

# Which Bachelor of Science Major Should I Choose?

A CEGEP student's guide to making an informed decision.

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**Disclaimer:** This article does not include all majors in B.Sc.

## **Anatomy and Cell Biology**

- Wide range of course options in the health science department.
- Interested in medicine, dentistry, physical therapy, physiology or research-based jobs.

### Classes

- First two years, students are required to take anatomy and biology based courses.
- Last two years, they are free to select from the fields of biology, biochemistry, microbiology, organic chemistry, genetics, anatomy, physiology, neuroscience and more!

### Labs

- Theory and lab components.
- Average of one to two labs per week. Anatomy classes specifically have weekly labs with cadavers.
- For those interested in research, some courses include learning and writing scientific papers.

### Exams

- A lot of memorization, but students must also understand the material.
- Multiple choice questions, fill in the blank and short answers. Many classes also have quizzes. Classes with a lab component have lab tests where students identify body parts on a cadaver.

## **Biology and Computer Science**

- Training in 2 areas: biology and computers.
- Major includes problem-solving, thinking analytically and analyzing the human genome.
- After graduation, many students continue into a PhD in genetics, biophysics or software.
- Students can work in a biotech, biomedical research, pharmaceuticals or medicine.
- Having a computer science background is useful when conducting research in biology and genetics.

### **Classes**

- Computer science classes: analytical, programming languages, algorithms, theory and application.
- Biology classes: ecology evolution, genetics, molecular biology, biophysics and cell biology.
- Students have more liberty in course selection in third year. They can choose which biology and computer science courses to take.

### **Labs**

- One required molecular biology lab course.

### **Exams**

- Biology classes include exams with long answers, critical thinking and multiple choice questions.
- Computer science courses mostly have projects, assignments and creative problem-solving.

## **Chemistry**

- The Chemistry major is a small program. There are only about 40 students who enroll each year which allows for a more individualized learning with the professors (including research opportunities).
- After the chemistry bachelors, students tend to join professional programs, work in industry or continue to a master's and/or PhD in chemistry/ biochemistry.

## Classes

- This major is mostly problem-solving with minimal memorization.
- Students are required to take the organic chemistry classes, basic physical chemistry classes (thermodynamics and kinetics) and around one math class per semester.
- In upper years, students can choose from courses in bio organic chemistry, bio physical materials, measurements and standard. Some of these fields have more math, biology or physics than others.

## Tests

- The chemistry tests are mostly problem-solving and drawings.

## Labs

- Around two lab classes per semester, which adds up to an average of five hours in the lab a week.
- Honours program adds a final research project to the degree.

## **Cognitive Science**

- Bachelor of Arts and Science.
- Have to do a minor with this degree.
- Small program of about 300 students.
- Learn about the mind and the brain from many perspectives.
- After the bachelor degree, many students go into a Masters in cognitive science or computer science.
- Students can later work in fields such as: machine learning, computer software, psychology, counselling, marketing and website design (psychology behind marketing).

## Classes

- Students have classes in five domains : psychology, neuroscience, philosophy, linguistics and computer science.
- Required to take introductory courses in each domain, statistics and logic.
- After taking the required courses, students can pick from which domain to focus their studies. However, they can still take classes from other domains.

## Research

- There are no labs.
- Students can take research classes in psychology, design and more.
- The honours program allows students to complete a research project with a supervisor.

### Test

- Test types (multiple choice, essays...) vary between the classes.
- Neuroscience and psychology give mostly multiple choice exams.
- Philosophy classes include essays and written responses.
- Linguistic classes have assignments and multiple choice/ long answer exams.
- Computer science classes include multiple choice exams and assignments

### **Kinesiology**

- Interested in the human body, lifeguarding and anatomy
- The program is very lab based and hands on.
- After two years in the major, students have two options.
- One is to continue in the three-year bachelor program. Afterwards, they can open a kinesiology clinic, apply to science masters or a professional program.
- On the other hand, students can extend their degree to four years and become a certified athletic therapist.

### Classes

- Classes include human anatomy, emergency care sports, musculoskeletal anatomy, human physiology (metabolism) and clinical psychology.
- This major includes emergency medicine (ex: learning how to treat an injury).

### Labs

- There are usually weekly labs.
- There are labs related to muscle systems, anatomy and emergency medicine.

### Exams

- Exams are mostly multiple choice.
- Also have lab tests where students identify body parts on a cadaver.

- Other classes also include practical exams where students assess a fictional injury.

## **Microbiology and Immunology**

- This major promotes independent thinking and the topics are relevant to today's world amidst a pandemic.
- Many students then go into medicine, pharmaceuticals, professional programs, a master's in biochemistry or biomedical engineering.

