

# After Your Math Degree

March 2015

## Summary:

- Getting ideas for careers
- Employment areas
- Searching for jobs
- Further studies, Professional schools
- Resources

# Getting ideas for careers

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- What area are you interested in?
- Where would you like to see yourself 5 – 10 years after graduation?
- Browse through scientific newspapers/journals:
  - ORMS-Today, INFORMS; [www.informs.org/](http://www.informs.org/)
  - SIAM News, etc.; [www.siam.org/](http://www.siam.org/)
- Careers in mathematics:
  - Canadian Mathematical Society; <https://cms.math.ca/Employment/>
  - American Math Society; [www.ams.org/profession/career-info/career-index](http://www.ams.org/profession/career-info/career-index)
  - INFORMS Career Center; [www.informs.org](http://www.informs.org)
- See what's going on at IRMACS at the Burnaby campus;  
[www.irmacs.sfu.ca/](http://www.irmacs.sfu.ca/) (find the archive of video recordings of talks given there)
- Check out the many interesting sites on the internet (articles and video) where you can learn about areas where mathematical methods are used.

# Some Employment areas

- Marketing, finance, supply chain management (*banks, advertising companies*)
- Logistics: transportation, shipping, mining (*GCT Canada (Vancouver Port), railroads, airlines*)
- Health Care operations; patient/nurse scheduling, emergency room operations (*Fraser Health*)
- Health Care science: epidemiology, genomics (*BC Cancer Agency*)
- Statistician (*government, banks, hospitals, insurance*)
- Information technology
- Consulting (*Deloitte, Quantimal, Analysis Works*)
- Teaching (*secondary via PDP, college/university - requires additional degree*)

# More Employment areas

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- Consulting. Here some mathematical consulting companies (based in Vancouver);
  - Quantimal.ca
  - AnalysisWorks.com
  - Applmath.com
  
- Teaching
  - Elementary/high school via PDP  
<http://www.educ.sfu.ca/teachersed/pdp/students.html>
  - College/University (require MSc)

# **Examples of problems from industry where mathematics plays a key role**

- Urban planning: traffic flow, large-scale construction projects (hospitals, airports)
- Ferry scheduling/maintenance
- Cancer research: statistical analysis of genomic sequences
- Finance: risk analysis, developing risk software
- Logistics of mining
- Emergency room logistics

# Broadening your skills

- Applied statistics/statistical modelling;
  - regression, (generalized) linear models, analysis of variance, nonparametric statistics, machine learning (data driven algorithms to make predictions), etc
- Computer programming
  - C++, Matlab, R (statistical modelling), Python, Excel (including VBA scripts)
- Mathematics
  - linear algebra, mathematical (computer) modelling, numerical analysis, graph theory
- Writing/presentation
  - Well-written homework solutions, clear presentations. Get feedback from instructors/students for improvements.

# Searching for Jobs

- Job listing websites:
  - <http://www.monster.ca/>
  - <http://www.workopolis.com>
  - <http://www.orms-today.org/classifieds/>
  - <http://www.hsd.gov.bc.ca/links/jobs.htm>
  - <http://www.govjobs.ca/>
  - <http://www.jobbank.gc.ca/Intro-eng.aspx>
- Visit company websites: Banks, airlines, IBM, UPS, SAS, consulting firms, etc.
- Go to an SFU Career Fair!

# Commonly listed job requirements

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- Analytics, data sciences, operations research
- Project management skills
- Communication skills
- Group work skills (working with others)
- Technical skills: statistics, modelling, optimization
- Software skills\*: Excel (including VBA scripts), SAS/SPSS, SQL, C++, R, CPLEX, MS products (Excel, People Soft,....)
- Visa requirements (esp. for US jobs; TN-visa!)
- Do you mind relocating?

\* You can obtain certificates in programming in these areas from BCIT and many colleges, often in one weekend.



Career fairs are a great way to meet and connect with a large volume of students and alumni within a short period of time.

