Succeeding in Mathematics Courses

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Outline

General Advice

Mathematics Specific

Mathematics Degrees
General Advice

- Remember to sleep
- Remember to eat (healthily)
- Try to exercise at least three times a week
- Make sure what you are studying is (mostly) interesting to you and has some challenge

Be ready to learn and succeed
Decide what it means for you to succeed.
General Study Habits

- Attend lectures
- Start early on readings and assignments
- *Actually do* the readings and assignments
- Find your learning style. Try out some different things:
  - Rewrite your notes, correcting any errors
  - Condense notes on index cards
  - Read text and notes aloud
  - Make a colour-coded mind map of relevant material
  - Study in a group
  - Explain key concepts to someone else
  - Watch relevant YouTube videos
  - Read through alternate texts
  - Attend office hours
- Find and work through old exams
Mathematics Courses

- Alternate between doing problems and understanding concepts
- Understanding concepts is more important than memorization
- Doing assignments is much more important than the grade associated to them.
  - *Actually do the questions*
  - Consider forming a study group
  - Online (WeBWorK) assignments are great for fast feedback on preliminary concepts, but...
  - Doing longer problems is necessary to see how the techniques can be used and to do well on the exam
  - *Do not* fool yourself into thinking that looking at problem solutions is enough to learn Mathematics
  - If you want to understand mathematics, *do not move on until you understand the current idea*
  - Find more problems to do in the text, online on the text publisher’s web site, in other texts, online from other institutions
  - Robert Adam’s calculus book has hard problems
Lacking Basic Mathematical Skills

- Many students who have trouble with Mathematics at UBC lack skills from high school
- More than other subjects, Mathematics relies and builds on previous skills
- Lower level UBC Mathematics courses rely on skills from high school (Arithmetic, Algebra and Geometry)
- If you lack these skills, any Mathematics course will be more difficult than it has to be
- Try to fill in missing skills:
  - Many Calculus text publishers have online modules on “pre-calculus” material
  - UBC Connect pre-calculus online self-enrol course (see next page)
**UBC Pre-Calculus Course**

To enroll in the UBC Pre-Calculus Course, follow these steps:

1. **Search for the course**
   - Click the search bar and enter the phrase **preparation for calculus**.
   - Set the creation date before **09/25/2013**.
   - Press **Go** to search.

2. **Find the course**
   - Look for the course with the ID **WS.UBC.SCIENCE.MATH.CALC.PREP.2013W**.
   - The course name is **Preparation for Calculus 2013W**.
   - The instructor is **Warren Code**.

3. **Enroll in the course**
   - Click on the course ID to open the options menu.
   - Select **Enroll** to complete the enrollment process.

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**Notes:**
- Ensure you have the necessary prerequisites before enrolling.
- Check the course syllabus for further details.
- Contact the instructor or the UBC helpdesk if you encounter any issues.
UBC Resources for Mathematics Courses

- Math Learning Centre (drop-in)
- Alternate texts in library and online
- Faculty office hours and e-mail (be formal)
- Past exams (before and after reviewing the material)
  - Do the problems, don’t just read the solutions
  - for large mathematics service courses, format often does not change from year to year
  - often 80% of the exam can be predicted (type of problem, not exact details)
  - usually only 10-20% of the exam is tricky
- Math Club (Math Annex 1119) sells hardcopy packages of exams and solutions near the end of term
- [www.math.ubc.ca/Ugrad/pastExams/index.shtml](http://www.math.ubc.ca/Ugrad/pastExams/index.shtml) has exams without solutions
- google “math exam resources ubc” for online exams with solutions
Mathematics Degrees

Mathematics is a beautiful subject

• stimulating and enjoyable
• mathematics is about understanding structures rather than memorizing facts
• with increasing complexity of technology, people with quantitative skills will always be in demand
• by *modelling* things with mathematical equations, they can be understood and optimized quickly and cheaply.

If you do not feel passion for your subject, consider changing your major
“What can I do with a math degree?”

Qualify for a broad range of careers in business, industry, government, and teaching.

- stockbroker
- research scientist
- animator
- statistician
- commodities trader
- air traffic controller
- forensic analyst
- banker
- professor
- urban designer
- public utilities analyst
- epidemiologist
- technical writer
- teacher
- estimator
- pollster
- appraiser
- actuary
- teacher
- financial aid director
- early career profiles

Explore the Early Career Profiles of recent bachelor-level graduates with degrees in the mathematical sciences.

www.ams.org/early-careers/
UBC Mathematics Degree Options

- Major or Honours degrees in Science and Arts
- An honours degree is important if you want to go on to graduate school
- Combined degree options:
  - Math and Economics
  - Math and Education
  - Honours Math and Physics, Chemistry, or Computer Science
  - Honours Math option in Applied Science

Look for degree options that suit you in other departments, too
Mathematics Degree Bonuses

- Strong academic and career advising from faculty
- Mathematics Club social events
- Putnam exam training sessions
- Volunteer opportunities
- Co-op programme
- USRA programme

Look for additional activities in other departments, too