

Biomedical Computing **SPECIALIST MAP**

BACHELOR OF COMPUTING HONOURS (SPECIALIZATION)

Queen's
175
YEARS

MORE WAYS YOU CAN:

GET THE COURSES YOU NEED

1ST AND 2ND YEAR

1st year: Take BIOL 102, 103, CHEM 112.

Check out program-specific courses such as CISC 271, 330, 471, 472.

3RD AND 4TH YEAR

For upper year requirements, see the [School of Computing website](#).

GET RELEVANT EXPERIENCE

Join teams or clubs on campus such as the Queen's [Association for Technology in Medicine and Biology \(QATMB\)](#), [MEDLIFE](#) and [LifeBeat Newspaper](#).

Consider volunteering at local hospitals and health centres.

Look for research opportunities at [Computing Research Groups](#), such as [Medical Informatics Lab](#), [Computer Assisted Surgical Interventions lab](#), the [Medical Computer Lab](#) or the [Laboratory for Laboratory for Percutaneous Surgery](#).

GET CONNECTED WITH THE COMMUNITY

Volunteer at or attend conferences such as the [Canadian Student Conference on Biomedical Computing and Engineering](#) and the [Canadian Undergraduate Conference on Healthcare \(CUCOH\)](#).

Join professional associations such as the [Canadian Medical and Biological Engineering Society](#).

Where could I go after graduation?

Medicine
Dentistry
Biotechnician
Medical application programmer
Medical or pharmaceutical
Researcher
Neuroscience
Pharmacology

*some careers may require additional training

WHAT CAN I LEARN STUDYING BIOMEDICAL COMPUTING AT QUEEN'S?

- Knowledge of human anatomy and biological systems
- Computer programming and computational thinking
- Apply computational approaches to problems in the medical field
- Apply information technology to medicine

WHY STUDY BIOMEDICAL COMPUTING AT QUEEN'S?

Queen's is the pioneer in undergraduate Biomedical Computing, one of the most promising fields in health research. This innovative program combines the problem-solving capabilities of Computer Science with the most advanced techniques of the life sciences, resulting in endless possibilities for Biological research and improvements in health care.

Caution: *This map is meant as a guide to suggest considerations throughout your university career. The activities, resources, and careers mentioned are possibilities – you are not restricted to them and don't have to follow this exact timeline.

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School of Computing
557 Goodwin Hall
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cs.queensu.ca

Computing and the Creative Arts **SPECIALIST MAP**

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Queen's
175
YEARS

MORE WAYS YOU CAN:

GET THE COURSES YOU NEED

1ST AND 2ND YEAR

1st year: take ARTH 120, DRAM 100, FILM 110 or MUSC 191.

Check out program-specific courses such as COCA 201 and CISC 325.

3RD AND 4TH YEAR

For upper year requirements, see the [School of Computing website](#).

GET RELEVANT EXPERIENCE

Join one of 30+ arts/music clubs on campus such as [Queen's Film Production Club](#) and [Queen's Bands](#).

Immerse yourself in the vibrant arts community in Kingston or become involved in radio at [CFRC](#).

Design websites and user-friendly technology at places like the [Queen's International Observer](#) and [Studio Q](#).

GET CONNECTED WITH THE COMMUNITY

Attend conferences like Association for Computer Machinery's conference on [Tangible, Embedded and Embodied Interaction](#).

If interested, attend the [Queen's Media and Journalism Conference](#).

Look for research opportunities at [EQUIS \(Gaming\)](#) and the [Human Media Lab](#).

Where could I go after graduation?

Gaming and entertainment industry
Art galleries
Social Media
Fashion (wearable technology)
New Media Artist
Museums
Multimedia design
Art software development

WHAT CAN I LEARN STUDYING COMPUTING AND CREATIVE ARTS AT QUEEN'S?

- Produce creative projects using information technology
- Gain proficiency in one or more creative fields such as visual art, drama, film or music
- Computer programming and computational thinking

WHY STUDY COMPUTING AND THE CREATIVE ARTS AT QUEEN'S?

Computing and the Creative Arts is an exciting multi-disciplinary plan in both Computing and the Arts. You'll learn how to develop and use cutting-edge software programs for Music, Art, drama, or Film production. You will acquire the technical expertise to design new applications and take advantage of future trends in digital technology. You'll get the theoretical and historical background necessary to make critical judgments about new approaches to artistic expression and practical knowledge of the tools available to today's creative artists.

