

### Topics to Midterm 3

**Math 4181H**

The exam is on Monday, November 3. During the exam you can use books and notes, both paper and electronic. The exam will consist of 4-6 problems related to some of the following topics:

1. The derivative of a function at a point
2. Continuity of the differentiable function and algebraic properties of derivatives
3. The derivative of the composition and of the inverse function
4. The derivatives of basic functions
5. Convex functions
6. Natural exponential and logarithmic functions
7. Local properties of differentiable functions
8. The mean value theorem
9. Analysing the behavior of a function given its derivative
10. Limits of the derivative and Darboux's theorem
11. Trigonometric functions
12. Higher order derivatives
13. L'Hospital's rules