

Graduate Studies in Quantitative Psychology

Quantitative psychology is the study of methods and techniques for using quantitative representations of behavior to further our empirical knowledge of psychology. Generally, quantitative psychology has become equated with using advanced statistical techniques because these techniques represent the cornerstone for manipulating quantitative representations of behavior, but quantitative psychology also encompasses the study of a much broader range of methodologies for collecting as well as analyzing and interpreting data, including those suitable for conducting experimental research, quasi-experimental research, correlational research, survey research, and so forth.

One of the unique aspects of being a quantitative psychologist is not being limited to the types of research questions you are part of solving. By focusing the training on the methods rather than the content, you can bring that training to a wide variety of content areas. Another unique aspect of quantitative psychology opposed to other areas within the discipline of psychology is that there is a perennial shortage of quantitative psychologists (and statisticians in general), resulting in a wide variety of job offerings and extremely high compensation relative to other areas within psychology. In fact, the demand for statisticians and data analysts is high enough that companies in the pharmaceutical and bio-technology area cannot hire enough biometricians and often recruit psychometricians and quantitative psychologists on a routine basis.

Quantitative psychologists find themselves working in research labs in any number of disciplines, working for consulting firms, working for opinion research and other polling organizations, consumer research firms, pharmaceutical and bio-technology companies, insurance companies, quality assurance offices across all businesses and institutions, institutional research offices in higher education, teaching at two-year and four-year colleges and universities, and in their own consulting businesses. Further, employment opportunities are abundant for people with bachelor's, master's, and doctoral degrees.

Theoretical and Applied Quantitative Psychology

A further distinction can be made between a theoretical approach to quantitative psychology and an applied approach. It is the theoretical approach to quantitative psychology that involves working to develop new statistical methods and conduct research to compare the biases, strengths or weaknesses of several different statistical, or quantitative methods. These types of research are theoretical in the sense that they represent an investigation of the quantitative and statistical properties themselves. To work effectively in this area, a Ph. D. is required as well as an extensive background in calculus, differential equations, and linear algebra (e.g., matrix algebra). Theoretical quantitative psychologists typically work as a faculty member at a large research-extensive university (e.g., UIUC, UCLA, OSU) or for large testing companies (e.g., the Education Testing Service).

The applied branch of quantitative psychology involves applying advanced quantitative and statistical methods to empirical research, analyzing real data, rather than generating new statistical techniques or evaluating existing statistical techniques per se. These applied quantitative psychologists essentially function as data analysis experts, and their expertise creates opportunities for employment as faculty members at colleges and universities, as statistical consultants in any number of arenas. There are excellent statistical consulting opportunities working for corporations and businesses (e.g., insurance, manufacturing quality control, human services quality assurance), research and marketing firms (e.g., Gallup Polls, Neilsson Ratings), education organizations (e.g., college assessment office, college research office), and for statistical consulting firms. It is not necessary to have a Ph.D. to work effectively in

applied quantitative psychology. Having a master's degree affords many excellent opportunities for employment, although having a Ph.D. allows one to work with greater independence as an applied quantitative psychologist.

Graduate Study in Applied Quantitative Psychology

- Take as many methods and statistics courses as are offered
- Develop an interest in a substantive area or a topic on which you would like to consult (e.g., personnel selection procedures, modeling developmental changes, mathematical models for memory)
- Participate as a team member on several research projects (e.g., designing, collecting, analyzing, and interpreting data)
- Develop proficiency using SPSS for data management and data analysis above and beyond course work
- Learn at least one other statistical package
- Develop proficiency manipulating data/information using programs that are not specifically for statistics, such as Excel spreadsheets, MS Access, MySQL database, and the like

Graduate Study in Theoretical Quantitative Psychology

In addition to the listed experiences above, students should also

- Take integral and differential calculus
- Take a linear algebra (matrix algebra) course
- Take a structured programming language course (e.g., C++)