Syllabus

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Office Hours: Tues and Thurs, 3:30 – 4:30 or by appointment
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This course is designed for students who do not have a strong background in calculus, but want to acquire the skills necessary to take c-track classes. We will review topics necessary for b-track classes, but I expect that you are already familiar with most of that material. This class is not designed to be a comprehensive calculus class, but to teach you the skills necessary to take c-track classes (especially 511c and 512c) at the WWS.

Book: The book for this class will be *Mathematics for Economists* by Simon and Blume.

Assignments: This course is ungraded. I strongly recommend, however, that you do the assignments and turn them in. This will give both you and me a much better idea of how well you really understand the material, and whether or not you can do the type of work expected in c-track classes.

Class Outline:
Monday 21 August: Algebra Review (S&B 2.1-2.2, 5.1-5.4 and handouts)
Exponents and logs, functions and graphs, systems of equations, series, PDV
Tuesday 22 August: One Variable Calculus (S&B 2.3-2.4, 3.1, 5.5)
Slopes of curves, derivatives, rules for calculating, increasing and decreasing
Wednesday 23 August: One Variable Calculus (S&B 2.6, 3.2, 3.5-3.6)
Second derivative, convexity, maximization and minimization
Thursday 24 August: One Variable Calculus (S&B 2.7, 3.6)
Integration, economic applications, Taylor series
Friday 25 August: No Class

First take home exam due Monday 28 August at the beginning of lecture

Monday 28 August: Multivariable Calculus (S&B 13.1-13.2, 14.1-14.3)
Functions of several variables, partial derivatives, graphical interpretation
Tuesday 329 August: Multivariable Calculus (S&B 14.4, 15.1-15.2)
Total differential, implicit function theorem
Wednesday 30 August: Multivariable Calculus (S&B 14.5, 14.8)
Chain rule, second partial derivatives, Hessians
Thursday 31 August: Optimization (S&B 17.1-17.5)
First and second order conditions, economic applications
Friday 1 September: Constrained Optimization (S&B 18.1-18.4)
Equality constraints, corner solutions, inequality constraints

Second take home exam due Tuesday 5 September

Monday 5 September: No Class
Tuesday 5 September: Constrained Optimization (S&B 18.5-18.7)
    Kuhn-Tucker conditions, applications
Wednesday 6 September: Optimization (S&B 19.2)
    Comparative statics and the envelope theorem
Thursday 7 September: Probability (S&B Appendix A5)
    Probability theory, random variables, distributions, expectations and variance
Friday 8 September: Review