Course Organization

- Instructor: Xinwei Yu
  - Office: CAB 527; (780)492-5731
  - Email: xinwei2@ualberta.ca
  - Webpage: http://www.math.ualberta.ca/~xinweiyu/
- Course webpage: http://www.math.ualberta.ca/~xinweiyu/117-118.14-15/
  - We will not use eClass. Please check course webpage frequently.
- Textbooks:
  - "Math 117/118: Honours Calculus" by Dr. John Bowman: Download from http://www.math.ualberta.ca/~bowman/m117/m117.pdf;
  - Math 314 Fall 2013 Lecture Notes: Download from https://www.math.ualberta.ca/~xinweiyu/314.A1.13f/.
- Lecture Time/Location:
  - MWF 10:00 - 10:50 @ SAB 331;
  - R 13:00 - 13:50 @ AF 1 13.
- Evaluation
  - Homeworks 35%: Total 9 homeworks, 2 worst marks will be dropped;
  - Midterms 20%: Total 3 midterms, the worst mark will be dropped;
  - Final Exam 45%.
- Grading
  - An overall course mark of 50% or more guarantees at least D.
  - An overall course mark of 90% or more guarantees at least A.
- Homeworks
  - Homeworks are due on the following Thursdays (Posted on course webpage roughly one week before the due dates)
    HW1: Sept. 11; HW2: Sept. 18; HW3: Oct. 2;
    HW4: Oct. 9; HW5: Oct. 16; HW6: Oct. 30;
    HW7: Nov. 6; HW8: Nov. 13; HW9: Nov. 27.
    at 15:00 in the assignment box for Math117 (3rd floor CAB);
  - No late homework will be accepted.
- Midterms
  - Midterms are on Fridays, in class.
  - Temporary dates: Sept. 26, Oct. 24, Nov. 21.
  - No make-up midterms.
- Final Exam: Thursday Dec. 11, 9:00 - 11:00. Location TBA. Please check beartracks for the most updated/official information on the Final Exam.

Course Material Overview

- Course description (copied from calendar)

  Functions, continuity, and the derivative. Applications of the derivative. Extended limits and L'Hospital's rule. Prerequisite: Mathematics 30-1 and Mathematics 31 or their equivalents.
- Course Objectives
  - Understand the basic theories of single variable calculus;
  - Become comfortable with the requirement on rigor of modern mathematics.
- Course plan
  - Weeks 1 - 4: Preparations.
    - Numbers; Classification of numbers;
    - Key ideas of calculus through some important numbers;
    - Basic methods of proof;
    - What are functions;
    - Basics of logic.
  - Weeks 5 - 8: All about limit. Note that "limit" is the most important concept in calculus (In fact one could argue that it's the key concept in the whole field of analysis, including topology.)
    - Definitions and properties of limit;
    - Fine properties of limit: Limsup and liminf; subsequences; Bolzano-Weierstrass theorem; etc.
    - Various kinds of limits and how to unify them as one;
  - Weeks 9 - 12: Apply "limit" to functions: continuity, differentiation, and integration;
    - Definition and basic properties of continuous functions;
    - Basics of differentiation;
    - Basics of integration.
  - Weeks 13 - 14: Applications/Review

********** Preview of Math 118 **********

  - Weeks 1 - 4: More on continuity and differentiation;
  - Weeks 5 - 8: More on integration;
  - Weeks 9 - 12: Advanced topics.

Where to Get Help

- From the instructor:
  - Office Hours: @ CAB 527.
    Monday and Friday: 11:00 - 12:00;
    Wednesday 13:00 - 14:45; Thursday 10:30 - 12:00;
  - By appointments. Please do not hesitate to make appointments.
  - Email: xinwei2@ualberta.ca. I will reply asap.
  - Any other good telecommunication methods.
- From fellow 117 students:
  - It is a good idea to form study groups and discuss regularly.
- From yourself:
  - Think harder:
    Reading a Math book is different from reading other kinds of books. A general rule of thumb is that you should spend one hour per page if the material is totally new. See http://youtu.be/i5oc-70Fby4 for the right attitude.
  - Work harder (work on more problems):
    Less demanding than "Think harder" but also less effective in gaining understanding. Besides problems in the textbook (or other calculus textbooks), there are also many problem books for calculus. For example:
    - *Problems in Mathematical Analysis* (B. P. Demidovich);
    - *Higher Mathematics for Engineering Students: Worked Examples and Problems with Elements of Theory* (A. V. Efimov, B. P. Demidovich)
  - Read/Watch more:
    Sometimes different point of view helps understanding. However note that this is the least effective way to gain understanding in mathematics.
    - Any proof-based calculus book;
    - Other books at a similar level. One particular book I would like to recommend is
      The Foundations of Mathematics by Thomas Q. Sibley.
    - Online resources:
      - There are many online courses. I would recommend "Introduction to Mathematical Thinking" by Keith Devlin on www.coursera.org (Sep 29th 2014 - Dec 6th 2014).
      - There are also many "tutorials" available on the internet. They may help. But be careful: The "tutor"s themselves may not know what they are talking about.
- From Decima Robinson Support Centre (CAB 528):
  One-on-one help from graduate students. MTWRF 9:00 - 15:00.

