# Instructor Information

Amit Patel, PhD

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# Teaching Assistant Information

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# Course Information

**Course Title:** Analytical Skills for Policy Analysis I

**Credits: 3**

**Online?** No

**Classroom** McCormack Hall, M03-0430

*Please note that lab sessions will be conducted in Green Lab (HUL-0028)*

**Course**

**Description:** This course will introduce a variety of policy analysis tools for policymakers and public managers/administrators; provide an overview of how public policy is shaped by research and numerical data; encourage students to generate research questions and match research methods to the questions; teach how to interpret numerical data in tables, charts, research reports, and articles; introduce basic statistical analysis tools and the interpretation of statistical results as they inform public policy decision making.

**Context:** PUBADM 620 is a core course in the Master of Public Administration (MPA) program. This course focuses on the use of numerical data in public affairs.

**Prerequisites:** None

**Prerequisite**

**Skills:** Basic Math skills on following topics will be helpful but not required to take this course: i) Fractions and Decimals, ii) Percent, iii) Exponents and Radicals, iv) Order of Arithmetic Operations, v) Basic Algebra, and vi) Basic Coordinate Geometry.

**Course**

**Objectives:** By fully participating in this course, you should be able to:

1. be knowledgeable about types of data used for statistical analysis
2. be knowledgeable about fundamental concepts and underlying logic of statistical analysis
3. be knowledgeable about strengths and limitations of inferences you could make from statistical analysis
4. have skills to formulate policy research questions that could be answered with statistical methods
5. have skills to select appropriate statistical method for the data and policy questions at hand
6. have skills to organize and manage datasets using Microsoft Excel
7. have skills to perform statistical analysis using Microsoft Excel
8. have skills to interpret statistical results
9. have skills to present statistical results

**Core**

**Competencies:** As defined by the Network of Schools of Public Policy, Affairs, and Administration (NASPAA), the expected skills, knowledge, aptitudes, and capacities for students receiving a degree in a public affairs discipline are encompassed by the 5 Universal Core Competencies listed below. While this course will touch on each competency, the objectives for this course focus primarily on competencies 1 and 3.

NASPAA Universal Competencies -

Students should have the ability to:

**1) To lead and manage in public governance**

2) To participate in and contribute to the public policy process

**3) To analyze, synthesize, think critically, solve problems, and make decisions**

4) To articulate and apply a public service perspective

5) To communicate and interact productively with a diverse and changing workforce and citizenry

**Required**

**Assignments:** There are four types of assignments: i) policy research questions, ii) problem sets, iii) exams, and iv) term-project.

**Policy Research Questions:** You will submit a policy research question that could be answered with the method covered in that week (Instructions for each week will be posted under Discussion Board section of the course website. This exercise will begin in week 2). Ideally, you should frame a question that is within your term-project topic area. The submission is very short: it includes a research question and description of required data to answer your question. It is NOT required to attain the dataset and answer the question. The purpose of this exercise is two-fold: i) framing a question will allow you to understand the strength and limitation of the statistical method under study, and ii) you will advance your research for the term-project on weekly basis.

**Problem Sets:** You are encouraged to work in study groups for your problem sets. However, you are required to submit your own problem sets. When you submit your problem sets, you must put names of the students with whom you have formed the study group. The best use of study groups is to discuss your doubts, learn from each other and debate the underlying concepts in each problem set. Problem sets are given with dual purpose: to *assess* how well you are doing in terms of your learning outcomes but more importantly, to give you an opportunity to *master* the concepts and skills you will be learning in this course.

**Examinations:** Both examinations are open book, open notes, and take home. Examinations are the only part of this course when you will be working on your own. The examinations will focus on: i) conducting statistical analysis using Microsoft Excel, ii) interpreting statistical results, ii) identifying limitations and flaws in conclusions presented, and iii) suggesting appropriate statistical methods for questions and data at hand.

**Term-project:** You will team up with 1 other student to conduct the term-project. Each group is expected to undertake a policy relevant case study involving a statistical analysis of dataset of your choice. Only substantive requirement of the term-project is that your analysis should include at least one multiple regression model. Each group will find a dataset for the term project and make a 15-minute presentation towards the end of the semester. The websites that contain good datasets will be introduced by the library data services guest lecturer. In addition, several data sources will be listed on course website. Please note that these are indicative sources; please feel free to select datasets from other sources.

The paper is expected to be approximately 15 pages (double spaced, regular margins, normal font size). The paper should state: i) background and motivation for working on your research topic; ii) short literature review focusing on statistical studies on your topic; iii) key research/policy question/s and hypothesis; (iv) data description and descriptive analysis of interest variables in the dataset; (v) regression model; and (iv) summary and policy implications of your findings.

