

Doctor of Philosophy

Psychology with a Concentration in Human Factors Psychology (PhD)

James F. Paulson, Graduate Program Director

Overview of the Topical Areas

The HF doctoral program follows the scientist-practitioner model with emphasis on psychological theory and behavioral science, statistics and research methodology, practical experience, and fundamental and innovative areas of human factors/engineering psychology. The following is a partial list of these areas:

- aviation psychology
- behavioral modeling
- complex system operation
- display design
- driving and navigational performance
- ergonomics
- human-computer interaction
- perception and performance
- medical systems
- neuroergonomics
- simulation
- team performance
- training
- usability testing
- warnings and alarms
- virtual environments
- information processing and workload
- human-robot interaction

Admission

The PhD in Psychology with a concentration in Human Factors admits students at two levels: with a master's degree or with a bachelor's degree. Degrees held must be in psychology or a related field. Each applicant must submit:

1. Official scores on the General Test of the Graduate Record Examination (GRE);
2. A brief statement outlining personal goals and academic objectives;
3. Three letters of reference, at least two of which are from former college/university teachers or research supervisors;
4. Transcripts of all prior academic work;
5. A sample of recent academic writing (e.g., a paper required in an undergraduate course). Applicants are encouraged to submit a writing sample.

Curriculum Requirements

The program requires at least 84 semester hours of credit beyond the bachelor's degree with at least 48 hours being post-master's education. For the individual entering with a bachelor's degree, the general plan of graduate education consists of four phases:

1. A core of basic psychology, acquired while working toward the master's degree;
2. Broad education in the general area of human factors psychology;
3. Research and applied experience in human factors psychology; and

4. Completion of a dissertation representing a significant professional contribution to human factors psychology.

For the individual entering with a master's degree, a minimum of 48 hours of doctoral-level credits is required, based on the faculty's and the Ph.D. program director's review of the student's educational background. Students who enter with a master's degree will typically pursue a plan of study identical in spirit to the latter three phases of the plan of study followed by a student entering with a bachelor's degree (see phases listed above). The student will form a guidance committee within the first year of entry. These are graduate faculty members who assist in developing the plan of study tailored to the student's needs and interests. This plan of study outlines the minimum 48 hours of post-master's education. For the student who holds the master's degree upon entering the Ph.D. program, completion will require approximately three years.

For the student with a bachelor's degree, completion of the program requires approximately five years of study. A student entering the program with a bachelor's degree must complete the first phase of the program by meeting the requirements for the master's degree in general psychology (i.e., 36 semester hours with appropriate course work). The student is required to complete successfully a core of master's-level courses, with at least a B average in these courses. If the GPA falls below 3.0 the student may be placed on probation or suspended from graduate study as specified in the University Catalog. Further, if the student receives a C grade or less he or she will also be placed on probation; a second C or worse may result in dismissal from the program.

Core Requirements

The Ph.D. in Psychology requires at least 84 semester hours of credit beyond the bachelor's degree or at least 48 semester hours of post-master's training. Students entering the program with a bachelor's degree must complete the first phase of the program by meeting the requirements for the master's degree in Psychology (i.e., 36 semester hours with appropriate course work). For the student with a bachelor's degree, completion of the program requires approximately four years of study. For the student who holds the master's degree upon entering the Ph.D. program, completion requires approximately three years. The student is required to complete a core of master's-level courses with at least a B average. If the GPA falls below 3.0 the student may be placed on probation or suspended from graduate study as specified in the University Catalog. Further, if the student receives a grade of C or lower, they will also be placed on probation; a second C or worse may result in dismissal from the program.

The core courses consist of the following:

Core Courses		
PSYC 713	Research Methods in Psychology	3
PSYC 727	Analysis of Variance and Experimental Design	4
PSYC 728	Regression and Correlational Design	4
Dissertation		12
PSYC 899	Dissertation	
Total Credit Hours		23

Human Factors Psychology Concentration

In addition to the core requirements for the PhD in Psychology, the PhD concentration in Human Factors Psychology requires the following courses:

PSYC 731/831	Human Cognition	3
PSYC 741/841	Sensation and Perception	3
Total Credit Hours		6

Additional Requirements

Completion of the first phase requires two years of study. Following the student's second year, the student forms a guidance committee of graduate faculty members who assist in developing a plan of study tailored to the student's needs and interests. The plan of study outlines the student's minimum 48 hours of post-master's education.

