Math Methods for Economists
AS.440.304.82
Fall 2016 - Online
Syllabus

Instructor:
Genevieve Briand
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Term Info:
August 29 – Dec. 12 (14 weeks)

Office Hours:
No appointment needed: Blackboard Discussion Board (instructor replies within 24 hours)
By appointment only: connect.johnshopkins.edu/gbriand1

Textbook:
Required**: Carl P. Simon and Lawrence Blume. 1994. Mathematics for Economists. Norton.**
Optional: A. C. Chiang and K. Wainwright. 2005. Fundamental Methods of Mathematical Economics (4th Edition). McGraw-Hill/Irwin.

Website: blackboard.jhu.edu

Course Description:
After a review of single-variable Differential Calculus, this course covers those parts of Integral Calculus, Multivariable Calculus, Optimization Theory, and Linear Algebra, which are necessary to pursue economics. Applications to economics are emphasized.

Prerequisites: A course in Calculus

Grading Schema:
Following AAP guidelines, the following grading schema is adopted.

A+	98-100%		B+	88-89.9%						
A	94-97.9%		B	84-87.9%						
A-	90-93.9%		B-	80-83.9%		C	70-79.9%		F	below 70%

Course Overview:
Unit 01: Single variable calculus
Unit 02: Rules of differentiation; 2nd derivatives; graphing functions
Unit 03: Exponents and logarithms
Unit 04: Integration rules and definite integrals
Unit 05: Systems of linear equations
Unit 06: Matrix inversion and Cramer's rule
Unit 07: Midterm
Unit 08: Calculus of several variables
Unit 09: Differentials and total derivatives
Unit 10: Multivariate unconstrained optimization—1st & 2nd order conditions
Unit 11: Multivariate constrained optimization—1st order condition
Unit 12: Multivariate constrained optimization—2nd second order condition
Unit 13: Kuhn-Tucker conditions
Unit 14: Final

Course Structure:
The course will be administered through the JHU Blackboard platform from which all relevant coursework will be made available. Students should log into Blackboard daily to check for announcements posted on the course homepage. The course is segmented into 14 weeks of instruction, during which students will be expected to complete assigned readings from the textbook and/or other sources, listen to recorded lectures with accompanying slides, and submit answers to an assigned problem sets. For the purposes of the course, a week will begin at 12:00 am on Monday morning and end at 11:59pm on the following Sunday evening. Students are free to view lecture materials and submit assignments at any time throughout the week. Solutions to problem sets will be posted on the Monday of the week after which they were assigned. Students are expected to review problem set solutions and compare them with their work to ensure they are correctly applying the concepts covered. Students will use the Blackboard discussion board weekly to elicit further commentary on specific topics from the instructor and/or seek additional guidance on assigned problems. For one-on-one communication with your instructor, please use email.

Grading:
Problem Sets: 40% altogether. Midterm & Final Exams: 30% each.

Problem Sets:
Problem sets will be assigned on a weekly basis throughout the term (with a total of 12). Students may feel free to collaborate on problem sets in small groups, though each student must submit their own set of answers. Students should not post solutions on the general discussion board for all to see. Completed solutions to problem sets must be submitted through Blackboard as PDF files by the end of week they are assigned (i.e. 11:59 PM Sunday night). No late submission is accepted. The lowest two scores on problem sets will be dropped. No make-up problem set will be given.

Exams:
Two exams will be administered during the course. Exams will be cumulative with a focus on the most recent concepts presented. Calculators will be required to complete some questions. Students will work individually on exams. Exams will have a time limit and students will be free to consult notes and textbooks during the examination. Completed solutions to midterm and final exams must be submitted through Blackboard as PDF files. No late submission is accepted. No make-up exam will be given.

University Policies:
This course adheres to all University policies described in the academic catalog. Please pay close attention to the following policies:

Disabilities Services
All students with disabilities who require accommodations for this course should contact Disability Services at their earliest convenience to discuss their specific needs. If you have a documented disability, you must be registered with Disability Services to receive accommodations.

Ethics & Plagiarism
The strength of the university depends on academic and personal integrity. In this course, students must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Students should report any violations they witness to the instructor.
Read and adhere to JHU's Notice on Plagiarism.

Dropping the Course
Students are responsible for understanding the university's policies and procedures regarding withdrawing from courses found in the current catalog. Students should be aware of the current deadlines according to the Academic Calendar.

Getting Help
You have a variety of methods to get help on Blackboard. Please consult the help listed in the "Blackboard Help" link for important information. If you encounter technical difficulty in completing or submitting any online assessment, please immediately contact the designated help desk listed on the AAP online support page. Also contact your instructor at the email address listed in this syllabus ***before assignments are due***.

Schedule:

Week 1 **August 29 – Sept. 04**	Single Variable Calculus 2.1-2.5	Problem Set 1
Monday September 05	*Labor Day*	
Week 2 **Sept. 06 – Sept. 11**	Rules of Differentiation; 2nd Derivatives; Graphing Function 2.6; 3.1-3.3, 3.5; 4.1	Problem Set 2
Week 3 **Sept. 12 – Sept. 18**	Exponents and Logarithms 5.1-5.5	Problem Set 3
Week 4 **Sept. 19 – Sept. 25**	Integration Rules and Definite Integrals A4.1-A4.3	Problem Set 4
Week 5 **Sept. 26 – Oct. 02**	Systems of Linear Equations 7.1-7.3; 8.1-8.3	Problem Set 5
Week 6 **Oct. 03 – Oct. 09**	Matrix Inversion and Cramer's Rule 9.1-9.2	Problem Set 6
Week 7 **Oct. 10 – Oct. 16**	**Exam Period**	**Midterm Exam**
Week 8 **Oct. 17 – Oct. 23**	Calculus of Several Variables 14.1-14.3	Problem Set 8
Week 9 **Oct. 24 – Oct. 30**	Total Differentials and Total Derivatives 2.7; 14.4-14.8	Problem Set 9
Week 10 **Oct. 31 – Nov. 06**	Multivariate Unconstrained Optimization: 1st & 2nd Order Conditions 17.1-17.3	Problem Set 10
Week 11 **Nov. 07 – Nov. 13**	Multivariate Constrained Optimization: 1st Order Conditions 18.1-18.2	Problem Set 11
Week 12 **Nov. 14 – Nov. 20**	Multivariate Constrained Optimization: 2nd Order Conditions 19.3	Problem Set 12
Nov. 21 – Nov. 27	*Thanksgiving Week*	
Week 13 **Nov. 28 – Dec. 04**	Kuhn-Tucker Conditions 18.3-18.6	Problem Set 13
Week 14 **Dec. 05 – Dec. 12**	**Exam Period**	**Final Exam**