The following requirements apply to students who enter the PhD program in 2017-18 and after.

Refer to Chapter 2 of the Program Guide for additional important information on the department’s requirements for advancing to candidacy.

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.

**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

While only 450A and 450B are required, we encourage all graduate students intending to do empirical work to take the entire sequence (450 A, B, C and D).

**Quantitative Methodology Stream**

**Pre-candidacy Requirements for 1st Field Quantitative Methodology Students**

In order to be eligible to advance to candidacy with Quantitative Methodology as a first field, students must:

1. Complete 450A, B, C, D with grades of B or better.

2. Complete one advanced class with a grade of B or better. See page 2 of this document for a list of preapproved advanced class options. Students must receive written approval from the field convenor to count a class not on this list as their advanced class requirement. The number of units the advanced class is taken for (if a variable unit option is offered), must be approved by the field convenor.

3. Complete a polished field paper. See section 2.4 of the Program Guide for additional details on the field paper requirement.
4. Pass a comprehensive exam in spring of their second year, prior to advancing to candidacy. A qualifying exam will be written specific to each 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.

Pre-candidacy Requirements for 2nd Field Quantitative Methodology Students

In order to be eligible to advance to candidacy with Quantitative Methodology as a second field, students must:

1. Complete 450A, B, C, D with grades of B or better.
2. Complete one advanced class with a grade of B or better. See page 2 of this document for a list of preapproved advanced class options. Students must receive written approval from the field convener to count a class not on this list as their advanced class requirement.

2nd field quantitative methods student must also:

3. Pass a comprehensive exam by the end of their third year. Students declaring Quantitative Methodology as a second field do not need to pass the exam prior to advancement to candidacy. The qualifying exam will cover the material from the basic training and the core methodology courses (450A-D).

Pre-candidacy Requirements for 3rd Field Quantitative Methodology Students

In order to be eligible to advance to candidacy with Quantitative Methodology as a third field, students must:

1. Complete 450C and 450D with grades of B or better in addition to the basic training (450A and B) required of all students in the program. 450C and D must be taken for at least three units each.

Students who select political methodology as a third field must take all classes from the same stream, quantitative methods or formal methods. Students who select either stream as a third field need not take the comprehensive exam.

Advanced Class Options- Quantitative Methodology

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

Political Science
- 357 Sampling and Surveys (not offered 2017-18)
- 358 Data Driven Politics
- 451 Design and Analysis of Experiments (not offered 2017-18)

Communication
- 382 Research in Computational Social Science

Statistics
- 200 Introduction to Statistical Inference
- 203 Introduction to Regression Models and Analysis of Variance
• 211 Meta-research: Appraising Research Findings, Bias, and Meta-analysis
• 217 Introduction to Stochastic Processes
• 229 Machine Learning (also listed as CS 229)
• 261 Intermediate Biostatistics: Analysis of Discrete Data
• 262 Regression, Prediction and Survival Analysis
• 270 A Course in Bayesian Statistics
• 290 Paradigms for Computing with Data
• 300A: Theory of Statistics I
• 305A Introduction to Statistical Modeling
• 305B or 305C 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, Econ 271 or Econ 272
• 292 Quantitative Methods for Empirical Research
• 293 Machine Learning and Causal Inference

**Computer Science**

• 224W Social and Information Network Analysis
• 246 Mining Massive Data Sets

**Economic Analysis and Policy**

• MGTECON 640 Quantitative Methods for Empirical Research
• 603 Econometric Methods I
• 605 Econometric Methods III

**Exemption from Required Methods Classes**

Students who believe they have a strong understanding of the content of 450A and B may take a placement exam. Students should speak to the field convener if they are interested in pursuing this option. It is extremely rare that any student will enter graduate school with sufficient training to opt out of our sequence.
Formal Methodology Stream

Pre-candidacy Requirements for 1st Field Formal Methodology Students:

In order to be eligible to advance to candidacy with Formal Methods as a first field, students must:

1. Complete one of the following introductory courses with a grade of B or better
   - 352 Intro to Game Theoretic Methods in Political Science (not offered 2017-18)
   - 356A Formal Theory I: Introduction to Game Theory
   - Econ 180: Honors Game Theory

2. Complete three additional advanced courses with grades of B or better. See page 4 of this document for a list of preapproved advanced class options. Students must receive written approval from the field convener to count a class not on this list as their advanced class requirement. The number of units the advanced classes are taken for (if a variable unit option is offered), must be approved by the field convener.

3. Complete a polished field paper. See section 2.4 of the Program Guide for additional details on the field paper requirement.

4. Pass a comprehensive exam in spring of their second year, prior to advancing to candidacy.

Pre-candidacy Requirements for 2nd field Formal Methodology Students:

In order to be eligible to advance to candidacy with Formal Methods as a second field, students must:

1. Complete one of the following introductory courses with a grade of B or better
   - 352 Intro to Game Theoretic Methods in Political Science (not offered 2017-18)
   - 356A Formal Theory I: Introduction to Game Theory
   - Econ 180: Honors Game Theory

2. Complete three additional advanced courses with grades of B or better. See page 5 of this document for a list of preapproved advanced class options. Students must receive written approval from the field convener to count a class not on this list as their advanced class requirement. The number of units the advanced classes are taken for (if a variable unit option is offered), must be approved by the field convener.

2nd field formal methods student must also:

3. Pass a comprehensive exam by the end of their third year. Students declaring Formal Methods as a third field do not need to pass the exam prior to advancement to candidacy.

Pre-candidacy Requirements for 3rd Field Formal Methodology Students

In order to be eligible to advance to candidacy with Formal Methods as a third field, students must:
1. Complete PS 356A and B or two formal theory courses approved by the field convenor. Classes taken to fulfill the 3rd field requirement must be completed with grades of B or better and must be taken for at least three units each.

Students who select political methodology as a third field must take all classes from the same stream, \textit{quantitative methods} or \textit{formal methods}. Students who select either stream as a third field need not take the qualifying exam.

\textbf{Advanced Class Options- Formal Methods}

- 356B Formal Theory II: Models of Politics
- Polecon 680, 681, 682
- Econ 203 or 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 286 Game theory and economic applications

\textbf{Exemption from Required Classes}

Students who believe they have a strong understanding of the content of the first course (352, 356A or Econ 180) may take a placement exam. Students should speak to the field convenor if they are interested in pursuing this option. It is extremely rare that any student will enter graduate school with sufficient training to opt out of our sequence.