

# PIA3607: ADVANCED RESEARCH METHODOLOGY

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## Effective Term

Semester B 2022/23

## Part I Course Overview

### Course Title

Advanced Research Methodology

### Subject Code

PIA - Public and International Affairs

### Course Number

3607

### Academic Unit

Public and International Affairs (PIA)

### College/School

College of Liberal Arts and Social Sciences (CH)

### Course Duration

One Semester

### Credit Units

3

### Level

B1, B2, B3, B4 - Bachelor's Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

POL/PIA 2603 Social Science Research Methods / AIS/PIA2012

### Precursors

Nil

### Equivalent Courses

POL3607 Advanced Research Methodology

### Exclusive Courses

Nil

## Part II Course Details

### Abstract

This course is the second of a two-semester sequence that introduces students to the vocabulary, concepts, and methods of social research with application to policy analyses. Having acquired a solid conceptual grasp of different approaches to identifying and synthesizing pertinent literature, different paradigms of policy inquiries, and various techniques for conducting scientifically and ethically sound research in the first part of the sequence, this second course focuses on (i) hands-on skills in managing quantitative data and (ii) statistical research designs for causal inference. Serving as a compulsory course for all candidates pursuing the Bachelor's degree in Public Policy and Politics, this course ultimately aims to hone students' knowledge of and practical skills in choosing appropriate strategies and procedures to collect, manage, analyse, interpret, and report quantitative data in social research. Upon completion of this course, students will be capable of employing suitable methods to address the key empirical puzzles raised in their independent research (i.e., final-year capstone project).

### Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Identify research questions and determine to what extent they can be answered with data and identify the kind of data that can shed light on these research questions.		x	x	x
2	Identify, collect, process, and manage data to allow for analysis.		x	x	x
3	Describe and visualize data using software.		x	x	x
4	Identify appropriate ways of analysing a given data set to answer a research question and conduct the analysis using software.		x	x	x
5	Critically assess assumptions and consider alternative explanations.		x	x	x
6	Communicate insights from data analysis effectively and engagingly.		x	x	x

#### A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

#### A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

#### A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

### Teaching and Learning Activities (TLAs)

TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	1	Introduction of basic knowledge and skills in lectures	1, 2, 3, 4, 5, 6

2	2	Case examples and in-class exercises in lecture	1, 2, 3, 4, 5, 6	
3	3	Class interaction and feedback sessions in lectures	1, 2, 3, 4, 5, 6	
4	5	Individual and group study outside scheduled classes and tutorials	1, 2, 3, 4, 5	

### Additional Information for TLAs

#### Software Requirements

The methods covered in this course require the use of software. To provide all students with a toolset that they will be able to use beyond their studies and be able to access from a device of their choice, the course will rely on the R language and its packages for data management and analysis. The software is freely available to anyone. The instructor will guide students on how to access and use it through cloud-based resources, freeing students of the need to install the software locally. The instructor will, however, also instruct students how to install it on their computers. Whichever approach students choose, they will need to bring a laptop or tablet with a keyboard to all class meetings, as the instructor will make frequent use of R during meetings, including for interactive exercises. If class meetings are held partially or fully online, students are encouraged to access the meeting through one device and use R on another.

#### Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Group Project	1, 2, 3, 4, 5, 6	20	Research Proposal using one method covered in the course
2	Two Problem Set	1, 2, 3, 4	40	(20% each) Two homework containing typical statistical questions
3	Final Test	1, 2, 3, 4	40	This Test, which involves questions about materials covered in lectures, in-class exercises, and readings, examines students' understanding of the core concepts and skills in the analysis of quantitative data.

#### Continuous Assessment (%)

100

#### Examination (%)

0

#### Assessment Rubrics (AR)

##### Assessment Task

Group Project

##### Excellent (A+, A, A-)

Strong ability to identify the problem so that it can be addressed with econometrics. Highly successful user of quantitative empirical analysis (collect suitable data, select the appropriate methodology, and perform the analysis with statistical

software). Excellent ability to evaluate the credibility, validity and robustness of quantitative research arguments. Demonstration of excellent research, teamwork, and presentation skills.