### **Classes**

- In the first two years, students take the introductory courses to microbiology and immunology, and in the third year they choose in which of the two streams they wish to continue their studies.
- Learn how the body responds to pathogens, how vaccines work and how antibiotics work (immunology).
- Major encompasses the communication and business of science

### **Exams**

- The exams are mostly short answer and multiple choice.

### **Labs**

- Introductory labs teach students the techniques in either immunology or microbiology.
- Labs can include PCR testing and handling bacteria.
- In the first two years, there are about two labs per semester
- In the third year, there are no labs unless you do independent research.

### **Research**

- There are a lot of research opportunities in this faculty.
- Students can complete independent research projects where they are free to merge topics they are interested in.

## **Neuroscience**

- Learn how the brain works and classes remain interconnected with every field of science.

- Explores the brain, psychology, biotech, biostatistics, artificial intelligence and medicine.

### Special Application

- Every year, 25 students are accepted from CEGEP and 25 from UQ (students from outside of Quebec) into the major. For CEGEP students, the average/ previous year's cutoff was a 34.80 R-score.

### Classes

- Required courses in first year: organic chemistry, introduction to neuroscience and statistics
- Choose from three streams in neuroscience: cells and molecules (biochemistry, genetics, immunology), computational science (computer science, neurophysiology, math) and psychology (human behaviour).
- Honours program after U1 incorporates classes from all three streams.

### Labs

- Not many labs. Students are required to take the lab portion of organic chemistry, another lab course or independent research.

### Exams

- Memorize, understand the material and then apply knowledge to concept based test questions.
- Mostly multiple choice and short answer exams. As students enter their upper years of the major, they also have essay formatted and problem-solving questions. The math based courses in the computation stream have mostly quizzes and projects.

### Nursing

- This is a professional degree.
- Nursing is a bachelor degree for students who want to help others, understand medicine and work with their hands.

### Special application

- Includes a CASPer exam (ethical online exam), CV and an average R score of 28.7 to apply.

- Students can also choose to go into nursing in CEGEP and/or continue nursing in a masters program.
- Students must complete the OIIQ professional exam after graduation to become a registered nurse clinician.

### Classes

- The first year includes five theory classes, two practical lab classes and clinical work.
- Second year includes anatomy, physiology, a statistics class, clinical psychology courses and labs.
- Courses teach students about pathophysiology, pharmacology, illness management, function of medication and body and identifying parts of the body.

### Exams

- Exams range from multiple choice, short answer and long answer depending on the class.

### Labs

- There are assessment based labs and skills labs.
- Students are taught how to make cardio and neuro assessments and identify parts of the body.
- In the skills lab, students practice blood tests, cleaning patients respectfully and preparing patients' beds.

### Clinical work

- Since the first semester, students have clinical one day a week. Small groups of around 6 students and an instructor explore old age homes, rehabilitation centers and hospitals (postpartum unit).
- In the second year, clinical bumps up to two days a week and in the third year it is three to four days a week.
- Each summer, students complete clinical work about three to four days a week.

## **Physics**

- This major is geared towards students interested in physics and math.
- Still little of everything science in this major.
- After completing this bachelor's degree, many students either continue in academia or work in a company.
- Can continue in a physics or engineering master's and/or PhD and then work as a researcher, university, professor or in a bigger company.

## **Classes**

- Theory and experimental classes
- The theory classes consist of learning mathematics and proofs of physics. This area includes classes like quantum mechanics, electrodynamics and quantum theory.
- The experimental classes include working on experiments, computer science and practicing scientific writing skills.
- Students can learn particle physics, astronomy/cosmology, quantum physics, condensed matter, experimental physics, theoretical physics and biophysics.

## **Exams**

- Theory examinations are usually short and long answers
- Lab final examinations are usually projects or reports.

## **Honours**

- In the final year of the bachelor's, students can choose to proceed in the major or go into the honours program.
- Honour introduces students to every field of physics and gives them the chance to take alternative versions of classes (typically including more math).
- If one stays in the major program instead, there are less required courses and students can select from their favourite physics field.

## **Psychology**

- Allows students to keep their science background and apply it to human behaviour.
- After this major, many students wish to complete a master's and PhD in psychology.
- Students can select between clinical and research-based psychology.
- In the clinical field, students can go into a PsyD or PhD.

- PsyD leads to a profession as a therapist where they can work, for example, in schools or with families.
- The PhD in clinical psychology has very few spots, and when students are admitted into this program, they are trained in both research and clinical to become a psychologist and/or work in research.
- On the other hand, there is a sole research field where students can later become researchers or professors.

### Classes

- Classes range from social science, neuroscience and biology.
- Most first year classes are neuroscience oriented.
- The required courses cover topics such as, perception, social psychology and two statistics courses.

### Exams

- Psychology courses mostly require memorization and reading textbooks, articles and research.
- The great majority of examinations are multiple choice exams.
- Some research classes include presentations, reports and critiques of other students' presentations.