

PROPOSAL FOR A GRADUATE CERTIFICATE IN SOCIAL SCIENCE METHODOLOGY

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One of Stanford's greatest strengths in the social sciences is methodology. Each social science has preferences among methodological approaches, but there is an increasingly large overlap in the techniques being used across disciplines. The purpose of the graduate certificate in social science methodology is to provide Stanford Ph.D. students who have strong interests in developing methodological skills with recognition for advanced training in research methods, both quantitative and qualitative, beyond that offered by any single department.

Specifically, the certificate program seeks to:

- Facilitate a coherent and integrated understanding of methodological approaches in the social sciences.
- Facilitate communication across disciplinary boundaries.
- Produce scholars whose work has important impact internationally.
- Produce scholars whose research is of the highest quality.

The Graduate Certificate is intended to confirm that a graduate student has acquired methodological expertise through coursework offered across university departments. Students who complete the requirements will receive a certificate from MAPSS certifying that.

The program will be administered by a faculty program coordinator. Participation in the program is open to any Stanford PhD student with an interest in social science research methodology.

Demand and Precedence

The demand for such a program is evidenced by the abundant voluntary involvement of graduate students on the MAPSS Steering Committee and the MAPSS colloquium series, representing numerous departments and methodological traditions. These students are interested in expanding their methodological skill set through taking advantage of the resources available in other departments at Stanford. In addition, the appendix to this document displays comments made by a variety of graduate students expressing their enthusiasm for the certificate.

Stanford currently offers graduate certificate programs in more than a dozen fields. Each program focuses study in a particular area through a set of three to five Stanford courses. Most certificates are awarded by the Stanford Center for Professional Development, but some are offered by other units

(e.g., the GSB, the statistics department); the programs are all open to any Stanford student. Below is a listing of the programs¹ and their requirements. Additional information about each program is attached to the end of this document.

Program	# of Courses	# Compulsory	# Electives
Aeronautics/Astronautics	5	5	5
Computational Genomics	3	2	1
BioMedical Informatics	3	3	
Computer Science (multiple certificate programs)	4-5	3-4	1
Electrical Engineering (multiple certificate programs)	4	2	2
International Security	3	3	
Risk Analysis (MS&E)	4	4	
MS&E	4		4
Materials at the Nanoscale (Material Science & E)	3		3
Cardiovascular Bioengineering (MechE)	3	3	
Computational Fluid Dynamics (MechE)	4	1	3
Design for Customer Value (MechE)	3	2	1
Fluids (MechE)	4	3	1
Computer Security	3 (modules)	3	
Public Management (GSB)	16 units		16 units
Product Creation & Innovative Manufacturing	4	3 (component areas)	1
Global Management (GSB)	5	1	4
Quant Methods in Finance and Risk Management (Stat)	3	3 of 5	
Data Mining and Applications (Stat)	3	3 of 4	

A certificate program in social science research methods has substantial precedent at other universities. Of the top 50 American universities², 24% offer an interdisciplinary advanced research methods program in the social sciences, with most above the certificate level. Certificate programs are offered by Duke University, the University of Florida, the University of North Carolina--Chapel Hill, Ohio State University, the University of Michigan, and other schools. These programs require between 12-18 credit hours to complete. In addition, some foreign universities offer advanced research methods certification programs, such as the University of Queensland (AU) and The Open University (UK).

UC Santa Barbara offers a “PhD emphasis” - students create a unique course “contract” in consultation with an advisor and approved by a committee to gain methodological training. The

¹ Partial list only.

² U.S. News and World Report (2005) Rankings.

program requires participation in and attendance at a colloquium series, as well as a dissertation topic related in some way to methodology.

Attached is information about these programs.

Program	# of Courses	# Compulsory	# Electives
Duke University	6	1	5
University of Florida	4 (12 units)		4 (12 units)
UC Santa Barbara	7	4	3
Ohio State University (surveys)	5	3	2
University of Michigan (surveys)	5	4	1
University of North Carolina (surveys)	7-8	6	1-2
University of Queensland	4		4

Certificate Requirements

To earn a MAPSS certificate, Stanford graduate students already enrolled in a PhD program are required to satisfy the following conditions:

- Submit a “plan of study” form to be approved by the program coordinator to ensure sufficient breadth and depth. The form will list which courses the student plans to complete in order to earn the certificate.
- Three quarters of participation in and attendance at the MAPSS colloquium series.
- One presentation of an original research project in the MAPSS colloquium series. The project can be substantive. The presentation should present the substantive project with an emphasis placed on the methodologies used in the project.
- Satisfactory completion³ of one (1) graduate course on Research Design. A course is considered Research Design if the primary focus is on the appropriate ways to compose an appropriate plan of research to test theories and the resultant hypotheses. Any course listed on the MAPSS webpage with a primary focus on research design would be acceptable. Those courses required by the student’s home department **may** also count for the MAPSS Certificate. Candidates can also request that other courses be considered for approval as well, if their content is suitable. **Possible existing courses** include:
 - COMM 318 Communication Research Methods
 - OB670 Designing Organizational Research
 - OB678 Workshop in Behavioral Research
 - STATS230 Experimental Design
 - PSYCH 290 Graduate Research Methods

³ Satisfactory completion is defined as earning a letter grade indicator of 3.0 or better (B), as consistent with other certificate programs at Stanford.

- PSYCH296 Methods in Personality and Social Psychology
 - HRP251 Design and Conduct of Clinical Trials
 - ECON279 Experimental Economics
 - EDUC351 Design and Analysis of Longitudinal Research
 - EDUC257c Inference in Quantitative Educational and Social Science Research
 - LING274 Field Methods
 - ANTHSCI210 Examining Ethnographies
- Satisfactory completion of one (1) graduate course on Data Collection/Sampling. An appropriate course in Data Collection/Sampling will have an emphasis on methodological issues surrounding the collection of data and sampling, in addition it will focus on problems and possible solutions for data collection and sampling problems. Any course listed on the MAPSS webpage with a primary focus on data collection or sampling would be acceptable. Those courses required by the student's home department **may** also count for the MAPSS Certificate. Candidates can also request that other courses be considered for approval as well, if their content is suitable. **Possible existing courses** include:
 - COMM239 Questionnaire Design for Surveys and Laboratory Experiments
 - POLISCI442 Qualitative and Field Methods
 - PSYCH204 Computational Neuroimaging
- Satisfactory completion of four (4) additional advanced graduate research methods courses on any topics. Any course listed on the MAPSS webpage would be acceptable. Those courses required by the student's home department **may** also count for the MAPSS Certificate. Candidates can also request that other courses be considered for approval as well, if their content is suitable.

Current Methods Requirements by Department

The following table lists the methodology requirements of each social science department. Some allow students to substitute more advanced courses for lower courses or test out of lower courses. Below the table are the course descriptions listed in the 2005-06 Bulletin. This list shows that the MAPSS certificate requirement would entail some additional coursework beyond what is already required, but not a great deal.

Program	Required Courses
Anthropological Sciences (1)	ANTHSCI 192/292 Data Analysis in the Anthro Sciences
Communication (6)	COMM 206 Communication Research Methods COMM 317 Doctoral Research Methods I COMM 318 Doctoral Research Methods II or COMM 314 Doctoral Research Methods IIB COMM 319 Doctoral Research Methods III STAT 160 Intro. To Statistical Methods One additional advanced statistics course
Cultural/Social Anthropology(1)	CASA 302 Anthro Research Methods
Economics(3)	ECON 270 Intermediate Econometrics I

ECON 271 Intermediate Econometrics II
 ECON 272 Intermediate Econometrics III
 Summer math camp

Political Science(2)	350A Political Methodology I 350B Political Methodology II 2 week summer math camp
Psychology(2)	PSYC 252 Statistical Methods for Behavioral and Social Sciences PSYC 253 Statistical Theory, Models, and Methodology
Sociology (4)	SOC 381A Computer Assisted Data Analysis SOC 382 The Generalized Linear Model SOC 383 Advanced Models for Discrete Outcomes 1 additional advanced methods course
Education (PSE) (5)	An Inquiry Course (from a list of 25 approved courses) 4 additional core courses (mostly theory but each with a methods component)
Business (OB) (1)	MGTECON 603 Econometric Methods I

ANTHSCI 192. Data Analysis in the Anthropological Sciences—(Graduate students register for 292.) Univariate, multivariate, and graphical methods used for analyzing quantitative data in anthropological research. Archaeological and paleobiological examples. Recommended: algebra. (HEF V) GER:DB-Math

5 units, Win (Jones, Robertson)

COMM 106. Communication Research Methods—(Graduate students register for 206.) Conceptual and practical concerns underlying commonly used quantitative approaches, including experimental, survey, content analysis, and field research, in communication. GER:DB-SocSci

5 units, Win (Krosnick)

COMM 317. Doctoral Research Methods I—Approaches to social science research and their theoretical presuppositions. Readings from the philosophy of the social sciences. Research design, the role of experiments, and quantitative and qualitative research. Cases from communication and related social sciences. Prerequisite: consent of instructor.

