

McGill

School of Computer Science

Computer Science Program Overview

A guide through our undergraduate CS programs

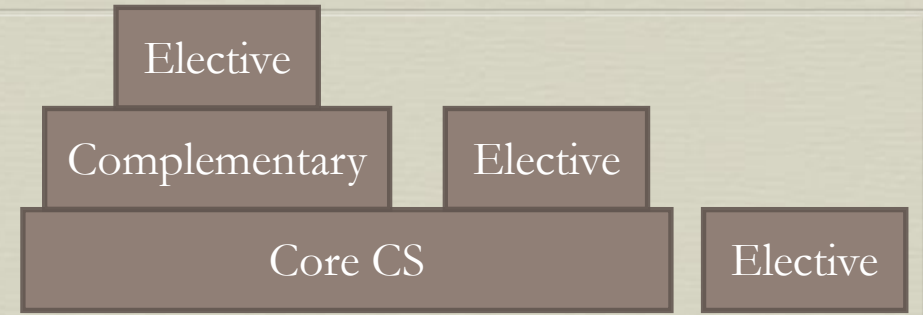
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CS Program Organization



- A common set of **core courses** (for all majors, minors, joint programs), covering basic programming, algorithms and math
- A set of **complementary courses**, which give flexibility to **specialize** (e.g. graphics, databases, AI, networks, ...)
- **Elective courses** can be taken in (almost) any department (e.g. general interest, or more CS courses)

First CS Course

- If you have programmed before, in any programming language, take COMP 250
- If you have never programmed before, take COMP 202 or COMP 204 or COMP 208
- If you are unsure, talk to **Prof. D. Becerra** david.becerra@mcgill.ca
- COMP 202 cannot be taken for credit with or after COMP 250.
(It does NOT make sense to take them at the same time)
(and you cannot get credit for both if you do it)

Note

- If a student received IB or AP credits for Comp 202, additional complementary credits will be required for some programs.
- More specifically, in the Joint MATH (Stats) & CS program:
 - If the student is exempt from COMP 202 (or received IB/AP credits), they will need additional complementary credits.
 - If you are not sure, they should contact their Faculty.

COMP 202 / 204 / 208

Which one is the right one for me?

- All of them are roughly covering the same material using **Python**
- **COMP 202**: can be taken by **any student** at McGill and only requires CEGEP level (or grade 12 level) math background. Students doing a B.Sc. can take it as a Complementary course in the Freshman Science Program.
- **COMP 204**: can be taken by students who have a background in **life sciences**; has BIOL 112 as a prerequisite; be comfortable with basics of cell biology and genetics
- **COMP 208** : part of several B.Eng. and some B.Sc. programs in the **physical sciences**; requires CEGEP level background in math; has Calculus 2 (MATH 141) as a prerequisite and Linear Algebra and Geometry (MATH 133) as a co-requisite.

What courses to choose in U1?

First, a word about workload

- **1 credit in a course translates to 3 hours of work per week**

Hence,

- a 3-credit course means an average workload of 9 hours per week (including class time)
 - Taking 5 courses with 3-credits each means a workload of 45 h per week!
 - Many students take 4 courses (which translates to 36 h per week) to have time for extra-curricular activities.
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- Not all courses are of the same **difficulty**; a higher course number does not necessarily mean that the course is more difficult, it requires more background.
 - Many CS courses involve programming assignments or projects which can be **time consuming**

Second, a word about “vision”

- If you know what you want to do when you leave McGill, then
 - Look at the 400-level and 500-level courses you would like to take and work backwards to the 200-level courses
 - You will see a path emerge

U1, No Prior Background

- Take COMP 202 / 204 / 208 in the first term, along with MATH courses (240, 222, 223, 323 are all possible) and electives (COMP 189 and COMP 230)
- **Take MATH 240 early; it is a prerequisite for COMP 251**
- In the second term, you can take COMP 250 and COMP 206, and MATH + electives

U1, Prior Programming

- Start with: COMP 250 and COMP 206 and **MATH 240 (highly recommended – prerequisite for COMP 251)**
- Following semester: COMP 251 and COMP 273 (along with MATH / electives)

Honors vs Major vs Liberal Prog.