The descriptive analysis should include tables, plots and graphs constructed using Microsoft Excel. A well-written paper inadvertently refers and explains each table, plot and graph in the main text. The regression model section should contain the table that lists both dependent and independent variables. It should also specify the regression equation used for the analysis. It is very important to cite all the papers that you review, source of the datasets, and any other material used in the analysis (including software packages) – See University policy on plagiarism below. Please submit your final paper, dataset, and presentation in Microsoft Word, Excel, and PowerPoint formats respectively.

**Course Rubric:**

|  |  |  |
| --- | --- | --- |
| **Assignment/Deliverable** | **Number** | **Grade %** |
| 1. Policy Research Questions | 6 | 12 |
| 2. Homework – Problem Sets | 5 | 25 |
| 3. Take-home Mid-term Examination | 1 | 15 |
| 4. Take-home Final Examination | 1 | 20 |
| 5. Term-project (Paper 20% + Presentation 5%) | 1 | 25 |
| 6. Class Participation | 16 | 3 |

**Course**

**Policies:**

Class Preparation: PUBADM 620 is a rapidly moving course. Preparing for each class will guarantee learning. Class time will be most productive if all of us have completed required readings before each class. There will also be online tutorials posted each week on course website. It is important that you review those materials as well before the class.

The required readings are consciously kept short, commuter-friendly, and pleasant to allow you more time to review the concepts. You will learn more by puzzling over a problem than by reading chapters twice or memorizing formulas. Keep asking this question to yourself for each new statistical method you learn in this class: how can I use this statistical concept to analyze public policy issue of my interest? You will have a veto over ongoing activities in the class: I encourage you to stop me any time during the class and simply ask, "How is this Relevant for Public Affairs?" We will stop right there and spend time on public policy/administration relevance of the concept under discussion at that moment. Some of the in-class activities require preparation before the class. It is your responsibility to create a positive learning environment by preparing adequately, arriving promptly, attending classes regularly, asking questions in class, listening to alternative views, and engaging in constructive debates. **As a guiding principle, for EACH hour you spend in the classroom, please set aside TWO additional hours in your weekly schedule.**

# Grading

**Grading:** Grade type for the course is a whole or partial letter grade. (Please see table below)

Note: the lowest passing grade for a graduate student is a “C”. Grades lower than a “C” that are submitted by faculty will automatically be recorded as an “F”.

Please see the Graduate Catalog for more detailed information on the University’s grading policy.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Grading Policy** | | | | |
| **Letter Grade** | **Percentage** | **Quality Points** |
| A | 93-100% | 4.00 |
| A- | 90-92% | 3.75 |
| B+ | 87-89% | 3.25 |
| B | 83-86% | 3.00 |
| B- | 80-82% | 2.75 |
| C+ | 77-79% | 2.25 |
| C | 73-76% | 2.00 |
| F | 0-72% | 0.0 |
| **INC** | A grade of Incomplete (INC) is not automatically awarded when a student fails to complete a course. Incompletes are given at the discretion of the instructor. They are awarded when satisfactory work has been accomplished in the majority of the course work, but the student is unable to complete course requirements as a result of circumstances beyond his/her control. The student must negotiate with and receive the approval of the course instructor in order to receive a grade of incomplete | N/A |
| IF | Received for failure to comply with contracted completion terms. | N/A |
| W | Received if withdrawal occurs before the withdrawal deadline. | N/A |
| AU | Audit (only permitted on space-available basis) | N/A |
| NA | Not Attending (student appeared on roster, but never attended class. Student is still responsible for tuition and fee charges unless withdrawal form is submitted before deadline. NA has no effect on cumulative GPA.) | N/A |

**Required**

**Text(s):** Wheelan, Charles. *Naked Statistics: Stri9pping the Dread from the Data.* New York: W.W. Norton and Company. ISBN-978-0-393-34777-7.

**-----------------------------------------End of BHE section no more than 5 pages------------------------------------**

**Technical**

**Requirements:** Microsoft Excel 2016. You will be required to register with Khan Academy ([www.khanacademy.org](http://www.khanacademy.org)) for watching required short clips and completing optional exercises, registration is free.

