George Washington University

Institute for International Economic Policy

Draft Syllabus

Course and Contact Information

Course	: Introductory Statistics and Basic Mathematical Tools
Semester	: Fall 2016
Meeting time	: September 10, 17, 24, and October 1 between 10 a.m. and 4 p.m
Location	: Duques Hall 251 [2201 G Street NW]

Instructor

Name	: Aaditya Dar
Address	: Monroe Hall 322 [2115 G Street NW]
E-mail	: aaditya@gwu.edu
Office hours	: Mondays and Wednesdays from 9:15 a.m to 11:30 a.m.

Course Description

These review sessions are for students who A) have never completed an introductory stats course but would like to become familiar with statistical ideas, B) those who have not taken an introductory statistics course within the last two years, or C) those who plan to take several courses in quantitative analysis as part of their M.A. program. These review sessions will serve as preparation for the regular 3-credit statistics/analytics courses offered by the Elliott School, Economics Department, and Political Science Department. The review sessions will improve your comfort level with quantitative analysis and the use of statistics in international affairs. It will also review basic mathematic tools which are required for taking an introductory econometrics course. It will also familiarize you with statistical software like Stata, which can be used for data analysis and visualization.

Prerequisites

There are no official prerequisites for this course, but permission of Kyle Renner (iiep@gwu.edu) is required.

Course Materials and Recommended Texts

Since this course covers concepts from both an introductory statistics and mathematics for economics course, there is no one text book for these review sessions. Two useful references are:

Theme	Author	Title	Publisher
Introductory statistics	Irwin Miller and Marylees Miller	John E. Freund's Mathematical Statistics with Applications	Pearson; 8th Edition (2014)
Mathematical economics	Carl P. Simon and Lawrence E. Blume	Mathematics for Economists	W. W. Norton & Company (1994)

In addition, students may also find the following two workbooks very useful:

- John J. Schiller, R. Alu Srinivasan and Murray R. Spiegel (2012) Schaum's Outline of Probability and Statistics, McGraw-Hill Education; 4 edition.
- Edward T. Dowling (2011) Schaum's Outline of Introduction to Mathematical Economics, McGraw-Hill Education; 3 edition.

Finally, students will be given "hands-on" training with Stata, a statistical software that is frequently used by social scientists and international development practitioners in their research. A student copy may be ordered from https://www.stata.com/order/new/edu/gradplans/student-pricing. If you are planning to only use Stata for this course, I recommend the Small Stata six-month license which is available for $38. Alternatively, you could choose other versions that are suited for your work.

Tentative Class Schedule

Date	Session	Topic
Sep 10	10 a.m. to 1 p.m.	Introduction, descriptive statistics, proportions and percentages
Sep 10	1:30 p.m. to 4 p.m.	Functions, differential calculus
Sep 17	10 a.m. to 1 p.m.	Sets, probability, random variables and probability distribution, joint distributions and their features
Sep 17	1:30 p.m. to 4 p.m.	Normal, Chi-square, t, F distribution
Sep 24	10 a.m. to 1 p.m.	Random sampling, finite and large sample properties, approaches to parameter estimation
Sep 24	1:30 p.m. to 4 p.m.	Interval estimation, hypothesis testing, z-scores, p-values
Oct 1	10 a.m. to 1 p.m.	Matrix algebra, simple linear regression, OLS
Oct 1	1:30 p.m. to 4 p.m.	Multiple linear regression

Grades/Assignments

There will be no tests/exams in this course. Furthermore, there is no compulsory homework, but there will be problems assigned to help you learn the material. It is strongly recommended that you complete these problem sets and practice as questions as possible.

University Policies

University Policy on Religious Holidays

1. Students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance.
2. Faculty should extend to these students the courtesy of absence without penalty on such occasions, including permission to make up examinations.
3. Faculty who intend to observe a religious holiday should arrange at the beginning of the semester to reschedule missed classes or to make other provisions for their course-related activities

Support for Students Outside the Classroom

Disability Support Services (DSS)

Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Rome Hall, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to: gwired.gwu.edu/dss/

Mental Health Services 202-994-5300

The University's Mental Health Services offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include: crisis and emergency mental health consultations confidential assessment, counseling services (individual and small group), and referrals. counselingcenter.gwu.edu/

Academic Integrity Code

Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information. For the remainder of the code, see: studentconduct.gwu.edu/code-academic-integrity