Department of Political Science
Political Methodology Field Statement

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The field of political methodology includes training in quantitative and formal methodology, in preparation for applying and developing new methods for the scientific study of politics. Students designating political methodology as a first, second, or third field must complete either the *quantitative methods stream* or the *formal methods stream*.

The quantitative methods stream includes causal inference and the analysis of experiments, model based and Bayesian inference, visualizing data, sampling for survey based research, the analysis of spatial data, and machine learning for prediction and description.

The formal methods stream includes individual and social choice theory, game theory and behavioral models.

Students who select political methodology as a first or second field must also take a qualifying exam. Students who select political methodology as a third field need not take the qualifying exam.

**Basic Training:**

The following classes are required of all students in the Ph.D. program regardless of field.

- Introduction to Political Methodology - Intensive 3-week camp for new graduate students
- PS 450A - Political Methodology 1
- PS 450B - Political Methodology 2

**Political Methodology as a First or Second Field:**

**Quantitative Methods Stream:**

1. **Core Methodology Courses.** In addition to PS 450A and B, the following courses are required for all students who select the quantitative methodology stream as a first, second, or third field. We encourage all graduate students intending to do empirical work to take the entire sequence.
   - PS 450C – Political Methodology 3
   - PS 450D – Political Methodology 4

2. **Advanced Class.** Students who select the quantitative methodology stream as a first or second field must complete one additional advanced course. The advanced class, and the number of units it is taken for (if a variable unit option is offered), must be approved by the field convenor.

   Classes that qualify as the advanced class include, but are not limited to:

   *Political Science*
   - 357: Sampling and Surveys
• 358: Data Driven Politics
• 451: Design and Analysis of Experiments
• 452: Text as Data

Statistics
• 211 Meta-research: Appraising Research Findings, Bias, and Meta-analysis
• 217 Introduction to Stochastic Processes
• 229 Machine Learning
• 261 Intermediate Biostatistics: Analysis of Discrete Data
• 262 Regression, Prediction and Survival Analysis
• 270: A Course in Bayesian Statistics
• 305 Introduction to Statistical Modeling
• 306 Methods for Applied Statistics
• 310 Theory of Probability
• 315 Modern Applied Statistics
• 324 Multivariate Analysis
• 362 Monte Carlo Sampling
• 363: Design of Experiments

Economics
• Econometrics classes such as Econ 270 and Econ 271.

Computer Science
• 224W Social and Information Network Analysis

Economic Analysis and Policy
• MGTECON 640: Quantitative Methods for Empirical Research

Formal Methods Stream:

1. Students who select the formal methods stream as a first or second field are required to take one of the following introductory courses:

   • 352 Intro to Game Theoretic Methods in Political Science (not offered 2016-17)
   • 356A Formal Theory I: Introduction to Game Theory
   • Econ 180: Honors Game Theory

2. Students who select the formal methods stream as a first or second field are also required to take three additional advanced courses. The advanced classes, and the number of units they are taken for (if a variable unit option is offered), must be approved by the field convenor. These include, but are not limited to:

   • 356B Formal Theory II: Models of Politics
   • Courses in the three course PS 351 sequence (listed as Polecon 680, 681, 682)
   • Econ 203N Core economic, game theory and industrial organization
   • Econ 220 Political Economy I
   • Econ 281 Economics of uncertainty
   • Econ 282 Contracts, information and incentives
   • Econ 296 Game theory and economic applications
Students should consult with the field convener for advice and approval to take classes not specifically mentioned above. Students who believe they have a strong understanding of the content of the first courses in their chosen stream (450A and B for the quantitative methods stream or 352, 356A or Econ 180 for the formal methods stream) may take a placement exam. It is extremely rare that any student will enter graduate school with sufficient training to opt out of our sequence.

Qualifying Field Exam:

A qualifying exam will be written specific to each stream. Students should inform the methods field convenor that they intend to take the exam well in advance; this allows the faculty to coordinate and to tailor an exam to the student’s stream. For the quantitative methods stream the qualifying exam will cover the material from the basic training and the core methodology courses (450A-D) so the exam can be taken before the completion of the additional advanced course.

Political Methodology as a Third Field:

Students who select political methodology as a third field must take all classes from the same stream, quantitative methods or formal methods.

1. Students who choose the quantitative methods stream as a third field must take 450C and 450D each in addition to the basic training (450A and B) required of all students in the program.

2. Students who choose the formal methods stream as a third field must take PS 356A and B or two formal theory courses approved by the field convenor.
Requirements for students who declared Political Methodology as a field before 2014-15:

Students who designated Political Methodology as a major field before 2014-15 must complete either the quantitative methods stream or formal methods stream. Students designating Political Methodology as a third field before 2014-15 do not have to take all courses from the same stream.

Political Methodology Field Requirements:

(a) **Basic Training.** The following methodology classes are required of all students in the Ph.D. program regardless of field:
- PS 450A - Political Methodology 1
- PS 450B - Political Methodology 2

(b) **Advanced Classes.** Three advanced classes in the student’s designated stream:
In the **quantitative methods** stream, these include (but are not limited to), PS 450C (Political Methodology III), PS 357 (Sampling and Surveys), PS 451 (Design and Analysis of Experiments) and advanced classes in econometrics and statistics. Examples of advanced classes in the Statistics Department include (but are not limited to):
- 209 Understanding Statistical Models and their Social Science Applications
- 211 Statistical Methods in Meta-Analysis
- 217 Introduction to Stochastic Processes
- 261 Analysis of Discrete Data in Epidemiology
- 262 Regression, Prediction and Survival Analysis
- 306 Methods for Applied Statistics
- 310 Theory of Probability
- 315 Modern Applied Statistics
- 324 Multivariate Analysis
- 353 Spatial Statistics
- 354 Bootstrapping
- 362 Monte Carlo Sampling
- 372 Nonparametrics
- Econometrics classes such as Econ 270 and Econ 271 count as advanced classes.

In the **formal methods** stream, the advanced classes include (but are not limited to):
- Three course PS 351 sequence (also listed as Polecon 680, 681, 682)
- Econ 203N Core economic, game theory and industrial organization
- Econ 281 Economics of uncertainty
- Econ 282 Contracts, information and incentives
- Econ 296 Game theory and economic applications

Students should consult with the field convener for advice and approval of classes not specifically mentioned above.

(c) **Field Exam.** A qualifying exam will be written specific to each stream. Students should inform the methods field convener that they intend to take the exam well in advance; this allows the faculty to coordinate and to tailor an exam to the student’s stream and particular course of study.