**Good (B+, B, B-)**

Sufficient ability to identify the problem so that it can be addressed with econometrics. Successful user of quantitative empirical analysis (collect suitable data, select the appropriate methodology, and perform the analysis with statistical software). Very good ability to evaluate the credibility, validity and robustness of quantitative research arguments. Demonstration of very good research, teamwork, and presentation skills.

**Fair (C+, C, C-)**

Some ability to identify the problem so that it can be addressed with econometrics. Competent user of quantitative empirical analysis (collect suitable data, select the appropriate methodology, and perform the analysis with statistical software). Good ability to evaluate the credibility, validity and robustness of quantitative research arguments. Demonstration of good research, teamwork, and presentation skills.

**Marginal (D)**

Poor ability to identify the problem so that it can be addressed with econometrics. Limited user of quantitative empirical analysis (collect suitable data, select the appropriate methodology, and perform the analysis with statistical software). Limited ability to evaluate the credibility, validity and robustness of quantitative research arguments. Demonstration of some research, teamwork, and presentation skills.

**Failure (F)**

Unable to identify a researchable problem that can be addressed with econometrics. Poor user of quantitative empirical analysis (collect suitable data, select the appropriate methodology, and perform the analysis with statistical software). Little or no ability to evaluate the credibility, validity and robustness of quantitative research arguments. Demonstration of little or no research, teamwork, and presentation skills.

**Assessment Task**

Problem Sets

**Excellent (A+, A, A-)**

All important concepts, cases, and learning materials are very clearly understood. Demonstration of excellent critical thinking and analysis skills. Excellent ability to select and apply appropriate econometric tools to answer any given question.

**Good (B+, B, B-)**

All important concepts, cases, and learning materials are understood. Demonstration of very good critical thinking and analysis skills. Very good ability to select and apply appropriate econometric tools to answer any given question.

**Fair (C+, C, C-)**

All important concepts, cases, and learning materials are adequately understood. Demonstration of good critical thinking and analysis skills. Good ability to select and apply appropriate econometric tools to answer any given question.

**Marginal (D)**

All important concepts, cases, and learning materials are marginally understood. Demonstration of some critical thinking and analysis skills. Some ability to select and apply appropriate econometric tools to answer any given question.

**Failure (F)**

All important concepts, cases, and learning materials are hardly understood. Demonstration of little or no critical thinking and analysis skills. Fail to select and apply appropriate econometric tools to answer any given question.

**Assessment Task**

Final Test

**Excellent (A+, A, A-)**

Same as above

**Good (B+, B, B-)**

Same as above

**Fair (C+, C, C-)**

Same as above

**Marginal (D)**

Same as above

**Failure (F)**

Same as above

**Part III Other Information****Keyword Syllabus**

Data management and analysis, causal inference

**Reading List****Compulsory Readings**

	<b>Title</b>
1	Angrist, Joshua D., and Jörn-Steffen Pischke. Mostly harmless econometrics: An empiricist's companion. Princeton university press, 2008.
2	Gujarati, D. 2012. Econometrics by Example, McGraw-Hill Education
3	Angrist, Joshua D. and Jörn-Steffen Pischke. 2015. Mastering 'Metrics: The Path from Cause to Effect. Princeton, NJ: Princeton University Press.

**Additional Readings**

	<b>Title</b>
1	For a deep and thoughtful review of relevant concepts from POL 2603: Freedman, David A., Robert Pisani, and Roger A. Purves. 2007. Statistics. 4th edition. New York: W.W. Norton & Co.
2	For further review of these concepts, and for a more mathematical background of topics discussed in the present course: Freedman, David A. 2005. Statistical Models: Theory and Practice. Cambridge and New York: Cambridge University Press.