Get to know **MATHEMATICS AND STATISTICS**

Mathematicians seek out patterns, construct rigorous arguments, articulate assumptions, appreciate the value of a precise definition, analyze mathematical models, and create beautiful structures. Statisticians produce trustworthy data, extract meaning and draw practical conclusions from data, test theories, provide mathematical evidence, and critique the reasoning of others. In both cases, these skills have a surprising ability to help make sense of the physical, biological, artistic, psychological, economic, social, and philosophical worlds. As a consequence, quantitative expertise is in high demand on the job market. Moreover, rankings of occupations invariably list multiple careers in mathematics and statistics among the very best.

**Queen’s ADMISSIONS**

Students apply to either Queen’s Science (QS) or Queen’s Arts (QA) through the OUAC (Ontario Universities Application Centre) website ([ouac.on.ca](http://ouac.on.ca)). Secondary School prerequisites include English 4U, Advanced Functions 4U, Calculus 4U, plus two of Biology 4U, Chemistry 4U or Physics 4U.

“**One of two founding programs of Queen’s University, a proud history dating back to 1842.”**

**Degree OPTIONS**

- Bachelor of Science (Honours)  
  - Major in Mathematics or Statistics / Minor in Mathematics or Statistics / Specializations in Biology and Mathematics, Mathematical Physics  
- Bachelor of Computing (Honours)  
- Bachelor of Arts (Honours)  
  - Medical / Minor in Mathematics or Statistics  
- Bachelor of Science (General)  
- Bachelor of Arts (General)  
- Mathematics or Statistics  
- Internship option available

**A Common START**

Students in our Faculty are admitted into Arts, Science or Computing but the focus is on a common first year. Through self-exploration, and while you settle into university life, you have the chance to work with our advisors and faculty to uncover where your real interests and opportunities for success are. Sometimes that discovery happens fairly quickly, and for other students it takes some work and time before the “ah-ha!” happens – either way your first year at Queen’s will be a great experience.

**Course HIGHLIGHTS**

Mathematics and Statistics courses are taught to students throughout the university, not just in Arts and Science. Popular upper-level courses include Computational Data Analysis, Evolutionary Game Theory, Group Theory, Life Contingencies, Modeling Techniques in Biology, Real Analysis, and an Introduction to Coding Theory.
### 1ST YEAR

- **GET THE COURSES YOU NEED**
  - In first year take MATH 1106(6.0) and 1206(6.0). *
  - In certain situations other possibilities exist—talk to the Undergraduate Chair, if you need to explore other options.
  - Each Plan will have at least one required first-year course, including minors. It is important to take a variety of first-year courses to keep as many pathways open as possible for you going into second year. For details see the Arts and Science Academic Calendar.

- **GET RELEVANT EXPERIENCE**
  - Join teams or clubs on campus such as the Queen's Math Club, Putnam team, and the Math Investigations Program.
  - See the AMS Clubs Directory or the Queen's Get Involved page for more ideas.

- **GET CONNECTED WITH THE COMMUNITY**
  - Volunteer on or off campus with different community organizations such as Best Buddies.

- **GET THINKING GLOBALLY**
  - The Queen’s University International Centre is your first stop to learn how to internationalize your degree or to leverage your existing cross-cultural experience.
  - Speak to a QUIC advisor or get involved in their programs, events and training opportunities.

- **GET READY FOR LIFE AFTER GRADUATION**
  - Grappling with program decisions? Go to Majors Night or get some help wondering about career options from Career Services.

### 2ND YEAR

- **GET THE COURSES YOU NEED**
  - In second year take MATH 2683(3.0), 2813(3.0), STAT 2693(3.0) and 2693(3.0). If possible, also take MATH 2103(3.0) and MATH 2313(3.0).
  - Please see the Academic Calendar to ensure you are taking the correct courses.
  - Want to enhance your degree? Consider a certificate in Geographic Information Science or explore other certificates available.

- **GET RELEVANT EXPERIENCE**
  - Look into summer jobs by talking to the dept. or Career Services about work through SWIP or NSERC. Take more responsibility within different clubs or extracurriculars.

- **GET CONNECTED WITH THE COMMUNITY**
  - Get involved with the Mathematics and Statistics Departmental Student Council (DSC).

- **GET THINKING GLOBALLY**
  - Is an exchange in your future? Start thinking about where you would like to study abroad. Apply in January for a 3rd year exchange through your Faculty’s International Office.
  - Apply for the Math in Moscow Scholarship or the Budapest Semesters in Mathematics.

- **GET READY FOR LIFE AFTER GRADUATION**
  - Explore different careers of interest by reading books in the Career Services Career Advising and Resource Area, such as the Great Jobs for Math Majors. For more information check out Career Cruising or by finding and connecting with alumni on LinkedIn.

### 3RD YEAR

- **GET THE COURSES YOU NEED**
  - In third year take 15.0 units of BIOM, MATH, or STAT at the 300-level or above. Some 300- and 400-level courses are only offered in alternating years. Many 400-level courses can be taken in third year.
  - Need help mapping all of your core, option, supporting and elective courses (including those not listed above) to make sure you will have what you need to complete your degree? Use the Course Mapping Tool on the Arts and Science website.