**Recommended**

**Texts** Please use Khan Academy for refreshing basic Math concepts.

**Other**

**Reading:** Instructor may post readings/notes as and when required on course website.

# Course Schedule

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| --- | --- | --- | --- |
| **Session** | **Date** | **Topic** | **Assignment Due Alert** |
| 1 | 01/25 | Introduction to Statistical Methods for Policy Analysis  Overview of the Course  How is Statistics Relevant to Policy Analysis?  Introduction to Excel for Statistical Analysis  Reading: None | Interest Survey |
| 2 | 02/01 | Describing Data: Measures of Central Tendency and Dispersion using Excel  Reading: Wheelan Ch.1 & 2, Appendix: Statistical Software | Policy Research Question 1 |
| 3 | 02/08 | Data Sources for Term-Project (Presentation by Ms. from Healey Library)  Brainstorming for Project Proposals  Describing Data: Measures of Central Tendency and Dispersion (Review)  Probability Basics  Problem Set 2 Distributed  Reading: Wheelan Ch. 7  Optional Reading: Wheelan Ch. 5, 51/2, & 6 | Problem Set 1 Due  (CITI Training Certificate) |
| 4 | 02/15 | Hypothesis Testing Part I  Reading: Wheelan Ch. 9 | Policy Research Question 2 |
| 5 | 02/22 | Hypothesis Testing Part II  Problem Set 3 Distributed  Reading: Wheelan Ch. 10 | Problem Set 2 Due |
| 6 | 03/01\* | Hypothesis Testing Part III  Reading: Wheelan Ch. 9 & 10 | Policy Research Question 3 |
| 7 | 03/08 | Review for mid-term Exam  Dataset Consultation for Term-Project  Mid-term Exam Distributed  Reading: Wheelan Ch. 3 | Problem Set 3 Due |
|  | 03/15 | Spring Break (Class does not meet) | |
| 8 | 03/22 | Chi-Square Tests, Goodness of fit, Contingency tables | Mid-term Exam Due |
| 9 | 03/29 | Measures of Association  Introduction to Ordinary Least Square Regression  Problem Set 4 Distributed  Reading: Wheelan Ch. 4  Reading: Wheelan Ch. 8 | Term-Project Proposals Due |
| 10 | 04/05\* | Simple Regression Continued  Introduction to Multiple Regression  Reading: Wheelan Ch. 11 | Policy Research Question 4 |
| 11 | 04/12 | Multiple Regression Continued  Problem Set 5 Distributed  Reading: Wheelan Ch. 12 | Problem Set 4 Due |
| 12 | 04/19\*\* | Regression Diagnostics  Log-Log/Log-Level/Level-Log Models  Reading: Wheelan Ch. 11 & 12 | Policy Research Question 5 |
| 13 | 04/26 | Comprehensive Review  Final Exam Distributed  Reading: Ch. 13 & Conclusion | Problem Set 5 Due |
| 14 | 05/03 | Introduction to ANOVA  Introduction to Logistic Regression  Introduction to Time Series Analysis  Project Consultation | Policy Research Question 6 |
| 15 | 05/10 | Project Presentations I | Project Presentations I, Final Exam Due |
| 16 | 05/17 | Project Presentations II | Project Presentations II, Term-paper Due |

\* Classes followed by a weekend workshop. \*\* Class followed by the Tax Day

# Methods of Instruction

The class-time will be spent on three distinct type of activities: i) acquiring core of the statistical concepts through hands-on exercises; ii) understanding statistical concepts through lecturing; and iii) mastering software skills to implement statistical concepts with the actual data in Microsoft Excel. Majority of the class time will keep you active; lecturing will be minimal. Your active participation is the key to achieve our learning outcomes.

# Accommodations

The University of Massachusetts Boston is committed to providing reasonable academic accommodations for all students with disabilities. This syllabus is available in alternate format upon request. If you have a disability and feel you will need accommodations in this course, please contact the Ross Center for Disability Services, Campus Center, Upper Level, Room 211 at 617.287.7430. <http://www.umb.edu/academics/vpass/disability/> After registration with the Ross Center, a student should present and discuss the accommodations with the professor. Although a student can request accommodations at any time, we recommend that students inform the professor of the need for accommodations by the end of the Drop/Add period to ensure that accommodations are available for the entirety of the course.

# Academic Integrity and the Code of Student Conduct

***Code of Conduct and Academic Integrity***

It is the expressed policy of the University that every aspect of academic life--not only formal coursework situations, but all relationships and interactions connected to the educational process--shall be conducted in an absolutely and uncompromisingly honest manner. The University presupposes that any submission of work for academic credit is the student’s own and follows University policies, including its policies on appropriate citation and plagiarism. These policies are spelled out in the Code of Student Conduct. Students are required to adhere to the Code of Student Conduct, including requirements for academic honesty, as delineated in the University of Massachusetts Boston Graduate Catalogue and relevant program student handbook(s).[UMB Code of Student Conduct](http://www.umb.edu/life_on_campus/policies/code/)

You are encouraged to visit and review the UMass website on *Correct Citation and Avoiding Plagiarism:* http://umb.libguides.com/citations

# Other Pertinent and Important Information

You are advised to retain a copy of this syllabus in your personal files for use when applying for future degrees, certification, licensure, or transfer of credit.