Biomedical Computing SPECIALIST MAP

BACHELOR OF COMPUTING HONOURS (SPECIALIZATION)

MORE WAYS YOU CAN:

1ST AND 2ND YEAR

GET THE COURSES YOU NEED

1st year: Take BIOL 102, 103, CHEM 112.
Check out program-specific courses such as CISC 271, 330, 471, 472.

GET RELEVANT EXPERIENCE

Join teams or clubs on campus such as Queen's Science Undergraduate Research Journal (QSURJ), MEDLIFE and LifeBeat Newspaper.
Consider volunteering at local hospitals and health centres.

GET CONNECTED WITH THE COMMUNITY

Volunteer at or attend conferences such as the Canadian Undergraduate Conference on Healthcare (CUCOH).

3RD AND 4TH YEAR

For upper year requirements, see the School of Computing website.

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.

WHAT WILL I LEARN?

• 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
• Data mining and analytics

WHERE CAN I GO?

• Medicine
• Dentistry
• Biotechnician
• Medical application programmer
• Medical or pharmaceutical Researcher
• Neuroscience
• Pharmacology
*some careers may require additional training. Careers listed here are only suggestions.

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.
Computing and the Creative Arts SPECIALIST MAP
BACHELOR OF COMPUTING HONOURS (SPECIALIZATION)

MORE WAYS YOU CAN:

GET THE COURSES YOU NEED
Take courses such as ARTH 120, DRAM 100, FILM 110 or MUSC 191. For additional requirements, see the School of Computing Website.
Check out program-specific courses such as COCA 201 and CISC 325.

GET RELEVANT EXPERIENCE
Join one of 30+ arts/music clubs on campus. View the AMS Clubs Directory for the full list.
Immerse yourself in the vibrant arts community in Kingston or become involved in radio at CFRC.

GET CONNECTED WITH THE COMMUNITY
Attend conferences like Association for Computer Machinery’s conference on Tangible, Embedded and Embodied Interaction.

1ST AND 2ND YEAR

3RD AND 4TH YEAR

For upper year requirements, see the School of Computing website.
Design websites and user-friendly technology at places like the Queen’s International Observer and Studio Q.

WHAT WILL I LEARN?
• 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

WHERE CAN I GO?
• Gaming and entertainment industry
• Art galleries
• Social Media
• Fashion (wearable technology)
• New Media Artist
• Museums
• Multimedia design
• Art software development
*some careers may require additional training. Careers listed here are only suggestions.

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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Cognitive Science SPECIALIST MAP
BACHELOR OF COMPUTING HONOURS (SPECIALIZATION)

MORE WAYS YOU CAN:

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, 400, and 499.

WHAT WILL I LEARN?
- 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

WHERE CAN I GO?
- Human/computer interaction
- User-interface/website designer
- Language processing research
- Linguist
- Programmer of AI systems
- Neuroscientist
  *some careers may require additional training. Careers listed here are only suggestions.

3RD AND 4TH YEAR
- For Cognitive Science upper year requirements, see the School of Computing Website.
- Look for research opportunities at School of Computing Research Groups like the Computational Linguistics Laboratory.

WHAT WILL I LEARN?

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
BACHELOR OF COMPUTING HONOURS (SPECIALIZATION)

MORE WAYS YOU CAN:

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.

GET THE COURSES YOU NEED

GET RELEVANT EXPERIENCE
Join one or more of the many computer related clubs on campus including the Queen's Coding Club or Queen’s Mostly Autonomous Sailboat Team (QMAST).
Participate in Open Source Development Projects.

GET CONNECTED WITH THE COMMUNITY
Attend the Canadian University Software Engineering Conference.

3RD AND 4TH YEAR
See School of Computing website for upper year courses.

WHAT WILL I LEARN?
• 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

WHERE CAN I GO?
• Software developer
• Software tester
• Software architect
• Mobile app developer
• Web developer
• Systems analyst
• Graphics and game development
*some careers may require additional training. Careers listed here are only suggestions.

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
BACHELOR OF COMPUTING HONOURS (SPECIALIZATION)

MORE WAYS YOU CAN:

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.

WHAT WILL I LEARN?
- Proficiency in mathematics
- Computer programming and computational skills
- Apply mathematical concepts and methods to computing problems
- Data mining and analytics

WHERE CAN I GO?
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
*some careers may require additional training. Careers listed here are only suggestions.

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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More Ways You Can:

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.
- 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.
- Participate in the Canadian University Software Engineering Conference.

What Will I Learn?

- Learn modern tools, algorithms, and software architectures for developing digital games.
- Learn processes for designing and evaluating games.
- Analyze, design, build, test, and evaluate large-scale software systems including games.
- Learn modern software development methods such as Agile software development and Object-Oriented Analysis.

Where Can I Go?

- Game designer
- Game developer
- Mobile App Developer
- Software Developer
- Software Architect
- Virtual World Developer
- Web Developer

*Some careers may require additional training. Careers listed here are only suggestions.

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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