# Idaho State Board of Education

## Proposal for Graduate and Doctoral Degree Program

<table>
<thead>
<tr>
<th>Date of Proposal Submission:</th>
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</thead>
<tbody>
<tr>
<td>Institution Submitting Proposal:</td>
<td>University of Idaho</td>
</tr>
<tr>
<td>Name of College, School, or Division:</td>
<td>College of Letters, Arts, and Social Sciences</td>
</tr>
<tr>
<td>Name of Department(s) or Area(s):</td>
<td>Department of Psychology and Communication Studies</td>
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</tbody>
</table>

## Program Identification for Proposed New, Modified, or Discontinued Program:

| Title: | Experimental Psychology |
| Degree: | Ph.D. |
| Method of Delivery: | On-Campus |
| Proposed Starting Date: | Fall-Summer 2014 |

Indicate if the program is: Regional Responsibility, Statewide Responsibility

Indicate whether this request is either of the following:

- [x] New Graduate Program
- [ ] New Doctoral Program
- [ ] New Off-Campus Graduate Program
- [ ] New Off-Campus Doctoral Program
- [ ] Contract Program/Collaborative
- [ ] Expansion of an Existing Graduate/Doctoral Program
- [ ] Consolidation of an Existing Graduate/Doctoral Program
- [ ] Discontinuation of an Existing Graduate/Doctoral Program

<table>
<thead>
<tr>
<th>College Dean (Institution)</th>
<th>Date</th>
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<tbody>
<tr>
<td>Vice President for Research (as applicable)</td>
<td>Date</td>
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</table>

| Graduate Dean (as applicable) | |
| Academic Affairs Program Manager | Date |
| Chief Fiscal Officer (Institution) | Date |
| Chief Academic Officer, OSBE | Date |
| Chief Academic Officer (Institution) | Date |
| SBOE/OSBE Approval | Date |

President | Date
1. Describe the nature of the request. Will this program be related or tied to other programs on campus? Please identify any existing program, option that this program will replace. If this is request to discontinue an existing program, provide the rationale for the discontinuance. Indicate the year and semester in which the last cohort of students was admitted and the final term the college will offer the program. Describe the teach-out plans for continuing students.

The Department of Psychology and Communication Studies currently offers a M.S. in Experimental Psychology with an emphasis in Human Factors (which involves applying psychological research and expertise to technological design of human-machine systems to enhance both the safety and productivity of working and living environments). We wish to expand our Experimental Psychology program to offer both the M.S. and Ph.D. degree. The Experimental Psychology Ph.D. program will incorporate the core curriculum of the existing M.S. program, but will require additional coursework and research credits as well as a dissertation and preliminary exam. The full program is summarized in Appendix A and meets the standards for a University of Idaho doctoral degree.

2. List the objectives of the program. The objectives should address specific needs the program will meet. They should also identify and the expected student learning outcomes and achievements. This question is not applicable to requests for discontinuance.

Objective 1: Congruent with our department’s mission statement, we currently offer internationally competitive masters-level training in applied Experimental Psychology, with an emphasis in Human Factors Psychology. We hope to expand our training to include the Ph.D. to provide our students with the highest-level of training possible. Human factors psychologists specialize in human-technology interaction, ergonomics, biomechanics, and safety. Our goal is to prepare our students either to enter industry or public service as practitioners or to continue their studies at the doctoral level.

Every year, several UI Psychology undergraduates and masters students express their wish to pursue doctoral training in Human Factors Psychology at UI if that were possible. Also, our faculty members spontaneously receive inquiries from students outside of Idaho who are interested in pursuing doctoral training with those faculty members. Further, the Idaho National Laboratory (INL) employs a number of human factors researchers and engineers in a variety of technical areas who have expressed an interest in having a doctoral program in human factors within the state of Idaho for their employees. Our offering a doctoral program would provide opportunities for students like these and many others.

