

# QUANTITATIVE METHODS FOR BEHAVIORAL SCIENCES - GRADUATE CERTIFICATE

The purpose of the graduate certificate in quantitative methods is fourfold:

- to strengthen interdepartmental links and communication among social and human science departments at CU Boulder, both in general and specifically with regards to quantitative research methodology and statistical analysis,
- to provide incentive and recognition to graduate students from a diverse set of departments who choose to cultivate expertise in quantitative research methods and methods of statistical analysis,
- to increase the visibility of and promote courses in quantitative research methods (possibly with the benefit that additional quantitative courses can be developed and taught), and
- as a consequence of all of the above, to improve the quality of quantitative training of graduate students at CU Boulder, increasing students' chances of employment upon completion of their graduate studies.

## Requirements

### Application Process

1. Review the course requirements below.
2. Complete the application form (<https://www.colorado.edu/education/node/3115/attachment/>) (see also example form (<https://www.colorado.edu/education/node/3113/attachment/>)).
3. Review application with the advisor to ensure the courses meet the advisor's expectations for expertise in quantitative methods training.
4. Submit the application electronically—along with all available syllabi and an unofficial transcript—to [soe.gradvise@colorado.edu](mailto:soe.gradvise@colorado.edu). ([allison.attedberry@colorado.edu](mailto:allison.attedberry@colorado.edu))

Note: If a student's course plan meets the requirements and all courses have already been completed at the time of application, the student will receive approval for the certificate. If some of the intended coursework will take place in future semesters, then the student will be given "conditional" approval. Once all coursework is completed, the student must submit an updated application that includes an unofficial transcript showing that the courses were satisfactorily completed.

Applications will be reviewed once per semester. Deadlines are Nov. 1 and March 1.

### Course Requirements

Students will be awarded the certificate if they complete a two-semester foundational sequence in statistics (e.g., EDUC 8230/EDUC 8240, PSYC 5741/PSYC 5751, SOCY 5111/SOCY 6111) as well as a minimum of four additional courses from the approved list below, at least one of which must be outside the student's home department.

The guidelines serve as a minimum threshold for the application process. However, each student's advisor may require their students to take more than the minimum of 6 courses, or to decide that certain courses are not sufficiently rigorous to count towards the certificate. The application will

then be reviewed by a cross-disciplinary committee to evaluate whether the course plan meets the certificate requirements.

### Required Courses and Credits

Code	Title	Credit Hours
<b>Foundational Sequence in Statistics</b>		
Sequence examples: <sup>1</sup>		6
EDUC 8230 & EDUC 8240	Quantitative Methods I and Quantitative Methods II	
PSYC 5741 & PSYC 5751	General Statistics 1 and General Statistics 2	
SOCY 5111 & SOCY 6111	Data 1: Introduction to Social Statistics and Data 2: Data Analysis	
<b>Approved Electives</b>		
Choose a minimum of four: <sup>2</sup>		12
EDUC 7326	Quasi-Experimental Design in Causal Inference in Social Sciences	
EDUC 7386	Educational Evaluation	
EDUC 7456	Multilevel Modeling	
EDUC 7396	Categorical Data Analysis	
EDUC 8710	Measurement in Survey Research	
EDUC 8720	Advanced Topics in Measurement	
IPHY 5300	Statistical Genetics for Complex Traits	
IPHY 5800	Advanced Statistics and Research Methods in Integrative Physiology	
MKTG 7310	Design and Analysis of Experiments in Business	
ORMG 7830	Research Design and Methods in Management	
PSCI 7108	Special Topics	
PSCI 7155	Maximum Likelihood Estimation and Generalized Linear Models	
PSYC 5122	Quantitative Genetics	
PSYC 5242	Biometrical Methods in Behavioral Genetics	
PSYC 5541	Special Topics in Psychology	
PSYC 5761	Structural Equation Modeling	
PSYC 6200	Issues and Methods in Cognitive Science	
PSYC 6761	Topics in Advanced Structural Equations Modeling	
SOCY 5031	Research Design	
SOCY 7111	Data III--Advanced Data Analysis	
<b>Total Credit Hours</b>		<b>18</b>

<sup>1</sup> Students from a department that does not offer a two-semester sequence of this nature are welcome to take one of the three sequences listed above, and are encouraged to contact the instructors of those sequences to determine which of them would provide the best fit.

<sup>2</sup> At least one must be outside the student's home department.