Proposal for
Human Factors Certificate
in the Department of Psychology
at the University of Utah

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Section I

Request

This proposal seeks to establish an undergraduate certificate in Human Factors offered by the Department of Psychology. The proposed certificate will offer undergraduate students specific training in the field of Human Factors. Currently, there is a growing interest in Human Factors; however there is currently no program in place at the University of Utah to meet this need. This proposed Certificate in Human Factors would take advantage of existing faculty and coursework infrastructure developed at the Department of Psychology and other Departments and meet the need and the growing student interest in this important field.

The impetus for this program is predominantly student driven. Because there is currently no program or specialization offered for student with an interest in Human Factors, there is a growing need to provide an organizational umbrella. Often students pursue the goal of receiving training by selecting courses in other departments to complement their training and seek out advice from faculty on course selection and career goals in spite of the lack of formal university recognition. By offering a certificate in Human Factors student who are interested in this field would be rewarded with formal recognition on their college transcripts for specialized training apart from Psychology or other majors..

Section II

Program Description

Human Factors is a field that involves research into human psychological, social, physical, and biological characteristics. Human Factors utilizes the information obtained from that research, and applies that information to the design, operation, or use of products or systems for optimizing human performance, health, safety, and/or habitability. Students who are interested in the certificate must successfully complete PSYCH 1010 or equivalent to apply for the program. The Human Factors Certificate requires a minimum of 20 credit hours beyond these entry requirement with PSYCH 3000 (Statistical Methods), PSYCH 3010 (Research Methods), PSYCH 3171 (Human Factors), PSYCH 3172 (Engineering Psychology), and PSYCH 4800 (Research Experience) as required courses and at least another 3 credit hours of specific electives as specified below.

Purpose of the Certificate

This Certificate offers a structured framework in which students can receive training in Human Factors through a prescribed course of study. The Certificate will complement existing fields of study such as Psychology, Electrical Engineering, Mechanical Engineering, Bioengineering, Computer Science, Nursing etc. Students in these fields of study can expand their marketability in relation to their career goals with a Certificate in Human Factors.

Admission Requirements

Students must meet the department's standard for admission to the major (minimum 2.8 cumulative GPA at the University of Utah) as demonstrated by official transcripts and have to successfully completed PYCH 1010 or equivalent with a C or

better. Students meeting this criterion will have to register with the Department of Psychology and declare their intent in written form to pursue the Certificate in Human Factors.

Student Advisement

Advisement will take place through group advisement sessions once a semester or alternatively through the Psychology Advising Center.

Justification for Number of Credits

The courses in Statistics and Research Methods provide the essential background for dealing with scientific research in Psychology. The other courses are directly tied to the substance of the certificate. The Research Experience credits are needed to provide a hands on project so that students leave with some essential practical skills for addressing everyday problems in the field.

External Reviews and Accreditation

No professional accreditation is required for the certificate. The primary goal of the certificate is to provide a framework for basic training in Human Factors, allowing students to apply their knowledge in later contexts of work.

Projected Enrollment

Informal surveys done during the Spring 2004 and the Fall 2004 indicate that at least 20-25 Psychology majors are interested in a Certificate in Human Factors. Based on these numbers we expect an enrollment of about 20 students during the first two years and a total enrollment of 25-35 students in the program as the availability of the certificate becomes more known to the students.

Expansion of Existing Program

The certificate in Human Factors is not an expansion of an existing program.

Faculty & Staff

Currently, no additional faculty will be required for the certificate. Current faculty, materials and facilities can absorb the additional student load. No additional staff will be required; the current staff can meet the needs of the projected additional students.

Library

The University of Utah's Marriot Library currently has all the materials required. (Letter of support is attached.)

Learning Resources

No additional learning resources are required.

Section III

Program Necessity

Even though there is a growing interest in Human Factors there is no formal training provided at the University of Utah. A certificate in Human Factors would be the

first step in this direction. Students in Psychology, Engineering, Computer Science, and other areas would benefits from getting a certificate because it has the potential to make them more competitive for potential employers.

Labor Market Demand

With more and more availability of computers and electronic technologies the design of human computer interfaces becomes more and more important. Usability is a rapidly expanding field. For example, experience in performing usability testing and evaluation will benefit students who are participating in the certificate program.

Many psychology majors are receiving their BA as a terminal degree, a Human Factors Certificate will certainly increase the job options in the high technology business sector for majors by broadening their training. In addition, non-majors will have similar benefits from taking classes for the certificate. The courses are intended to attract students with diverse backgrounds and will provide an interesting learning experience, which includes hands-on learning. The courses which are offered as part of the certificate will improve the learning environment, because they will provide challenging instruction for the students by integrating instruction, research and service learning. Finally, a certificate like the one described is consistent with the Universities focus on advanced technology training and the latest technology initiatives of the state of Utah.

Student Demand

There is more and more evidence of a growing student interest in a Human Factors certificate. Enrollment in PSYCH 3171 and PSYCH 3172 is increasing steadily (Fall 2002: 22 students, Spring 2003: 35 students, Fall 2003: 27 students, Spring 2004: 45 students), and very frequently students are taking these classes in sequence. In addition, the majority of students have taken these classes have expressed interest in receiving a certificate in Human Factors.

Similar Programs

Currently, no certificate in Human Factors is offered at any Institution of Higher Education in the State of Utah.