The current M.S. program in Experimental Psychology typically enrolls 30 students at a time (approximately half of whom are on-campus students and half of whom are distance students). Adding the doctoral program will allow us to expand the number of full-time graduate students on campus by 8-10 increasing the size of the graduate program from 30 to 40 students in the next 4 years. A graduate program consisting of 40 students in a single area with Psychology is quite large by any standard. The faculty to student ratio would be approximately 8 students for each faculty member. The increase in students at the Ph.D. level will increase the number of full-time students with few additional resources required to
serve those students. To provide a comparison, Texas Tech University has one of the top Human Factors graduate programs offering a Ph.D. in Experimental Psychology with an emphasis in Human Factors. The Human Factors Psychology program at Texas Tech has a faculty-student ratio of 1:3.5 (4 core HF faculty and 14 graduate students) and we are proposing a significantly larger program with 5 core HF faculty and 40 graduate students. We are able to handle this much larger program because approximately 15 of those students are professionals already employed in the field and matriculating as part-time distance students. Distance students complete the M.S. without requiring funding or laboratory access. Our Experimental Psychology program in Human Factors operates across 5 laboratories with an anticipated 25 graduate students working in these facilities and with the 15 (or so) distance students we would be maximizing our capacity at 40 students without creating undue burden on our faculty or facilities.

Human Factors Psychologists are employed in a wide variety of settings, where they can have various titles including Human Factors Psychologist/Researcher/Engineer, Usability Analyst/Engineer, or User Experience Analyst/Designer. Within Idaho, graduates of our M.S. program in Human Factors Psychology have been employed at a variety of companies and government agencies, including INL and the Center for Advanced Energy Studies (Idaho Falls), Hewlett-Packard and the Kohl Group (Boise), and Benchmark Research and Safety (Moscow, Boise). Outside of the state, major employers of Human Factors Psychologists include the government (agencies such as the FAA, NTSB, NHTSA, NRC, DOE), all branches of the military, the nuclear power industry, the aviation industry (e.g., Boeing, Lockheed-Martin) and all of the large information technology companies (e.g., Intel, HP, Apple, Microsoft, Google, Sony).

Objective 2: Fill a need in the state and region for human factors training that serves employers and also positively impacts the economy in Idaho by providing the highest level of training in the field of human factors.

A doctoral program in human factors experimental psychology will positively impact the state’s economy by providing the highest level training in human-machine system integration and usability. Professionals with doctoral training in human factors typically lead research or design teams concerned with ensuring that complex technological systems meet the needs of end-users, promote safety and increase efficiency and productivity. Anyone who has interacted with a poorly designed product or web site has experienced the costs of poor usability. Idaho has a burgeoning high technology sector and this sector in particular benefits from enhanced usability in its products. We have attached letters of support from INL and HP indicating the value of such a program and the need for more advanced technological training in the workforce.
3. **Briefly describe how the institution will ensure the quality of the program** (i.e., program review). Will the program require specialized accreditation (it is not necessary to address regional accreditation)? If so, please identify the agency and explain why you do or do not plan to seek accreditation. *This question is not applicable to requests for discontinuance.*

The **Human Factors Psychology** graduate program with a focus in Human Factors in Psychology has been accredited by the Human Factors and Ergonomics Society (HFES) and joins one of only 16 programs in the nation to be so accredited. The current graduate program offers the Masters of Science degree which has been accredited with a full 6 year accreditation term through July 2019. Our M.S. program in **Human Factors Psychology** met and in some cases exceeded the HFES accreditation requirements.

The HFES accreditation program provides a self-study for Ph.D. programs to undergo as part of the accreditation process and the design of the proposed doctoral program conforms to these standards. If a doctoral program were approved, we would seek accreditation for the doctoral program as soon as we are eligible (HFES requires that a program have at least six graduates before accreditation can be pursued).

In addition, the graduate program is assessed by the department on an annual basis. Information from our last three rounds of assessment indicates that the program is meeting learning outcomes and goals for the Master’s program. In addition, our focus groups with students indicate they would continue at the University of Idaho in pursuit of the Ph.D. should such a program be available. We will incorporate the Ph.D. program into the existing assessment model which includes data on coursework completion and performance, cumulative exams passed, focus groups with graduate students and placement information after graduation.

