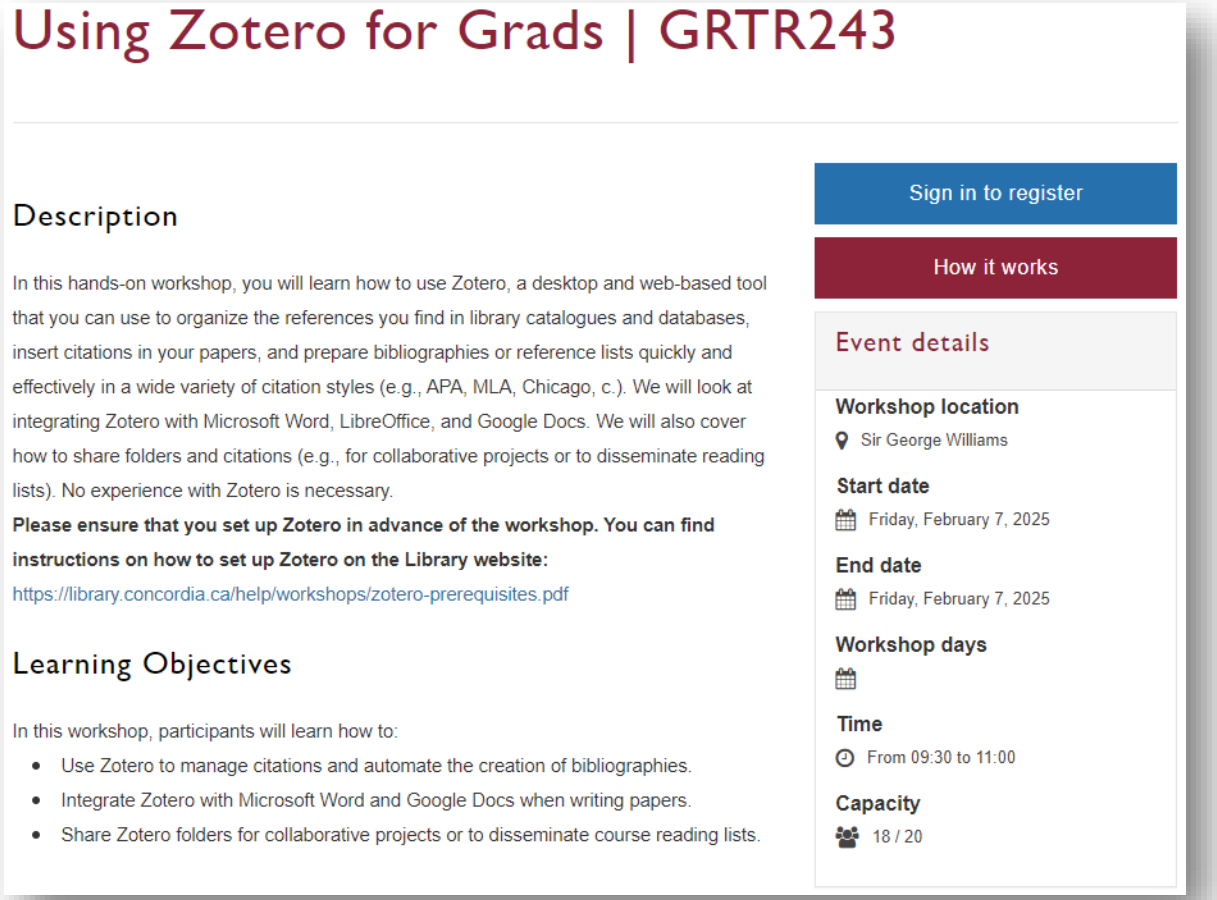






Online learning modules and workshops

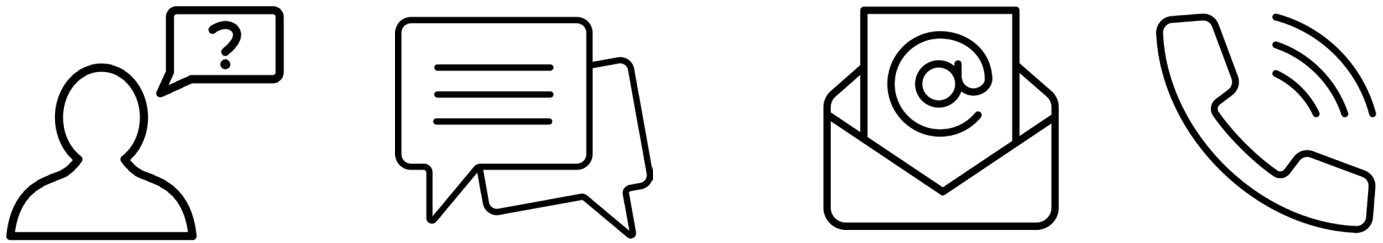


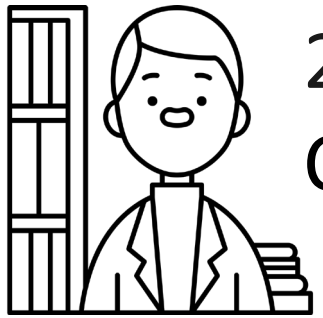


Ways to contact the library

1) Ask Us desk, chat, email or phone

FOR QUICK OR GENERAL QUESTIONS





2) Contact your subject librarian,
Chloe Lei, chloe.lei@concordia.ca

FOR MORE IN-DEPTH CONSULTATIONS

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Université Concordia University

SCHOOL OF GRADUATE STUDIES

Graduate Professional Development

Racha Cheikh-Ibrahim

Coordinator, Graduate Professional Development

concordia.ca/gradproskills

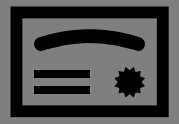
Our OFFERINGS

WORKSHOPS

Hundreds of free workshops per year

EVENTS

3MT/MT180, Thesis Boost, PhD Career Connect & more



CERTIFICATES

Record of participation and certificates

OPPORTUNITIES

Doctoral Internship Program, Work opportunities

CONCORDIA
SCHOOL OF GRADUATE STUDIES

Professional Skills (GradProSkills)

Career development	**Program:** PhD Career Connect **Workshops**: Job search and interview skills, CV & cover letter
Communication	**Program:** Strategic Public Communications Certificate **Workshops**: Presenting, language training, pitching ideas
Leadership & collaboration	**Program:** Graduate Leadership Development Certificate **Workshops**: Project management, negotiating
Teaching	**Program:** Graduate Seminar in University Teaching Certificate **Workshops**: TA orientation, grading and feedback

Research and Thesis Support

Conducting research	**Program:** Python & R programming **Workshops:** Reading skills, literature review, time management
Graduate funding applications	**Program:** Grant and application support **Workshops:** Funding information, application preparation
Research communication	**Program:** Public Scholars, 3MT & MT180 **Workshops:** Academic writing and editing, publishing, presenting