Candidacy Examination

Prior to admission to doctoral candidacy (i.e., the beginning of formal work on the dissertation), each student is required to pass a qualifying examination to evaluate a student's achievement and understanding of concepts, theories, practices, and empirical facts about fundamental HF information, as well as information relevant to the student's major area of concentration within HF. The examination consists of a six-hour essay exam covering general HF knowledge (a reading list is provided) and a 10-page literature review covering knowledge in the student's area of concentration (the literature review may be incorporated into the student's dissertation proposal).

The literature review can be turned in any time during the semester, but **MUST** be submitted within a week of completion of the general knowledge essay exam. If the both written components are passed, the oral part of the examination must be completed within one month of notification. The oral exam covers the material contained on the candidate's reading list, answers on the written exam, and the literature review. A student must pass both the written and oral parts to pass the candidacy examination. The examination may not be reported as passed if there is more than one dissenting vote by exam committee members. A candidacy examination cannot be passed conditionally. A pass on the examination cannot be made contingent upon other factors such as the completion of additional course work or the preparation of extra research projects. If either part (written or oral) of the candidacy examination is failed, the faculty may permit the student to take it once more at a time mutually satisfactory but within 6 to 12 months from the date of the first examination. If either part of the examination is failed, the student may be required by the faculty to retake only that part. The student is allowed two attempts on the candidacy exam. If the student fails the exam twice, they may be asked to leave the program. When determining failure, the faculty considers a complete scheduled exam as one attempt. Failure of one part of the exam on the first attempt (such as the written part), but then failure of a different part of the exam (even the oral part) at the second attempt is considered two failures.

Publication and Application

Prior to graduation, students are required to submit a research article as first author for publication in a refereed journal, and to create an application of research methodology and/or computing skills. An example of such an application might include a data analysis program, a simulation program or a patentable technology innovation.

Practical Experience

The student must obtain professional practice experiences during the course of graduate education. An internship is one excellent option for meeting this requirement. However, the student can also meet the requirement by participating in at least two applied research projects or consulting activities under the direct supervision of a Ph.D. psychologist (or psychologists). The student's guidance committee establishes the criteria for meeting the professional-practice experience requirement and judges the adequacy of the experiences.

Graduate Student Teaching

Teaching an academic course is an experience that is worthwhile regardless of the eventual career role(s) that a student envisions, and the experience should be taken seriously for its professional value. Benefits associated with teaching a course include expanding and solidifying knowledge about general and HF psychology, polishing communication skills, and establishing professional identification. Although there are other ways to acquire these benefits (e.g., presentations at conferences, consulting experiences, organizing and conducting workshops), teaching a course systematically builds these experiences into a student's plan of study. Moreover, any student who plans an academic career should teach one or more courses in preparation for that career. During the course of graduate training, financial support is often provided by the Psychology Department from graduate teaching assistant or adjunct teaching funds. This type of financial support almost always requires that the student be partially or fully responsible for teaching a course.

Dissertation

The doctoral dissertation must represent an achievement in research and a significant contribution to knowledge in the major area of study. It is equivalent to no more than 24 semester hours of course work.

Dissertation Defense

An oral examination in defense of the dissertation is required. The aim of the defense is to explore with the candidate the methodological and substantive contributions of the completed dissertation.

Research Opportunities

Lab facilities are available for research in cognition, human perception and performance, modeling and simulation, and psychophysiology. Facilities include personal computers, local area networked testing stations, sound-attenuated testing chambers, driving simulators, flight simulators, and a human-computer interaction laboratory. Access to university computing and multimedia development facilities is also available. To complement the program's emphasis on modeling and simulation, students also have access to the Virginia Modeling, Analysis and Simulation Center (VMASC). VMASC is an ODU-affiliated research and development center where scientists from a number of disciplines create and test computer models and simulation applications to benefit industrial, academic, and governmental interests.

Research is supported by private sector, local, state or federal governmental organizations (e.g., National Science Foundation, National Institutes of Health, NASA, etc.), or one of the military services. Doctoral students are encouraged to become engaged in one of these research programs early in the process of their education.