In anticipation of the proposed program, the department has made significant and strategic hires in the human factors area and includes faculty with a breadth and depth of expertise appropriate to provide graduate students with the knowledge, mentorship and experience needed to excel in the field of Human Factors.
Human Factors Faculty

Core Faculty

**Brian Dyre** (Ph.D., 1993, University of Illinois)

Dr. Dyre’s research uses computational modeling and behavioral and physiological measures to conduct basic and applied research on visual perception. Particular emphasis is on issues related to the control of locomotion and piloting of vehicles, including illusions related to weather phenomena, displays supporting navigation and real-time control, simulation, and mental workload and attentional allocation in cockpits and unmanned-aerial-vehicle (UAV) workstations.

**Steffen Werner** (Ph.D., 1994, University of Göttingen, Germany)

Dr. Steffen Werner conducts basic research in the areas of high-level visual cognition, spatial cognition, and attention. He is particularly interested in understanding long-term visual and spatial memory, as well as the integration of different sources of information during spatial tasks. His applied research interests lie in the areas of Human-Computer Interaction (e.g., user authentication, security, innovative display technologies), driving research (in-vehicle navigational displays, driver distraction), and neuroergonomics (e.g., neurological indicators of mental workload).

**Benjamin Barton** (Ph.D., 2005, University of Alabama at Birmingham)

Dr. Barton’s research concerns lifespan developmental factors affecting risk for unintentional injuries and injury prevention. His primary focus is the influence of developing cognitive skills on pedestrian safety during middle childhood. Other areas of interest include biking safety in children and adults, and driving behaviors among adolescents and elderly.

**Rajal Cohen** (Ph.D., 2008, Pennsylvania State University)

Dr. Cohen studies the interconnectedness of cognition, posture, and action, with a special interest in principles that apply across the spectrum from high performance to dysfunction.

**Russell Jackson** (Ph.D., 2007, University of Texas)

Dr. Jackson's research investigates how the environments in which humans evolved may have shaped how we navigate and perceive our environment. His work focuses on human factors applications in the navigation of environmental hazards. He uses virtual reality methods and live outdoor testing in order to determine how perception and navigation adapt to risks such as falling.
4. **List new courses that will be added to your curriculum specific for this program.** Indicate number, title, and credit hour value for each course. Please include course descriptions for new and/or changes to courses. *This question is not applicable to requests for discontinuance.*

Our current master’s curriculum will serve as the core curriculum for the doctoral program. This will ensure that students receive a solid background in human factors. We will add a 1 credit special topics course on human factors that doctoral students must take each semester (for a total of 8 semesters or 8 credits). This course will be used to introduce students to current research in human factors and to address professional development issues (e.g., preparing presentations for scientific conferences; manuscript preparation; grant proposals).

After completion of the master’s coursework, students will be expected to spend most of their time working closely with faculty on basic and applied research projects to further develop their research skills. Depending on the student’s interests and career goals, additional coursework may be required in related fields (e.g., statistics, computer science).

5. **Please provide the program completion requirements to include the following and attach a typical curriculum to this proposal as Appendix A.** *For discontinuation requests, will courses continue to be taught?*

<table>
<thead>
<tr>
<th>Credit hours required:</th>
<th>44</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit hours required in support courses:</td>
<td>0</td>
</tr>
<tr>
<td>Credit hours in required electives:</td>
<td>12</td>
</tr>
<tr>
<td>Credit hours for thesis or dissertation:</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total credit hours required for completion:</strong></td>
<td><strong>78</strong></td>
</tr>
</tbody>
</table>

6. **Describe additional requirements such as preliminary qualifying examination, comprehensive examination, thesis, dissertation, practicum or internship, some of which may carry credit hours included in the list above.** *This question is not applicable to requests for discontinuance.*

Doctoral students will be required to complete a master’s thesis, preliminary examination, and doctoral dissertation. The master’s thesis, which may be up to 10 credits hours, is expected to be completed by the end of the student’s second year. A preliminary examination will be completed following the thesis and before the student can start his or her dissertation. The preliminary examination will be tailored to the student’s career goals and includes two options. The first option is a traditional exam which will assess the student’s mastery of human factors and ability to utilize that knowledge to solve problems. The exam will have a written component and an oral defense. The second option is the completion of a paper, which could be a theoretical paper that is related to the student’s dissertation or a technical report documenting the use of human factors to solve an applied problem. An oral defense of the paper is required. The human factors faculty will decide which option is best for the student, taking into account the student’s preference, interests, and career goals.
7. **Identify similar programs offered within Idaho or in the region by other colleges/universities. If the proposed request is similar to another state program, provide a rationale for the duplication.**