1-5 units, Spr (Fishkin)

COMM 318. Doctoral Research Methods II—Prerequisite: consent of instructor.

1-5 units, Spr (Krosnick)

COMM 314. Doctoral Research Methods II B—Part of the doctoral research methods sequence. Focus is on the logic of qualitative research methods and modes of inquiry relevant to the study of communication and meaning. Prerequisite: Communication Ph.D. student, or consent of instructor.

1-5 units, Spr (Glasser)

COMM 319. Doctoral Research Methods III—Prerequisite: consent of instructor.

1-5 units, Spr (Luskin)

CASA 302. Anthropological Research Methods—Required of CASA Ph.D. students; open to all graduate students. Research methods and modes of evidence building in ethnographic research. Enrollment limited to 10.

5 units, Spr (Ebron)

ECON 170. Intermediate Econometrics I—(Graduate students register for 270.) Probability, random variables, and distributions; large sample theory; theory of estimation and hypothesis testing. Limited enrollment. Prerequisites: math and probability at the level of Chapter 2, Paul G. Hoel, *Introduction to Mathematical Statistics*, 5th ed.

2-5 units, Aut (Hansen, Mahajan)

ECON 171. Intermediate Econometrics II—(Graduate students register for 271.) Linear regression model, relaxation of classical-regression assumptions, simultaneous equation models, linear time series analysis. Limited enrollment. Prerequisite: 270.

5 units, Aut (Wolak)

ECON 172. Intermediate Econometrics III—(Graduate students register for 272.) Continuation of 271. Nonlinear estimation, qualitative response models, limited dependent variable (Tobit) models. Limited enrollment. Prerequisite: 271.

2-5 units, Win (MaCurdy)

POLISCI 150A. Political Methodology I—(Graduate students register for 350A.) Introduction to probability and statistical inference, with applications to political science and public policy. Prerequisite: elementary calculus. GER:DB-Math

5 units, Aut (Rivers)

POLISCI 150B. Political Methodology II—(Graduate students register for 350B.) Understanding and using the linear regression model in a social-science context: properties of the least squares estimator; inference and hypothesis testing; assessing model fit; presenting results for publication; consequences and diagnosis of departures from model assumptions; outliers and influential observations, graphical techniques for model fitting and checking; interactions among exploratory variables; pooling data; extensions for binary responses. GER:DB-Math

5 units, Win (Jackman)

PSYCH 252. Statistical Methods for Behavioral and Social Sciences—For students who seek experience and advanced training in empirical research. Analysis of data from experimental through factorial designs, randomized blocks, repeated measures; regression methods through multiple regression, model building, analysis of covariance; categorical data analysis through two-way tables. Integrated with the use of statistical computing packages. Prerequisite: 10 or equivalent.

1-6 units, Aut (Thomas)

PSYCH 253. Statistical Theory, Models, and Methodology—Practical and theoretical advanced data analytic techniques such as loglinear models, signal detection, meta-analysis, logistic regression, reliability theory, and factor analysis. Prerequisite: 252 or EDUC 257.

3 units, Spr (Thomas)

SOC 381A. Sociological Methods 1A: Computer-Assisted Data Analysis—The computer as research tool. Common data sets in the social sciences. Necessary skills for further courses in sociological methodology.

3 units (Everton) not given 2005-06

SOC 382. Sociological Methodology II: The General Linear Model—The general linear model for discrete and continuous variables. Introduction to model selection, the principles of estimation, assessment of fit, and modeling diagnostics. Prerequisites: 281A,B, or equivalents.

3-6 units, Win (Tuma)

SOC 383. Sociological Methodology III: Advanced Models for Discrete Outcomes—Required for Ph.D. in Sociology. The rationale for and interpretation of static and dynamic models for the analysis of discrete variables. Prerequisites: 281A,B and 382, or equivalent.

3-6 units, Spr (Tuma)