Math 444 - 201, Term 2 2012

Mathematical Research and Writing

Announcements

Announcements will be posted from time to time. Please check regularly.

1. All submissions, with the exception of Homework 1 and Homework 2, will be typeset.

Course details

Lecture details

Lecturer: S. van Willigenburg, office: Math 208, tel: 822-2630, email: steph at math splotch ubc splotch ca
Location: TuTh 14.00-15.30 MATH 105
Web page: http://www.math.ubc.ca/~steph/444/444.html
Office hours: Mon 10-11am, Thur 4-5pm, 15 mins just after class, and by appointment (not Wednesday). You can also email me anytime.

Course description

This is for students who would like an introduction to mathematical research, and are interested in exploring mathematics constructively. It is suitable for students who would like to further develop their critical thinking skills independently. In addition presentation skills and ability to professionally typeset mathematics will be developed.

Grading

Your grade will be based on

- Class participation and peer feedback (5%)
- Homework (10%)
- Research journal (10%)
- Presentations (25%)
- Project (50%).

Due to the intense workload of the course no extensions will be given, and late submissions will be subject to a 50% per day penalty.

Working together and academic integrity

Homework: We have no objection to collaboration on the homework, provided that it is done in a way that maximizes the benefit of the homework to all people involved. It is our experience that you get

- maximum benefit from a homework problem if you work hard on it alone before combining your ideas with someone else's,
- no benefit from one person just telling another how to do a problem.

Regardless of whether you arrive at solutions in collaboration with others or alone, the paper that you turn in with your name on it should represent your own solutions, written in your own words.

In particular, you may not simply copy someone else's homework and turn it in as your own. Similarly, copying solutions that you might find on the web or from some other source is illegal.

These will all be treated as a violation of UBC's **Academic Integrity Code.** We take academic integrity very seriously and will follow university procedures in all cases of suspected cheating - disciplinary measures can result in expulsion.

Class etiquette

Use of cell phones (in any manner), laptops, iphones, Blackberries and other electronic devices during class is highly inappropriate, as it is distracting and disrespectful to fellow students and the instructor. Chatting with neighbours, even when whispered, is equally inappropriate. If you have a question then please ask the instructor so the whole class may benefit too.

Arriving late and leaving early is also discouraged. If it happens then please enter/leave the room silently and do not disrupt the other students or instructor. Thank you.

Online resources

Homework (due Thursday at start of class)

There will be weekly homework assignments due on Thursdays, which will augment the techniques learned in class or give an opportunity to explore mathematical research further.

Homework solutions should be written using good English, complete sentences, and adequate detail. Questions should be answered in order, and pages should be fastened with a staple with your name and student number on at least the front page.

Homework 1, due Thursday January 10th.
Homework 2, due Thursday January 17th.

Solutions will be handed out when the homework is returned, if appropriate.

Research Journal (due Friday 5pm electronically)

You will email a weekly written account of your research to steph@math.ubc.ca.
This cumulative document will describe

1. What you did
2. Why you did it
3. What obstacles you encountered, and your research plan for the following week.

Project Presentations

You will update the class on your progress throughout the term.

1. **Week of February 4** *Project introduction* (5 marks): You will motivate your project and explain what you will be investigating.
2. **Week of February 25** *Project update 1* (5 marks): You will teach the class definitions illustrated by examples, which are necessary for your research.
3. **Week of March 11** *Project update 2* (5 marks): You will describe successes and failures during your research, and further avenues.
4. **Week starting March 18** *FINAL PRESENTATIONS* (10 marks): You will give a lecture in which you will
    - Recall some motivation for your project.
    - Introduce relevant definitions and give examples so that you can
    - State and prove at least one theorem from your project.

Project

Information sheet

Other handouts

Here are some more study materials I found to help, or might be interesting.

- Two web pages about proofs can be found here and here.
- Notes on how to take notes can be found here and here.
- A paper by a learning psychology expert How to succeed in college: learn how to learn.
- Practical advice on learning effectively.

Other useful links

- Math department home page
- Undergrad Math Lab
  LSK 121: 70 seats Unix and Windows
  LSK 310: 42 seats Windows
  Lab hours : 7:30am - 6:00pm M-F
  Alarms from 7:30pm - 7:30am
  Labs are closed/alarmed on weekends and holidays due to security reasons.
  You may use them if a class is not in session.