Thesis support	**Program:** Thesis Boost Writing Retreat **Workshops:** Thesis writing and submission, student-supervisor relationship

Visit our webpages!

- Our programs and workshops are found in two pages:

Professional skills

concordia.ca/gradproskills

Training and resources by skill

Career development
Recognize your skills, identify job opportunities that align to your values and communicate effectively with employers.

Communication
Be a better communicator in school and beyond by improving your oral, written and interpersonal communication.

Leadership and collaboration
Build your emotional intelligence, capacity to work in teams and ability to lead projects.

Teaching
As a TA or aspiring teacher, learn best practices in training design and delivery to fuel your passion for teaching.

Professional development for credit

Do you need an elective credit to complete your academic program? Consider enrolling in a 1-credit professional development course (graduate calendar course code GSPD). Tuition

Thesis-based students

concordia.ca/thesis

Graduate research and thesis support

Graduate funding
Discover the wide range of funding sources for research-based students, and get support preparing a strong scholarship application.

Conducting research
Our workshops and resources help you hone important research skills such as doing literature reviews and analyzing data sets.

Research communication
Learn how to communicate your research to discipline-specific and general audiences through participation in conferences, publishing articles and more.

Thesis preparation
From planning to writing and submission, the School of Graduate Studies supports you in preparing your thesis.

Thesis submission process

Our thesis submission guide walks you through the structured process of preparing your initial submission, defending, formatting and making a final

Stay up-to-date!

Websites

- concordia.ca/gradproskills
- concordia.ca/thesis

Newsletter & LinkedIn

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