

WHAT CAN I DO WITH MY MAJOR IN

MATHEMATICS & STATISTICS

OVERVIEW OF MAJOR

The Mathematics and Statistics Department at Concordia University offers at the Undergraduate level a B.A. or B.Sc. Honours in Actuarial Mathematics, B.A. or B.Sc. Honours in Pure and Applied Mathematics, B.A. or B.Sc. Honours in Statistics, B.A. or B.Sc. Specialization in Actuarial Mathematics, B.A. or B.Sc. Specialization in Actuarial Mathematics/Finance, B.A. or B.Sc. Specialization in Pure and Applied Mathematics, B.A. or B.Sc. Specialization in Statistics, B.A. or B.Sc. Specialization in Mathematical and Computational Finance, B.A. or B.Sc. Major in Mathematics and Statistics, and a B.A. or B.Sc. Joint Major in Mathematics and Statistics and Computer Applications. The Department's program in Actuarial Mathematics prepares students for the associateship examinations of the Society of Actuaries (<http://www.soa.org>) and the Casualty Actuarial Society (<http://www.casact.org/>).

Students enrolled in the Department's B.A. or B.Sc. Honours or Specialization programs may apply to the Mathematics and Statistics Cooperative program. At the graduate level the programs offered by the department include a Master of/Magisteriate in the Teaching of Mathematics, Master of/Magisteriate in Arts/Science (Mathematics), and a Doctor of/Doctorate in Philosophy (Mathematics).

The department also offers graduate courses in Actuarial Mathematics. For the latest information on programs, go to the Department of Mathematics & Statistics' website at:
<http://www.mathstat.concordia.ca/>

The study of mathematics or statistics provides the foundation upon which to build a broad range of careers in business, physical sciences, industry, government, technology and teaching.

CELEBRATED MATHEMATICS AND STATISTICS MAJORS

William Byers: Concordia Professor. Author of How Mathematicians Think, Chosen One of the 39 Best Science & Technology Books of 2007 by Library Journal.

Elizabeth Cannon: Geomatics Engineer. World Expert in the Research and Development of Satellite Navigation Tools Using GPS. Gertrude Cox. Statistician.

H. S. M. Coxeter: Former President of the American Statistical Association. Canadian. Considered Greatest Classical Geometer of 20th Century.

John Charles Fields: Canadian. Mathematician. Founder of the Fields Medal.

Art Garfunkel: American Musician/Song-writer/Actor.

Cecilia Krieger: First Woman to Earn a Doctorate in Math from a Canadian University.

John Manley: Canadian. Politician/Lawyer/Businessman.

Larry Niven: American Science Fiction Author.

Alan M. Turing: Cryptographer/Mathematician. Father of Modern Computer Science.

John Von Neumann: Mathematician. Pioneer of the Application of Operator Theory to Quantum Mechanics.

EXAMPLES OF JOBS ACQUIRED BY CONCORDIA GRADUATES

The following job titles are representative of the types of entry-level positions for which Concordia University students are qualified for upon graduation. Note that the numbers following each job title refer to Canada's National Occupational Classification (NOC) code. For details on these titles go to <http://www5.hrsdc.gc.ca/NOC/>

- Actuarial Analyst (2161)
- Actuary (2161)
- Assistant Statistician (2161)
- Biostatistician (2161)
- Cryptographer (2161)
- Data Manager (2172)
- Financial Analyst (1112)
- Investment Analyst (1112)
- Junior Actuary (2161)
- Mathematician (2161)
- Rate Analyst
- Research Analyst (2161)
- Software Developer (2174)
- Software Engineer (2173)
- Statistician (2161)
- Systems Analyst (2171)
- Teacher (4131, 4141)
- Tutor (4122, 4216)
- University Professor (4121)

MORE JOB TITLES

The study of mathematics prepares one for jobs in statistics, actuarial sciences, mathematical modeling, cryptography, education and research. Some graduates pursue careers in teaching. Those that couple their mathematical degree with knowledge in computer science, engineering or operations research can create for themselves a variety of career opportunities in industry. The titles below are not meant to be exhaustive but are representative of fields which mathematics and statistics majors pursue. Keep in mind that some occupations require further education (e.g., a higher degree, second degree, diploma). Note that the numbers following each job title refer to Canada's National Occupational Classification (NOC) code. For details on these titles go to <http://www5.hrsdc.gc.ca/NOC/>.