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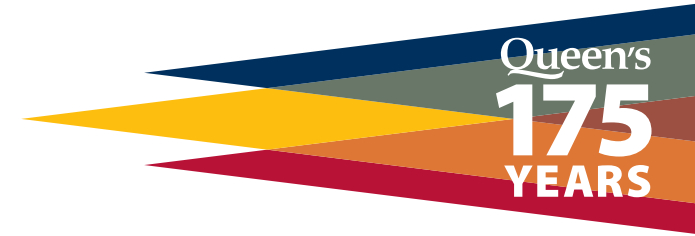
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Cognitive Science **SPECIALIST MAP**

BACHELOR OF COMPUTING HONOURS (SPECIALIZATION)



MORE WAYS YOU CAN:

GET THE COURSES YOU NEED

1ST AND 2ND YEAR

1st Year: take COGS 100 and two of PSYC 100 , LING 100, and PHIL 111 or PHIL 115.

Check out program-specific courses such as COGS 201, 300, 400, and 499.

3RD AND 4TH YEAR

For Cognitive Science upper year requirements, see the [School of Computing Website](#).

GET RELEVANT EXPERIENCE

Volunteer or apply to work through [SWEP](#) at research labs such as the Department of Psychology [Language and Cognition Lab](#), Linguistics or Philosophy.

Volunteer for [Code the Change](#) or [Science Rendezvous](#).

Look for research opportunities at School of Computing [Research Groups](#) like the [Computational Linguistics Laboratory](#).

GET CONNECTED WITH THE COMMUNITY

Attend the [Annual Conference of the Cognitive Science Society](#) or the [International Joint Conference on Artificial Intelligence](#).

Join professional associations like the [Canadian Artificial Intelligence Association](#).

Where could I go after graduation?

Human/computer interaction
User-interface/website designer
Language processing research
Linguist
Programmer for AI systems
Neuroscientist

*some careers may require additional training

WHAT CAN I LEARN STUDYING COGNITIVE SCIENCE AT QUEEN'S?

- Understand the links between cognition and computer systems and use this knowledge to design intelligent systems
- Deep understanding of Human Computer Interaction
- Computer programming and computational thinking

WHY STUDY COGNITIVE SCIENCE AT QUEEN'S?

Computers can play chess – could they one day diagnose illnesses or write symphonies? These are questions explored in our Cognitive Science program. Drawing from psychology, philosophy, linguistics, neuroscience, and computing, this program explores the science of the mind and thought.

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Software Design **SPECIALIST MAP**

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MORE WAYS YOU CAN:

GET THE COURSES YOU NEED

1ST AND 2ND YEAR

1st year: same as the Bachelor of Computing (Honours). See the Computing major map.

Check out program-specific courses such as: CISC 223, 326, 327, 422, 498 and SOFT 423.

3RD AND 4TH YEAR

See [School of Computing website](#) for upper year courses.

GET RELEVANT EXPERIENCE

Join one or more of the many computer related clubs on campus including the [Queen's Game Developers](#), [FIRST Robotics Team](#), [Queen's Coding Club](#), and the [Mostly Autonomous Sailboat Team](#).

Participate in Open Source Development Projects.

Join the COMPSA Web Development team.

Look for research opportunities at School of Computing [Research Groups](#) like the Software Analysis and Intelligence Lab, or the Software Technology Lab.

GET CONNECTED WITH THE COMMUNITY

Attend the [Canadian University Software Engineering Conference](#).

Join professional associations like [The Association for Computing Machinery \(ACM\)](#) and [The Institute of Electrical and Electronics Engineers \(IEEE\)](#).

Where could I go after graduation?

Software developer
Software tester
Software architect
Mobile app developer
Web developer
Systems analyst
Graphics and game development

*some careers may require additional training

WHAT CAN I LEARN STUDYING SOFTWARE DESIGN AT QUEEN'S?

- Learn the software life-cycle
- Analyze, design, build, test and evaluate large-scale software systems
- Learn modern software development methods such as Agile Software Development and Object-Oriented Analysis

WHY STUDY SOFTWARE DESIGN AT QUEEN'S?