Rules, Policies, Student Responsibilities

- **Students Eligible for Accessibility-Related Accommodations** (students registered with Specialized Support & Disability - SSDS):

  Eligible students have both rights and responsibilities with regard to accessibility-related accommodations. Consequently, scheduling exam accommodations in accordance with SSDS deadlines and procedures is essential. Please note adherence to procedures and deadlines is required for U of A to provide accommodations. Contact SSDS (www.ssds.ualberta.ca) for further information.

- **Grades**:
  - Grades are unofficial until approved by the Department and/or Faculty offering the course.
- **Exams**:
  - The date of the final examination is set by the Registrar and takes precedence over the final examination date reported in this document. Students must verify this date on Beartracks when the Final Exam Schedule is posted.
  - No electronic devices are allowed in exams unless explicitly stated otherwise by the instructor.
  - The exams are closed book. No student-prepared data sheet is allowed.
  - Your student photo I.D. is required at exams to verify your identity. Students will not be allowed to begin an examination after it has been in progress for 30 minutes. Students must remain in the exam room until at least 30 minutes has elapsed.
- **Past Evaluative Material**:
  - Exams of previous 117 classes will be made available on the course website (solutions may not be available).
- **Missed Final Examination**:
  - A student who cannot write the final examination due to incapacitating illness, severe domestic affliction or other compelling reasons can apply for a deferred final examination. Such an application must be made to the student's Faculty office within two working days of the missed examination and must be supported by a Statutory Declaration or other appropriate documentation (Calendar section 23.5.6). Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. Misrepresentation of Facts to gain a deferred examination is a serious breach of the Code of Student Behaviour.
  - Deferred Exam: `Sat. Jan. 10, 2015 @ CAB 357. You need to register at 8:30am.`
- **Re-examination**:

  A student who writes the final examination and fails the course may apply for a re-examination. Re-examinations are rarely granted in the Faculty of Science. These exams are governed by University (Calendar section 23.5.5) and Faculty of Science Regulations

(Calendar section 192.5.3). Misrepresentation of Facts to gain a re-examination is a serious breach of the Code of Student Behaviour.

- **Missed Term Work**:
  - A student who cannot write a midterm due to incapacitating illness, severe deomestic affliction or other compelling reasons can apply for an excused absence.
    - To apply for an excused absence where the cause is incapacitating mental and/or physical illness and most other cases including severe domestic affliction, a student must inform the instructor within two working days following the scheduled date of the midterm, or as soon as the student is able, having regard to the circumstances underlying the absence.
    - For an excused absence where the cause is religious belief, a student must contact the instructor within two weeks of the start of classes.
    - All other accommodation requests covered by the Duty to Accomodate Procedure should be discussed with the instructor as soon as the student is able, having regard to the underlying circumstance.
    - Once an absence is granted, the weight will be moved to the final exam.

    An excused absence is a privilege and not a right: there is no guarantee that an absence will be excused. Misrepresentation of Facts to gain an excused absence is a serious breach of the Code of Student Behavior.
- **Academic Integrity**:

  The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at www.governance.ualberta.ca) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.All forms of dishonesty are unacceptable at the University. Any offense will be reported to the Associate Dean of Science who will determine the disciplinary action to be taken.
  Cheating, plagiarism and misrepresentation of facts are serious offenses. Anyone who engages in these practices will receive at minimum a grade of zero for the exam or paper in question and no opportunity will be given to replace the grade or redistribute the weights. As well, in the Faculty of Science the sanction for cheating on any examination will include a disciplinary failing grade (NO EXCEPTIONS) and senior students should expect a period of suspension or expulsion from the University of Alberta.
- **Collaboration on Assignments**:
  - It is OK to collaborate on homework problems. However you should write up your solution by yourself without any help from others. Here are some tips:
    - Do not write down something that you cannot explain to your TA or instructor.
    - When you are helping other students, avoid showing them your work directly. Instead, explain your solution verbally. Students whose work is copied also receive academic

sanctions.

- If you find yourself reading another student's solution, do not write anything down. Once you understand how to solve the problem, remove the other person's work from your sight and then write up the solution to the question yourself. Looking back and forth between someone else's paper and your own paper is almost certainly copying and will result in academic sanctions for both you and your fellow student.
- If the instructor or TA writes down part of a solution in order to help explain it to you or the class, you cannot copy it and hand it in for credit. Treat it the same way you would treat another student's work with respect to copying, that is, remove the explanation from your sight and then write up the solution yourself.
- There is often more than one way to solve a problem. Choose the method that makes the most sense to you rather than the method that other students happen to use. If none of the ideas in your solution are your own, there is a good chance it will be flagged as copying.
- Please check out: the Appropriate Collaboration link on the Office of Student Judicial Affairs website (http://www.osja.ualberta.ca/Students/AppropriateCollaboration.aspx).

- **Audio or Video Recording**:

  Audio or video recording of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Recorded material is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the instructor.

- **Student Success Centre**:

  Students who require additional help in developing strategies for better time management, study skills, or examination skills should contact the Student Success Centre (2-300 Students' Union Building).

- Policy about course outlines can be found in section 23.4(2) of the University Calendar.

- **Disclaimer**:

  Any typographical errors in this Course Outline are subject to change and will be announced in class.