No other programs in Idaho, Montana, Oregon, or Western Washington offer graduate training in Human Factors Psychology. In 2011, when we began preparing this program proposal, we sought a letter of support from our nearest neighbor, Washington State University and we have attached that letter (See Appendix E for Letters of Support). Recent communications indicate they continue to be in support of this program.

UI and ISU have offered complementary, non-overlapping Experimental Psychology M.S. programs for many years (with UI focusing on Human Factors and ISU on other areas of Experimental Psychology); however, both universities recognize the need for doctoral level training in Experimental Psychology. The field of psychology is divided into two primary areas: clinical psychology and experimental psychology. However, within experimental psychology there are many additional areas of specialty in which a person may receive graduate training (i.e., social psychology, developmental psychology, cognitive psychology, personality psychology, health psychology, community psychology, psychology and law, comparative psychology, behavioral pharmacology/neuroscience, evolutionary psychology, interpersonal psychology, school psychology, military psychology, industrial organizational psychology, and human factors psychology).

ISU has historically offered graduate training in clinical psychology and some areas of experimental psychology (i.e., behavioral neuroscience, behavioral pharmacology, cognition, developmental psychology, learning, personality, sensation and perception, social psychology.) By contrast the University of Idaho Experimental Psychology Master’s and proposed PhD program is focused specifically on the Human Factors area within experimental psychology. ISU and UI cooperatively agreed to develop Ph.D. programs in Experimental Psychology that maintained the same complementary, non-overlapping foci as our existing M.S. programs. The NOI to add Ph.D. training in Experimental Psychology at ISU was approved first (i.e., in August, 2010) and states “…the focus of U of I’s program is very different from the focus of our proposed program. We wish to be direct in supporting U of I’s efforts in maintaining their program in human factors.” Having well-defined doctoral programs in both departments allows the State of Idaho to meet the needs of students interested in a range of specializations and the needs of employers interested in hiring students with those specializations. A letter from the Idaho State University Chair of Psychology is forthcoming and will further attest to this plan to provide graduate training in psychology in the state.

<table>
<thead>
<tr>
<th>Institution and Degree name</th>
<th>Level</th>
<th>Specializations within the discipline (to reflect a national perspective)</th>
<th>Specializations offered within the degree at the institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSU</td>
<td>B.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI</td>
<td>A.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CWI</td>
<td>A.A.</td>
<td></td>
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</table>
The nearest Ph.D. Experimental Psychology program offering Human Factors training is New Mexico State University in Las Cruces, New Mexico. The New Mexico State University program in Human Factors is smaller than our proposed program serving only 7 graduate students with 4 faculty members. There are only 21 Human Factors Psychology programs in the United States and of these only 16 have HFES accreditation, including the M.S. program at University of Idaho and once our Ph.D. program is implemented we will also seek accreditation for the doctoral program.

8. Describe the methodology for determining enrollment projections. If a survey of student interest was conducted, attach a copy of the survey instrument with a summary of results as Appendix B. This question is not applicable to requests for discontinuance.

We conducted a survey of students at Idaho universities to estimate the degree of interest in a human factors psychology doctoral program (see Appendix B for the survey and complete results). Responses were received from 298 students from five universities (U-Idaho, ISU, BYU-Idaho, Northwest Nazarene University, and College of Idaho). We will focus on the responses of those who were considering graduate school in psychology (N = 214; sample size varies per question because some participants chose not to respond to all questions). Focusing on respondents who selected a response above the midpoint of the scale, we find that 44 out of 212 respondents expressed an interest in pursuing a Ph.D. in human factors psychology. This number grows considerably larger when we look at the likelihood of students to apply and to attend the University of Idaho if funding were available to cover tuition and living expenses: 107 out of 213 would apply and 100 out of 212 would attend if accepted.