- Accountant (1111)
- Aerospace Engineer (2146)
- Air Traffic Controller (2272)
- Applications Programmer (2174)
- Applied Statistician (2161)
- Astronomer (2111)

- Bookkeeper (1231)
- Cipher Expert (2161)
- Commodities Trading Manager (0121)
- Computer Consultant (2171)
- Computer Engineer (2147)
- Computer Facility Manager (0213)
- Computer Programmer (2174)
- Computer Services Marketing Representative (6411)
- Computer-Aided Design Technician (2253)
- Cost Estimator (2233, 2234)
- Cryptanalyst (2161)
- Data Control Supervisor (1211)
- Data Processing Manager (0213)
- Database Manager (2172)
- Demographer (2161)
- Econometrician (4162)
- Economist (4162)
- EDP (Electronic Data Processing) Auditor (2171)
- Environmental Technician (2231)
- Financial Auditor (1111)
- Financial Planner (1114)
- Industrial Engineer (2141)
- Insurance Broker (6231)
- Investment Analyst (1112)
- ISO Consultant (1122)
- Loan Officer (1232)
- Market Research Analyst (4163)
- Meteorologist (2114)
- Mortgage Officer (1232)
- Numerical Analyst
- Operations Research Analyst (2161)
- Physicist (2111)
- Production Manager (0131)
- Production Support Technician (2241)
- Psychometrician (4169)
- Public Health Statistician (2161)
- Purchasing Agent (1225)
- Quality Assurance Analyst (2171)
- Risk Management Analyst (4162)
- Robotics Technologist (2232)
- Survey Statistician (2161)
- Technical Writer (5121)
- Transportation Planner (2153)
- Underwriter (1234)
- Urban Planner (2153)
- Vital Statistician (2161)
- Weight Analyst (2146)

POTENTIAL WORK SETTINGS

Mathematicians and statisticians commonly work for schools, government agencies and private industry. Often, they can be found working in office environments either individually or as part of a team. To research specific employers who hire those in the field, there are many resources available in such locations as the Career Resource Centre, the Webster Library, Vanier Library and the Internet.

- Accounting Firms
- Aerospace Industry
- Banks
- Biotechnology Industry
- Brokerage Firms
- Colleges and Universities
- Computer Firms
- Consulting Firms
- Electrical/Electronic Industry
- Elementary and Secondary Schools
- Engineering Firms
- Financial Institutions
- Government (Federal, Provincial and Municipal)
- Insurance Companies
- Investment Companies
- Laboratories
- Manufacturing Firms
- Marketing and Market Research Agencies
- Medical Research Institutes
- Military
- Mortgage Companies
- Pharmaceutical Companies
- Research and Development Centres
- Resource and Utility Companies
- Software Houses
- Statistics Canada
- Stock Exchange
- Test Development Corporations
- Tutoring Programs/Centres

SKILLS AND CHARACTERISTICS

The study of mathematics and statistics helps students develop logical reasoning and methodical habits as well as the patience and persistence for prolonged efforts to solving a problem. Their strong analytical thinking skills are prized by employers. In addition, students will find the following skills, interests, values and other characteristics valuable for succeeding in the field.

- Ability to Design Experiments
- Ability to Evaluate Theoretical Models

- Ability to Frame Inquiry
- Ability to Multitask
- Ability to Recognize and Interpret Data
- Accuracy
- Advanced Quantitative Skills
- Analytical and Quantitative Abilities
- Apply Theoretical Approaches to Research Problems
- Clarity of Thought
- Communication Skills
- Concentration
- Concept Formulation Skills
- Critical Thinking
- Curiosity
- Detail Oriented
- Efficiency
- Formal Reasoning Skills
- Investigative Nature
- Numerical Computation Skills
- Organizational Skills
- Problem-solving
- Strong Computer Skills
- Systemizing Skills
- Team Worker
- Theory Development Skills
- Thoroughness

PROFESSIONAL ASSOCIATION AND OTHER LINKS

Making wise career decisions requires exploring your field. A multitude of Internet sites and other resources will help you do this to the best of your ability. Professional association sites, in particular, are very useful for their career descriptions and job hunting tips. Moreover, these authoritative sites frequently provide links to Internet sites which announce job openings and list potential employers. A few recommended sites are included below.

