

## **Recommendations for Undergraduates Wishing to Pursue Quantitative Psychology**

We recommend that, in addition to the required curriculum for psychology majors (e.g., PSY 101, 200, 210, 240, etc.), students who wish to pursue a career in quantitative psychology prepare themselves for graduate school by:

### **Taking Quantitatively Oriented Undergraduate Courses:**

Take all of the following:

PSY 406: Intermediate Statistics

PSY 481: Principles of Psychological Assessment

MATH 330: Linear Algebra

MATH 176: Introductory Calculus for Business and Social Sciences OR MATH 181: Calculus I

Take one or two additional courses from the Statistics and Mathematics departments, such as

MATH 182: Calculus II

MATH 283: Calculus III

MATH 271: Elementary Probability

MATH 463: Advanced Matrix Theory and Applications

STAT 152: Introduction to Statistics

STAT 411: Statistical Methods I (covers distributions, estimation, and hypothesis testing)

STAT 412: Statistical Methods II (covers regression and ANOVA)

STAT 413: Statistical Experimental Design (ANOVA and ANCOVA)

STAT 491: Statistics for Scientists I (covers distributions, estimation, and hypothesis testing – less math)

STAT 492: Statistics for Scientists II (covers regression and ANOVA – less math)

STAT 495: Nonparametric Statistics

STAT 467: Introduction to Mathematical Statistics

### **Taking Quantitatively Oriented Graduate Courses:**

Taking one or two of the following courses would strengthen your quantitative background. Undergraduates can take graduate-level courses, if they have the permission of the instructor.

EPY 724: Theory and Practice of Human Measurement II  
EPY 725: Item Response Theory and Applications  
EPY 732: Multiple Regression and Path Analysis  
EPY 733: Multivariate Statistics  
EPY 734: Latent Variable Models: Factor Analysis and SEM  
EPY 745: Categorical/Nonparametric Data Analysis  
EPY 746: Multilevel Statistical Methods: Theory and Application  
EPY 747: Large Scale Secondary Data Analysis  
PAF 711: Advanced Seminar in Quantitative Research in Public Affairs

**Conducting Quantitatively Oriented Research:**

Students should conduct research with psychology faculty starting in sophomore or junior year. Ideally, students should have completed or at least be enrolled in PSY 210 (statistics) and PSY 240 (research methods). Students can earn credit for lab work (e.g., Independent Study, Independent Research, or Honors Thesis). Quality time in 1 or 2 labs for a longer period of time is more valuable than working in multiple labs for shorter periods of time.

Two types of quantitative projects are possible. First, the research might involve a substantive area of psychology (e.g., cognitive, clinical, developmental, neuroscience). If so, the student's involvement in the project should ideally focus on "the data component of the research, including assisting with research design, item writing, data management, planning for statistical analyses, conducting analyses using common and specialized statistical software, and reporting findings." (APA, 2009, p 29)

Second, the research might focus on the quantitative techniques themselves. Students can evaluate the effectiveness of a particular statistical technique or might determine how well the technique works with different types of data. Students can be involved in original derivations, wherein new statistical techniques are created. Students could design computer programs that will calculate existing statistics.

Prepare and present papers at psychology conferences regarding your research.

Get advice about creating a curriculum vitae (CV) and writing a letter of intent.