These numbers may be a bit inflated as it included participants who are primarily interested in a master’s degree. If we focus on the 102 respondents who plan on pursuing a doctorate, we find that 37 out of 101 reported interest in pursuing a Ph.D. in human factors psychology. In addition, 59 out of 102 would apply and 56 out of 102 would attend the University of Idaho if funding were provided to cover tuition and living expenses.

Our survey results are encouraging as a sufficient number of students appear interested in pursuing a doctorate in human factors psychology. Similar to our master’s program, we also expect to recruit applicants from nearby states (e.g., Washington, Utah, Montana), so there appears to be a sufficient applicant pool to generate 2-3 high quality doctoral students a year.

In addition, our experience recruiting students to our master’s program also suggests that there is sufficient demand to generate 2-3 high quality doctoral students a year. Every year,
one to two applicants to our master’s program are lost to doctoral programs in other states. We expect that a number of other high quality applicants never applied because they were focused on doctoral programs. In addition, the number of applicants seeking admission to a Human Factors Ph.D. programs in Psychology was over 350 for the last year data are available (https://www.hfes.org/Web/Students/grad_programs.html), only 18% of those were admitted in those programs. Clearly there is both student demand that nationally and students seeking Experimental Psychology Ph.D. training in Human Factors. We anticipate the pool is more than adequate to allow for the selection of 2-3 highly qualified students for our program each year.

9. Enrollment and Graduates. Using the chart below, provide a realistic estimate of enrollment at the time of program implementation and over three year period based on availability of students meeting the criteria referenced above. Include part-time and full-time (i.e., number of majors or other relevant data) by institution for the proposed program, last three years beginning with the current year and the previous two years. Also, indicate the projected number of graduates and graduation rates.

Discontinuations. Using the chart below include part-time and full-time (i.e., number of majors or other relevant data) by institution for the proposed discontinuation, last three years beginning with the current year and previous two years. Indicate how many students are currently enrolled in the program for the previous two years, to include number of graduates and graduation rates.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Relevant Enrollment Data</th>
<th>Number of Graduates</th>
<th>Graduate Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Year of Program</td>
<td>Year 1 Previous</td>
<td>Year 2 Previous</td>
</tr>
<tr>
<td>BSU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISU</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>LCSC</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>UI</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>CSU</td>
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<tr>
<td>CWI</td>
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<td>EITC</td>
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<tr>
<td>NIC</td>
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*There is not a current program in place so we do not have current year or previous year data for UI. In the first year we would anticipate enrolling 2 full-time doctoral students with 2-3 additional students per year. The program is a four year program so we would not anticipate graduating anyone with the Ph.D. until the Spring of Year 4 after implementation and would anticipate 2-3 Ph.D. graduates each year under normal circumstances and a slightly higher number (5-6) M.S. graduates. We would anticipate that any student who continued for the Ph.D. after completing their M.S. work would be likely to defend their dissertation and graduate within 2 years of their M.S. thesis defense.

**According to the Idaho State University’s Ph.D. program website, the experimental psychology Ph.D. program has not yet generated data, as they are only in the second year of their program and have not made applicant/enrollment data available for their PhD program. However, their Master’s program in experimental psychology areas has historically enrolled 2-3 students in the last years for which data are available. This is compared to our enrollments of 4-6 1st year Master’s students each year.

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10. **Will this program reduce enrollments in other programs at your institution?** If so, please explain.

The University of Idaho does not offer programs that might typically compete for students with interests in Human Factors. Specifically, programs related to Human Factors Psychology such as Industrial Engineering, Aviation Psychology, Ergonomics, Human Computer Interaction, and Usability are not offered at the University of Idaho and therefore it is unlikely that other programs would see declines in their enrollments. Indeed, we would expect that the Human Factors Ph.D. will actually increase enrollments in our M.S. Psychology program as students would be more likely to continue their education at University of Idaho rather than seek enrollment in M.S./Ph.D. human factors programs nationally.

11. **Provide verification of state workforce needs such as job titles requiring this degree.** Include State and National Department of Labor research on employment potential.