Collaboration and Impact on other USHE Institutions

There is potential for collaboration between the University of Utah and other institutions of higher education in Utah. The goal is to contact these institutions in the near future and to assess their interest in potential collaborations.

Benefits

The University of Utah and the USHE will benefit from a certificate in Human Factors because it fulfills the needs of the students. Students are offered an option to receive a certificate that provides them with important skills for later employment and in addition increases their competitiveness for employment.

Consistency with Institutional Mission

The proposed Certificate in Human Factors is consistent with and appropriate to the University of Utah's mission toward undergraduate and graduate education, research

and scholarship. The program will provide the high quality academic professional and applied learning environment which is critical for the University of Utah's future as the state's premier institution of higher education.

Section IV

Program Assessment

The department will regularly review the program and evaluate the program. The Department is now conducting a survey of graduating students. The certificate program will contact certificate students on a regular basis to keep track of how the program affected their careers.

Expected Standards of Performance

Students have to be in good standing and have a minimum average grade of 2.8 in the required classes for the certificate.

Student Assessment

Each course will be evaluated by the students and the results will be reviewed by the department.

Continued Quality Improvement

Based on the evaluations of the program and the course evaluations, the certificate program will work continuously on improving its quality.

Section V

Budget

Salaries and Wages:	N/A
Benefits:	N/A
Current Expenses:	none
Library:	none
Equipment:	none
Travel:	none
TOTAL:	**zero**

Funding Sources

No additional funding is required.

Reallocation

The reallocation of funding is not required.

Impact on Existing Budget

There is no expected impact on the existing budget.

Program relevant courses - Department of Psychology

1010 General Psychology (4) Fulfills Social/Behavioral Science Exploration. The scientific study of human and animal behavior: rationale, methods of inference, selected findings, and some applications.

2125 Everyday Decision Making (3)
Multidisciplinary examination of individual decision making. Focuses on the everyday context in which decisions are made, the basic processes underlying choice, the functions of emotion, and the common errors that individuals make. Special emphasis on decision making in consumer and business contexts.

*** 3000 Statistical Methods in Psychology** (4) Prerequisite: PSYCH 1010 and MATH 1010. Fulfills Quant. Reason (Stat/Logic) & Quant Intensive BS. Applying statistical methods to psychological research, including basic descriptive statistics, hypothesis testing, and correlation. Includes laboratory.

*** 3010 Research Methods in Psychology** (4) Prerequisite: PSYCH 1010 and 3000 and instructor's consent. Fulfills Quantitative Intensive & Communication/Writing. Naturalistic, case study, correlational, and experimental research methods. Includes laboratory.

3120 Cognitive Psychology (3) Prerequisite: PSYCH 1010 and 3000 and 3010. Introduction to an information-processing analysis of cognition. Perception, attention, and memory.

3150 Sensation and Perception (3) Prerequisite: PSYCH 1010 and 3000 and 3010. Recommended Prerequisite: 3110 and 3120.
Sensory systems and perceptual processes with respect to vision, audition, and other sense modalities. How we see, hear, feel pain and temperature, and in general receive information from the environment; how our perceptions are affected by expectancy, knowledge, and higher-level organizational factors.

3160 Human Error (3) Prerequisite: PSYCH 1010 & 3000. We are living in an accelerated information age. Humans today have to deal with more information and respond more quickly, but their errors can be potentially disastrous. Given the increasing saliency of human error in our lives (newspapers, television, personal experiences) this class will address the question of what are the psychological and organizational underpinnings of human error.

*** 3171 Human Factors and Ergonomics** (3) Recommended Prerequisite: PSYCH 3000 and 3010. An introduction to human factors, ergonomics, and engineering psychology. The course examines the history of ergonomics, human-machine relations, displays and controls, human-computer interaction, industrial and aviation systems, physiology of work and anthropometrics, cognitive ergonomics, human reliability, human as manual controller, and human-machine systems design and prototyping.

*** 3172 Human Performance and Engineering Psychology** (3) Recommended Prerequisite: PSYCH 3000 and 3010. Human capabilities and limitations in processing information are considered. Models and theories of perception, attention, short- and long-term memory, decision-making, and motor performance are evaluated with respect to experimental data. The course emphasizes theory and implications for design of human-machine systems.

*** 4800 Research Experience: General** (3) Prerequisite: PSYCH 1010 and 3000 and instructor's consent. Involves participation in ongoing faculty-directed research based on a contract between the student and instructor for purpose of the certificate the research must be combined with either 3160, 3171 or 3172.

* required courses

Admission to the Certificate Program

1010 General Psychology (4) or equivalent required for admission to certificate program (Grade C or better).
In addition admission is contingent on a Uof U cumulative GPA of 2.8 or better

Required Courses for Certificate:

3000 Statistical Methods in Psychology (4)
3010 Research Methods in Psychology (4)
3171 Human Factors and Ergonomics (3)
3172 Human Performance and Engineering Psychology (3)
4800 Research Experience: General (3)
4800 is intended to be combined with either 3171, 3172 or 3160 to individually or as a group develop a project which allows the students to gain hands on experience in human factors.

Electives courses (minimum 3 credits)
3120 Cognitive Psychology (3)
2125 Everyday Decision Making (3)
3150 Sensation and Perception (3)
3160 Human Error (3)

All courses have to meet admission requirements or the required or elective courses have to be C or better.
Total credit required: 20 semester hours.