

# An Undergraduate's Guide to Political Methodology and Formal Theory

Revised for 2007-2008

Writing a thesis?  
Going into consulting?  
Applying for graduate school or law school?  
Take a PM/FT course in the Gov Department!

To write a good senior thesis in the social sciences, you need to understand how to ask your question, research your topic, and frame your answer. In the social sciences, applied research methodology falls into two categories:

- political methodology, which covers methods for finding and analyzing data; and
- formal theory, which uses rational choice theory and game theory to simplify empirical complexities into stylized models.

If you understand good research methodology, you can use it to write a *better* senior thesis. If you learn to enjoy research, it will help you professionally in a variety of fields, including law, consulting, and academia. This guide suggests a few courses that will help you acquire skills desired by top law schools, top consulting firms, and top graduate schools. The work you do in these courses *might even get you published*.

Seniors writing quantitative theses are strongly encouraged to take Gov 2000 and Gov2001—and if you can take those two courses in your junior year, all the better. Gov2000 is a rigorous introduction to basic statistical models for political science, and provides good training on the R statistical software as well. Gov2001 encourages students to identify an empirical question, replicate a known paper on that topic, and expand on the published results. Thesis writers will produce a third to a half of their theses.

Freshmen, sophomores, and juniors who are considering writing theses should take an introductory course or a calculus class early so that they can take more courses in the sequence.

In many of these methods courses, you need some math background, primarily single variable integral and differential calculus. Any prior Math, Applied Math, or Statistics courses will be useful, however the necessary math background might depend on your specific interests, so consult with your Concentration Advisor. Generally, Math 1B is essential, and Math 20 or 21A and 21B can be very helpful.

With all graduate level classes, it is recommended that you speak to the professor about the class and obtain their permission. In most of these courses, undergraduates are welcome to take the course and are encouraged to participate.

Classes to consider:

*Interested in political methodology with no math or stats background?*

Quantitative – QR32, QR33, QR36, Gov50 / Qualitative - Gov1005, Gov1010

*Interested in Political Methodology with some math, or wanting a more rigorous track?*

Quantitative - Gov 2000, Gov2001, Gov 2002, Gov2003

Qualitative - Gov2009, Gov2010

*Interested in Formal Theory with limited mathematical background?*

QR38, SA46

*Interested in Formal Theory with some math or wanting a more rigorous track?*

Gov2004, Gov2005, Gov2006, Gov2012, Gov2158, Gov2160, Gov2162

Non-Government concentrators should check the descriptions on the back of this sheet for classes that suit their interests.

# Short Summaries of PM/FPT Courses Offered \*

## Political Methodology, primarily undergraduate:

Freshman Seminar 22z – quantitative methods in public policy, specifically for freshmen only

QR32 – basic introduction to statistical reasoning and uncertainty, data and probability specifically for undergrads

**QR33** – introduction to causal inference, specifically for undergrads

QR36 – basic introduction to statistical methods, use in public policy, specifically for undergrads

**Gov50** – introduction to quantitative methodology, emphasis on multiple regression and research design, specifically for undergrads

Gov1005 – intro to research design, political uses of data, logical exercises, how to design a problem, research methodology, useful for quantitative research / writing, highly valuable to thesis writers, specifically for undergrads

**Gov1010** – introduction to survey research

**Gov2001** – perfect for senior thesis writers, introduction to statistical inference and theories, development of new approaches to research, data analysis and statistical theory

## Political Methodology, primarily graduate, but undergraduates welcomed and encouraged:

**Gov 2000** – perfect for senior thesis writers, basic probability theory and some math prep, learn and use basic R, departmental requirement for Gov grad students, primarily for graduates but open to qualified undergrads

**Gov2002** – prerequisite Gov1000 or equivalent, robust methods of generalized linear models, time series

**Gov2003** – prerequisite Gov1000 or equivalent, Bayesian inference, hierarchical models dealing with cluster data, some programming in R with non-standard models

Gov2009 – basic principles of research design, case selection, comparison, measurement, and causal relations

**Gov2010** – research design, assessment of scholarly literature, good as preparation for senior thesis research

## Formal Theory, primarily undergraduate:

QR38 – basic introduction to game theory, all IR political examples, good grounding for 2005/2006, specifically for undergrads

**SA46** – basic introduction to rational choice theory, specifically for undergrads

## Formal Theory, primarily graduate:

Gov2004 – joint KSG, rational choice theory, organizational behavior, intergovernmental relations, multi-level game theory, bureaucratic politics, cognition and perception, limited enroll.

**Gov2005** – intro to graduate level game theory, must attend twice weekly Ec2020a lectures

**Gov2006** – game theory, cont of Gov2005, must attend twice weekly Ec2020b lectures

Gov2012 – formal models in American politics

Gov2738 – graduate level game theory and international relations

Gov2740 – statistical modeling: process, learning, universal, contextual, and synthetic models; spatial theories, equilibration & optimization, strategic interaction, mainly international security affairs examples

Gov2742 – quantitative approach to conflict/war, review of literature, journal-quality final paper

Gov2744 – statistical modeling in security and international political economy

## Formal Theory (political economy) primarily graduate:

Gov2158 – political economy course: political institutions / policy, micro orientation (i.e. interest groups, etc), bright undergrads welcome, different grading standards/requirements for undergrads

Gov2160 – political economy course: political institutions / policy, macro perspective (i.e. fiscal/monetary policy, welfare state), well-qualified undergrads welcome different grading standards/requirements for undergrads

**Gov2162** – current topics in political economy, graduate level, well-qualified undergrads welcome, recommended Gov2158 and/or Gov2160

\* **Courses offered this year are bolded.**

For more information, see: <http://gking.harvard.edu/qr>, talk to a Concentration Advisor, or ask questions of an individual professor (see course catalogue or link above) about a specific class.