Using the chart below, indicate the total projected job openings (including growth and replacement demands in your regional area, the state, and nation). Job openings should represent positions which require graduation from a program such as the one proposed. Data should be derived from a source that can be validated and must be no more than two years old. **This question is not applicable to requests for discontinuance.**

<table>
<thead>
<tr>
<th></th>
<th>Year 1--2015</th>
<th>Year 2--2016</th>
<th>Year 3--2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local (Regional)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>856 (expected employment)</td>
<td>870 (expected employment)</td>
<td>884 (expected employment)</td>
</tr>
<tr>
<td>Nation</td>
<td>6,550 (new openings)</td>
<td>7,860</td>
<td>9,190 (1,330 new openings projected per year until 2020)</td>
</tr>
</tbody>
</table>

a. Describe the methodology used to determine the projected job openings. If a survey of employment needs was used, please attach a copy of the survey instrument with a summary of results as Appendix C.

Labor market projections were obtained from the Idaho Department of Labor website (http://labor.idaho.gov/workforceglance/; accessed on 1/28/2013). The occupation, human factors psychologist/engineer, was not listed, so we chose “Engineers, All Other.” In 2010, there were 785 jobs in this occupation which is expected to grow to 927 in 2020 for a growth rate of 18.09%.

National market projections were obtained from O*Net OnLine retrieved from http://www.onetonline.org/link/summary/17-2112.01 on January 30, 2013. In 2010, there were 203,900 people in the “Human Factors” occupations with projected national grown between 2010 and 2020 to be 3-9% for a projected 2020 employment of 217,000. The projected growth in Idaho is twice the expected national growth.
Human Factors Psychologists are employed in a wide variety of settings, where they can have various titles including Human Factors Psychologist/Researcher/Engineer, Usability Analyst/Engineer, or User Experience Analyst/Designer. Currently within Idaho, graduates of our M.S. program in Human Factors are employed at a variety of companies and government agencies, including INL and the Center for Advanced Energy Studies (Idaho Falls), Hewlett-Packard and the Kohl Group (Boise), and Benchmark Research and Safety (Moscow, Boise). Outside of the state, major employers of HF Psychologists include the government (agencies such as the FAA, NTSB, NHTSA, NRC, DOE), all branches of the military, the nuclear power industry, the aviation industry (e.g., Boeing, Lockheed-Martin) and all of the large information technology companies (e.g., Intel, HP, Apple, Microsoft, Google, Sony).

Our master’s students have been successful in securing positions in a variety of industries and the national employment picture for Human Factors specialists is very good. The Department of Labor statistics combines together all psychologists who are not in the subfields of clinical, counseling, school, or industrial-organizational; for this somewhat heterogeneous category of applied psychologists, the mean annual wage in 2010 was $89,900 (and $100,790 for those in the “scientific research and development services”, which includes HF Psychologists), and employment was projected to increase 14% from 2008 to 2018. According to the Department of Labor sponsored Occupational Information Network (O*NET), the projected growth in 2008-2018 employment for “Psychologists-Other” is listed as “Faster than average (14% to 19%)”, and the projected growth in 2008-2018 employment for “Human Factors Engineers and Ergonomists” is likewise listed as “Faster than average (14% to 19%)”.


State Data Source: Idaho Commerce & Labor, Research & Analysis Bureau

b. Describe how the proposed change will act to stimulate the state economy by advancing the field, providing research results, etc.

A doctoral program in human factors will positively impact the state’s economy by providing the highest level training in human-machine system integration and usability. Professionals with doctoral training in human factors typically lead research or design teams concerned with ensuring that complex technological systems meet the needs of end-users, promote safety and increase efficiency and productivity. Anyone who has interacted with a poorly designed product or web site has experienced the costs of poor usability. Idaho has a burgeoning high technology sector and this sector in particular benefits from enhanced usability in its products.
c. Is the program primarily intended to meet needs other than employment needs, if so, please provide a brief rationale.

The increase in energy concerns nationally and advances in technology have increased employment opportunities for individuals with Ph.D.’s in human factors psychology. This increase in employment opportunities is a primary motivating factor for creating the program. However, the broad training that students in Doctoral Human Factors programs receive also enables them to fulfill a variety of needs in industry. Individuals who are currently employed in Industry benefit from additional graduate training which allows their organizations to be competitive for grant funding and larger industrial contracts.