CANADIAN

Association Mathématique du Québec (AMQ)

<http://archimede.mat.ulaval.ca/amq/>

Provincial association headquartered in Montreal that is comprised primarily of math teachers. Among other things, it provides members with opportunities to network with professionals at its conferences and events. Student memberships available. Site in French only.

Canadian Applied and Industrial Mathematics Society (CAIMS/SCMAI)

<http://www.caims.ca/>

Devoted to the support and development of applied mathematics as a distinct discipline in Canada. Offers awards and research prizes. Under About click on Employment to locate job vacancies.

Canadian Institute of Actuaries

<http://www.actuaries.ca>

Click on Membership & Education to get career and mentoring information. Click on Links at the top of the main page to access Actuarial Employers – a list of companies in Canada employing actuaries as well as to locate a separate listing of university actuarial programs.

Canadian Mathematical Society (CMS)

<http://www.cms.math.ca>

CMS is a non-profit organization which supports Canadian mathematicians and attempts to promote mathematics education and research. Offers student memberships, research prizes, awards and scholarships. Click on Education, and then for university students to find out how to get involved in the Association. Check the Employment in Mathematics section under Community for academic and non-academic positions available.

Statistical Society of Canada (SSC)

<http://www.ssc.ca/>

Serves statisticians by promoting the highest possible standards for statistical education and practice in Canada. Offers accreditation programs for the Professional Statistician (P.Stat.) and the Associate Statistician (A.Stat.). Click on Employment for listings of available positions or Discussion List under Members to discuss issues relevant to statistics, statisticians and careers in statistics.

INTERNATIONAL

American Mathematical Society (AMS)

<http://www.ams.org/>

Aims to further mathematical research and scholarship. Among other things, members benefit from meetings, conferences, surveys and employment services. Click on Employment Services for job possibilities. Click on The Profession for programs, career information and prizes/awards.

American Statistical Association (ASA)

<http://www.amstat.org/>

ASA membership allows one to keep up to date with statistical developments through its publications and events. Includes a Career Center and a job portal (ASA JobWeb). Click on Education to find programs, funding information and internships for undergraduate and graduate students.

Association for Women in Mathematics (AWM)

<http://www.awm-math.org>

Aims to encourage women to study and have active careers in mathematics. Some benefits of membership include opportunities to network through attending workshops and lectures. Click on Undergraduate Students and/or Graduate Students for information on prizes, grants, employment

resources and careers. Student chapter activities expose one to the world of professional mathematics, allow exploration of career options and develop leadership skills.

Mathematical Association of America (MAA)

<http://www.maa.org/>

Serves and supports students, faculty, professional mathematicians, and all who are interested in the mathematical sciences. Click Students under Programs to find helpful information and links to resources.

CREATE YOUR AMAZING CAREER – CAREER RESOURCE CENTRE TITLES

For those who need more help with their career and educational planning, the Career Resource Centre (CRC) offers books, pamphlets, DVDs and recommended Internet sites. It is located in the Hall Building, H-440, at 1455 de Maisonneuve Blvd. West. The following titles are just a few of the titles available in the CRC.

- 101 Careers in Mathematics
- Actuaries' Survival Guide
- A Career in Statistics: Beyond Numbers
- Career Opportunities in the Internet, Video Games, and Multimedia
- Career Opportunities in Banking, Finance, and Insurance
- Career Opportunities in Computers and Cyberspace
- Careers for Number Crunchers & Other Quantitative Types
- Careers for Puzzle Solvers & Other Methodical Thinkers
- Careers in Engineering
- Careers in Mathematics and Statistics Panel Discussion – DVD
- Get in the Game! Careers in the Game Industry
- Great Jobs for Math Majors
- How to Get the Teaching Job You Want
- Les Carrières de la comptabilité
- Mathematician's Survival Guide: Graduate School and Early Career Development
- Opportunities in Insurance Careers
- Starting Our Careers: A Collection of Essays and Advice on Professional Development from the Young Mathematicians' Network
- Survival of a Mathematician: From Tenure Track to Emeritus
- Top 100 Computer and Technical Careers
- Vault Career Guide to Accounting