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## List of Fairs and Employer Events

WATCH: Scenes from **The BIG Fair** - Simon Fraser University's largest on-campus recruitment fair



- Please note that the dates listed are for year 2012. Event dates for 2013 are to be announced. For Career Services-run Fairs, when registration opens there will be a link on the event listing "REGISTRATION OPEN". To receive an email notification when registration officially opens, email [Christine Gilbert](#) to be added to the email list.
- Please note **Spring Teaching Opportunities Fair** (Focus on careers in teaching & education, local and abroad.) **EVENT DISCONTINUED. SEE FALL TEACHING OPPORTUNITIES FAIR.**

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  **Women in Engineering (WEG) Networking Event**

  **Biomedical Physiology and Kinesiology Career**

  **Sustainability Opportunities Week**

# What to put on your resume;

(see also Career Services for advice)

- Education background (degrees)
- Areas of study
- Software skills
- Projects/reports (research experience)
- certificates (e.g. CORS Diploma)
- Writing, speaking, and group work skills
- References! Often will include some of your university instructors/supervisors

# The interview process

- Often first by phone or skype (several), followed by in-person interview
- May ask you technical questions in person
- May ask you to complete a 'test' project (either during the interview or to 'take home')
- Your appearance/presentation is important!

*For advice on preparing your resume and practicing your interview skills, see Career Services at SFU;*

*<http://www.sfu.ca/career.html>*

# Experience matters!

In addition to your education credentials, many jobs require a certain amount of **experience**. Keep in mind that you may be able to include some of your time as a student here, for example, if you did some summer research work or projects for courses.

You may have to work in temporary (contract) jobs at the beginning. This builds up your **experience** and gives you an opportunity to learn a variety of skills and to sample different work areas.

# Augmenting your degree

- **Research/independent study experience;** class projects, reading courses, **research assistant**, NSERC USRA, Co-op, etc
- Create a LinkedIn page; set up a professional profile ([www.linkedin.com](http://www.linkedin.com))
- Attend scientific meetings, e.g. INFORMS, CORS, MITACS, PIMS → Exposure to careers, networking (meet people working in areas of your interest), job events. (Search for conferences in Vancouver that may interest you, e.g. *Environmental Business* was a recent one.)

# Beyond the BSc: Professional Schools

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- Finance (e.g., Graduate Diploma in Financial Engineering at the Beedie School of Business, SFU)
- Medicine
- Law
- MBA: operations research, management science, systems science (e.g., Master of Management in Operations Research, Sauder UBC; Masters of Business Analytics, Queen's )
- Specialized professional programs:  
project management, operations management

*These programs have high tuition costs!*

*Math grads can do well on GMAT, LSAT, MCAT (+ chem/bio) tests!  
(often entrance requirements for these programs)  
Math/physics majors at the top of the scores in LSAT*

# Beyond the BSc: Research Degrees

## MSc, PhD

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- Mathematics
- Operations research
- Statistics
- Computer science

*Research degrees are salaried (i.e., you get paid!)*

# Some resources for career information

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- [siam.org/careers/sinews.php](http://siam.org/careers/sinews.php)
- [informs.org/Build-Your-Career](http://informs.org/Build-Your-Career)
- [maa.org/careers/](http://maa.org/careers/)
- [weusemath.org/](http://weusemath.org/)
- [linkedin.com/today/](http://linkedin.com/today/)
- [sfu.ca/career.html](http://sfu.ca/career.html)



# More Links

- Sauder School MMOR: <http://www.sauder.ubc.ca/mmor/>
- MITACS (at UBC/SFU): <http://www.mitacs.ca/>
- PIMS (at UBC): <http://www.pims.math.ca/>
- Fields Institute (U of Toronto): <http://www.fields.utoronto.ca/>
  
- LSAT (law) <http://www.lsac.org/>
- MCAT (medical) <http://www.prometric.com/default.htm>
- GMAT (MBA) <http://www.mba.com/>
  
- Professional Development Program (PDP) at SFU;  
<http://www.educ.sfu.ca/teachersed/pdp/students.html>