12. Will any type of distance education technology be utilized in the delivery of the program on your main campus or to remote sites? Please describe. This question is not applicable to requests for discontinuance.

The current Human Factors emphasis in the Psychology graduate program includes a significant distance component that would allow students to complete early coursework via distance education (online coursework). This flexibility in course delivery will also maximize student opportunities to collaborate with INL and other industries while they complete internships. In the typical case, the final five semesters of graduate work for the Ph.D. will require students to be on campus for completion of additional coursework (not available online) and thesis and dissertation level research. In particularly exceptional cases, where a student is already employed in industry and has appropriate facilities and support to conduct thesis and dissertation level work, it may be possible for them to complete their graduate degree via distance coursework and research collaborations at their current place of employment. Proposals, defense of final thesis and dissertation work, and preliminary exams would be held on the Moscow campus, but would require no more than a day or two for completion. Lab experience is a key component of graduate level work in Human Factors and all students would be encouraged to take advantage of those experiences available to them.

The current MS distance program involves online coursework and courses provided via streaming video and/or pre-recorded video. This core coursework can all be completed without any requirement to be on the Moscow or any UI campus. In order to complete the comprehensive exams for the Master’s degree appropriate arrangements must be made in collaboration with the major professor to arrange for a proctor for these exams. For the PhD, program coursework could be completed similarly via online courses, streaming or pre-recorded video of courses. Additional coursework that is currently not available online, could be easily delivered using streaming video technology. Research requirements for the thesis and dissertation would need to be arranged carefully with the major professor and committee as well as ensuring that appropriate research facilities are available to carry out the proposed work for those students who would not be located on the Moscow campus. The more typical model for students not already employed in a Human Factors capacity, would be that in the last semesters of the program as research becomes the primary focus of the training that students would be present on the Moscow campus for some term (e.g., summer) to work in an appropriate Human Factors lab to gather data and gain critical experience working with the technology that is typical in human factors research.
13. Describe how this request is consistent with the State Board of Education’s strategic plan and institution’s role and mission. This question is not applicable to requests for discontinuance.

The State Board of Education’s strategic plan emphasizes the following goals: (1) “a well-educated citizenry,” (2) “critical thinking and innovation,” and (3) “effective and efficient delivery systems.” Our graduate training program recruits many of our students from within Idaho and we expect that the addition of a doctoral program will enhance our ability to recruit in-state students, which is consistent with Goal 1.

In accordance with Goal 2, our faculty and students are actively engaged in applied research on contemporary problems (e.g., improving pedestrian and aviation safety). Our faculty and students have been active in developing collaborations with agencies that will expand research opportunities and funding opportunities (e.g., ongoing research collaborations with INL/CAES and the National Institute for Advanced Transportation (NIATT)). Our doctoral students’ research projects and internships will further facilitate these types of collaborations.

Finally, expanding our existing graduate program to include a Ph.D. program meets Goal 3. By adding the doctoral program and maximizing our use of existing resources (e.g., curriculum for the master’s program will serve as the foundation) additional costs will be minimal we are providing an effective and efficient method of delivery for a key STEM (Science, Technology, Engineering, and Mathematics) program. Human Factors Psychology incorporates Psychology, Engineering, and Technology and provides a unique intersection of STEM disciplines. This type of program provides STEM discipline emphasis, but also applications of STEM education in the highly employable field of Human Factors. Further, some of our master’s students who would otherwise leave our program to attend doctoral programs elsewhere will stay and the time and resources spent training them can be applied toward research and projects that benefit the university and state. Doctoral students could also help us meet instructional needs at the undergraduate level and assist on grants.

14. Describe how this request fits with the institution’s vision and/or strategic plan. This question is not applicable to requests for discontinuance.