- Honors programs have a couple of different required courses, a research project, and more CS credits required

Example: **CS Honors (75 credits) vs CS Major (63 credits)**
CS Liberal Program in Science (45 credits)

- CS Honors: GPA must be always 3.0 or above
- You can select the program directly on Minerva

CS Minor programs (24 credits)

- You can select your minor online
- You should declare the minor at the beginning of U2 (or earlier).
- You should get the **CS minor forms** by emailing Liette Chin (liette.chin@mcgill.ca) to obtain the relevant Minor Form for your degree (state your student ID number, your current degree and faculty). **Get approval for the selection of courses by emailing Liette Chin (via email liette.chin@mcgill.ca), and return the PDF form** to Liette Chin (return the PDF form to Liette by email only).

Major Concentration (Arts)

- Similar to a CS Major or CS Liberal, same core courses, but only 36 credits
- Major Conc. + Supplementary Minor (18 credits) **almost equiv. to CS Major** comparable to CS Liberal program
 - Check with Liette Chin liette.chin@mcgill.ca
 - No double counting of courses

Internships

- Internships are paid positions related to the field of study (start thinking in November about summer internships)
<https://www.mcgill.ca/arts-internships/> (Arts Internships)
<https://www.mcgill.ca/science/programs/internships> (Science Internships)
- Can be done after U1
- Many students choose to do internships
- Two 0-credit courses are available to recognize 4-months internships
- “**Internship year**” option for 8, 12 or 16-month internships
- Internship for Science students: Elisa David, elisa.david@mcgill.ca

Career Advice

- Talk to Darlene Hnatchuk darlene.hnatchuk@mcgill.ca
the Career and Placement Centre (CAPS) for CS & SE jobs
- They organize special events with companies, can give CV and interview advice, etc.
- **Tech fair twice a year** (September and January)
- Watch for events organized by McWics and CSUS
- Go to myfuture.mcgill.ca (job postings, internship postings, etc)
- On-campus jobs available through **work-study** office

Research Opportunities

- **Research courses** in the fall, winter, or summer
 - Under the supervision of a professor, work on a project, and summarize your findings at the end.
 - Receive credits and a mark on your transcript (COMP 396, COMP400)
- **Summer research awards**
 - Similar to research courses, but \$ instead of credits.
 - NSERC USRA; SURA; Similar programs in other faculties and universities, e.g. ARIA for McGill Arts students.
- **Part time work for \$ or volunteering**
in the fall, winter, or summer
 - You may have your own project, or you may help other lab members

Taking Care of Yourself

- The [Student Wellness Hub](https://mcgill.ca/wellness-hub/) is your one-stop shop for health and wellness services, health promotion activities, and more.

see <https://mcgill.ca/wellness-hub/>

- Lots of information, including extensive [program and support offerings](#), [Self-Help](#) tools, and an off-campus [Health and Wellness Resource Map](#)
- Many useful workshops: *Time Management Skills*, *Mindfulness Meditation*, or *Keys to Success: Research Skills for Undergraduates*, *Skills for Effective Study*, etc.

Still unsure? Questions?

- Check out: <http://www.cs.mcgill.ca/academic/undergrad/advising>
- General CS Advising regarding courses and degree (degree audits):
Liette Chin, Liette.chin@mcgill.ca
- General questions regarding COMP 202 and COMP 250:
David Becerra David.Becerra@mcgill.ca
- Chief Academic Advisor: Prof. C. Verbrugge:
clump@cs.mcgill.ca
- Chair of Undergrad Affairs:
 - Prof. B. Pientka bpientka@cs.mcgill.ca, and
 - Prof. J. Vybihal joseph.vybihal@mcgill.ca

Scholarships for Quebec CS Students

If you are a Quebec resident Computer Science undergraduate student registered in one of the CS programs listed below, you will be able to receive a Quebec Perspectives scholarship of **\$2,500 per successful semester**, starting this Fall.

List of eligible CS programs:

Bachelor of Science – Major Mathematics and Computer Science

Bachelor of Science – Major Statistics and Computer Science

Bachelor of Science – Physics and Computer Science

Bachelor of Science – Computer Science – Computer Games

Bachelor of Science – Computer Science

Bachelor of Science – Computer Science and Biology

Bachelor of Science – Software Engineering

Find out more information here: <https://www.cs.mcgill.ca/news/154/>

Detailed version: <https://cdn-contenu.quebec.ca/cdn-contenu/adm/min/education/publications-adm/enseignement-superieur/Guide-Bourses-Perspective-Quebec-22-23-ANG.pdf?1646055031>

Further information about how to apply will be communicated soon.