- **GET RELEVANT EXPERIENCE**
  - Consider applying to do a 12-16 month QUIP internship between your third and fourth year.
  - Consider entrepreneurial opportunities via programs like the Queen’s Innovation Connector Summer Initiative (QCSI).

- **GET CONNECTED WITH THE COMMUNITY**
  - Do targeted networking with alumni working in careers of interest by joining the Linkedin group Queen’s Connects. Check out Career Services networking workshops. Connect with professors at events or workshops hosted by the DSC.

- **GET THINKING GLOBALLY**
  - Build your intercultural competence by getting involved with other cultures or by practicing or improving your language skills. Check QUIC’s resources for ideas to go abroad, and volunteer or attend one of their events.

- **GET READY FOR LIFE AFTER GRADUATION**
  - Start focusing on areas of interest. Research any further education requirements for careers of interest. If needed, prepare to take some required tests (like the LSAT or GMAT) and get help thinking about grad school from Career Services.

### 4TH OR FINAL YEAR

- **GET THE COURSES YOU NEED**
  - In fourth year take 6.0 units of BIOM, MATH, or STAT at the 400-level or above and 9.0 units of BIOM, MATH, STAT at the 300-level or above. Complete all courses in an area of focus.

- **GET RELEVANT EXPERIENCE**
  - By fourth year you should be working on your remaining option and elective courses. Make sure to map your minor and / or certificate(s) as well.
  - Apply to graduate in SOLUS.

- **GET CONNECTED WITH THE COMMUNITY**
  - Investigate requirements for full-time jobs or other opportunities related to careers of interest. Assess what experience you’re lacking and fill in gaps with volunteering, clubs, or internships – check out the Career Skills services workshop for help.
  - Consider submitting your work to an undergraduate journal like Inquiri@Queens.

- **GET THINKING GLOBALLY**
  - Consider joining professional associations like the Canadian Applied and Industrial Mathematics Society, the Canadian Mathematical Society, and the Statistical Society of Canada.
  - Join groups on LinkedIn reflecting specific careers or topics of interest in Mathematics.

- **GET READY FOR LIFE AFTER GRADUATION**
  - Consider applying to do a 12-16 month QUIP internship.
  - Prepare for work or studies in a multi-cultural environment by taking QUIC’s Intercultural Competency Certificate, and research possible immigration regulations.
  - International students interested in staying in Canada can speak with an International Student Advisor.

### CONSIDER A 12-16 MONTH QUIP INTERNSHIP

- Apply to jobs or future education, or make plans for other adventures. Get help from Career Services with job searching, resumes, interviews, grad school applications, or other decisions.

### Where could I go after graduation?

- Accounting
- Actuarial science
- Aerospace
- Architecture
- Astronomy
- Auditing
- Banking
- Bioinformatics scientist
- Biostatistician
- Communications
- Computer scientist
- Credit management
- Cryptanalyst
- Data mining
- Data processing
- Data scientist
- Economics
- Fibre and laser electro-optics
- Financial analysis
- Financial auditor
- Financial manager
- Information science
- Inventory control specialist
- Mathematician
- Operations research analyst
- Quality control manager
- Quantitative analyst
- Risk analyst
- Security specialist
- Software developer
- Statistician
- Survey researcher

Some careers may require additional training.

Visit careers.queensu.ca/majormaps.html for the online version with links!
How to use this map

Use the 5 rows of the map to explore possibilities and plan for success in the five overlapping areas of career and academics. The map just offers suggestions – you don’t have to do it all! To make your own custom map, use the My Major Map tool.

A balanced approach leads to long-term success. While you will learn a lot from your studies, taking time to get relevant experience outside of the classroom, build your network, and gain international experience, will position you to be more competitive in your job search or grad school applications.

Get started thinking about the future now – where do you want to go after your degree? Having tentative goals (like careers or grad school) while working through your degree can help with short-term decisions about courses and experiences, but also help you keep motivated for success.

Get the help you need

Queen’s provides you with a broad range of support services from your first point of contact with the university through to graduation. At Queen’s, you are never alone. We have many offices dedicated to helping you learn, think and do.

Ranging from help with academics and careers, to physical, emotional, or spiritual resources – our welcoming living and learning environment offers the programs and services you need to be successful, both academically and personally, and Queen’s wants you to succeed! Check out the Student Affairs website for available resources.

Succeed in the workplace

What employers want

The Canadian Council of Chief Executives list the top 6 skills sought by employers as:

1. People skills
2. Communication skills
3. Problem-solving skills
4. Analytical abilities
5. Leadership skills
6. Industry-specific knowledge

Take the time to think about the unique skills you have developed at Queen’s, starting with the skills list here for ideas. Explaining your strengths with compelling examples will be important for applications to employers and further education. For help, check out the Career Services skills workshop.

What can I learn studying MATHEMATICS AND STATISTICS?

- Logical reasoning and problem solving to apply analytical and critical reasoning to solve problems
- Ability to solve problems by applying analytical and critical reasoning
- Understand strong evidence to produce trustworthy data and provide mathematical evidence for conjectures and generalizations
- Knowledge of a broad range of mathematical fields and methods
- Ability to create mathematical models
- Pattern recognition to explore examples and recognize patterns
- Persistence to approach problem solving with openness and a willingness to try multiple approaches
- Oral and written communication to communicate quantitative ideas with clarity and coherence through writing and speaking