Software design is the art and science of software architecture, analysis, development and evolution, for those destined to carry the capabilities of computer systems beyond current limits. Accredited as a Software Engineering program. A game development stream is now available.

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Computing and Mathematics **SPECIALIST MAP**

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MORE WAYS YOU CAN:

GET THE COURSES YOU NEED

1ST AND 2ND YEAR

1st year: Take MATH 110 or 111, MATH 120 or MATH 121 or MATH 122 or MATH 123, 124.

3RD AND 4TH YEAR

For upper year requirements, see the [School of Computing website](#).

GET RELEVANT EXPERIENCE

Join one or more of the many computer related clubs on campus including the [Queen's Game Developers](#), the [FIRST Robotics Team](#), the [Mostly Autonomous Sailboat Team](#). Look for research opportunities at the [School of Computing](#) and the [Department of Math and Statistics](#).

Join the [Queen's Reliable Software Technology Group](#) or pursue opportunities at the [Surveillance Studies Center](#).

GET CONNECTED WITH THE COMMUNITY

Join clubs on campus such as the [Queen's Math Club](#), [Math Bridge](#) and the [Math Investigations Program](#).

Join professional associations like the [Canadian Applied and Industrial Mathematics Society](#).

Where could I go after graduation?

COMA is aimed at students aiming to do graduate work in Theoretical Computing or a branch of Computing requiring significant mathematical knowledge. As such, career options include:

Researcher
Optimization
Cryptographer
Data Analyst

WHAT CAN I LEARN STUDYING COMPUTING AND MATHEMATICS AT QUEEN'S?

- Proficiency in mathematics
- Computer programming and computational thinking
- Apply mathematical concepts and methods to computing

WHY STUDY COMPUTING AND MATHEMATICS AT QUEEN'S?

The Computing and Mathematics Specialization is intended for students aiming at graduate work in the theory of Computing or in an applied area of Computing that requires significant mathematical expertise, such as communications, optimization, security, or biomedical computing. This program will give students a potent combination of Computer Science and Mathematics as it relates to research in Computing, and will prepare graduates well for advanced degrees or careers in a variety of areas in industry.

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Game Development Option **SPECIALIST MAP**

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1ST AND 2ND YEAR

1st year: same as the Bachelor of Computing (Honours). See the Computing major map.

Check out program-specific courses such as CISC 226, 325, 326, 352, 454, 486, 496.

3RD AND 4TH YEAR

See [School of Computing website](#) for upper year courses.

GET RELEVANT EXPERIENCE

Join one or more of the many computer related clubs on campus including the [Queen's Game Developers](#), the [FIRST Robotics Team](#), the [Queen's Coding Club](#), and the [Mostly Autonomous Sailboat Team](#). Participate in Open Source Development Projects. Join the [COMPSA Web Development team](#).

Look for research opportunities at School of Computing [Research Groups](#) like the EQUIS Gaming Research Lab, the Human Media Lab, or the Software Technology Lab.

Participate in the [Microsoft Imagine Cup](#) together with students in the School of Business.

GET CONNECTED WITH THE COMMUNITY

Attend the [Canadian University Software Engineering Conference](#).

Participate in the [Queen's Game Developers' Club](#).

Join professional associations like the [Association for Computing Machinery \(ACM\)](#).

Where could I go after graduation?

Game Designer
Game Developer
Mobile App Developer
Software Developer
Software Architect
Virtual World Developer
Web Developer

*some careers may require additional training

WHAT CAN I LEARN STUDYING COMPUTING AND CREATIVE ARTS AT QUEEN'S?

- Learn modern tools, algorithms and software architectures for developing digital games
- Learn processes for designing and evaluating games
- Learn the software life-cycle
- Analyze, design, build, test and evaluate large-scale software systems including games
- Learn modern software development methods such as Agile Software Development

WHY STUDY GAME DEVELOPMENT AT QUEEN'S?

Game Development, a stream of Software Design, provides deep skills and knowledge in the software aspects of computer game development while retaining core Software Design requirements that ensure your qualifications in the software industry or graduate studies.

Game Development is a creative activity, requiring inspiration to spark new ideas, and collaboration among the many types of professionals required to create and evaluate game ideas. Our courses prepare you for careers and research work in this exciting area.

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