The University of Idaho’s strategic plan emphasizes the following goals: (1) “Enable student success in a rapidly changing world”, (2) “Promote excellence in scholarship and creative activity to enhance life today and prepare us for tomorrow”, and (3) “Meet society’s critical needs by engaging in mutually beneficial partnerships.” Our graduate training program meets all three of these goals. In accord with Goals 1 and 2, our faculty and students are actively engaged in applied research on contemporary problems (e.g., improving pedestrian and aviation safety). Moreover, in accord with Goal 3, our faculty and students have been actively and successfully developing collaborations with both private industry and public agencies (e.g., ongoing research collaborations with INL/CAES and with Nissan Corporation on how to minimize pedestrian risk associated with quieter electric cars). Our doctoral students’ research projects and internships will further facilitate these types of collaborations. Finally, our cross-listing of courses (across departments and universities) and our involvement in the Neuroscience program support the interdisciplinary activity emphasized in UI’s Strategic Plan.
<table>
<thead>
<tr>
<th>Goals of Institution Strategic Mission</th>
<th>Proposed Program Plans to Achieve the Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable student success in a rapidly changing world.</td>
<td>Our faculty and students engage in curriculum and research that actively engages in understanding how changing technology impacts current thinking about human factors. For example, the increase in hybrid vehicles and decreased car noise has direct impact on pedestrian safety.</td>
</tr>
<tr>
<td>Promote excellence in scholarship and creative activity to enhance life today and prepare us for tomorrow.</td>
<td>Our faculty and students have pursued research on topics that are directly applicable to contemporary problems (e.g., improving pedestrian and aviation safety). Our students routinely present their work at the Human Factors and Ergonomics Society conference and our faculty members publish in peer reviewed journals to disseminate the important work conducted in the University of Idaho Human Factors laboratories.</td>
</tr>
<tr>
<td>Meet society’s critical needs by engaging in mutually beneficial partnerships.</td>
<td>Our faculty and students have been actively and successfully developing collaborations with both private industry and public agencies (e.g., ongoing research collaborations with INL/CAES and with Nissan Corporation on how to minimize pedestrian risk associated with quieter electric cars). Our faculty are also collaborating with NIATT and the Alaska Department of Transportation and generating new collaborative opportunities with the Idaho Department of Transportation. Our doctoral students’ research projects and internships will further facilitate these types of collaborations.</td>
</tr>
</tbody>
</table>

15. **Is the proposed program in your institution’s Five-Year plan? Indicate below.** *This question is not applicable to requests for discontinuance.*

   Yes  x  No  

The proposed program, a Ph.D. in **Human Factors Experimental** Psychology, is listed on the current five-year plan and has been on the State Board 8 year plan (later 5 year plan) since 2006. This timeline has provided us with the time required to develop a strong, competitive, and economically viable program.

The proposed program, a PhD in **Human Factors Experimental** Psychology was on the State of Idaho Board of Education plan as early as August of 2006. When ISU forwarded their proposal for the Experimental Psychology program, our response reiterated our intent to continue to pursue the Human Factors psychology specialization as planned. We have been continuously on the 8 year plan (and later the 5 year plan) to propose this program. At every point we have made it clear that we have carefully invested resources and energy to meet the suggestions and recommendations to be able to deliver such a program successfully. Our strategy has been a cautious one. We have built a robust Master’s level program in **Psychology with a focus on** Human Factors and took the time to do so in an economically sustainable way prior to adding the PhD program. It is only after this cautious planning and responsiveness to feedback at every level, that we are proposing a carefully thought out PhD in **Human Factors Experimental** Psychology.
In 2009, an external review of our program was conducted and the reviewers were particularly asked about the appropriateness of our continuing to pursue the PhD in Human Factors Experimental Psychology program and reported that this plan was favorable. In anticipation of this proposal, we made strategic hires in the area of Human Factors that would best serve the proposed program. We have invested resources to develop labs that would serve not only as appropriate training facilities but also state of the art research facilities so that we would be competitive for external funding and contracts to fund our students and serve the state.

16. Explain how students are going to learn about this program and where students are going to be recruited from (i.e., within institution, out-of-state, internationally). For requests to discontinue a program, how will continuing students be advised of impending changes and consulted about options or alternatives for attaining their educational goals?

The initial focus of the program will be on recruiting applicants from in-state and the nearby region. Information about the program will be distributed to universities within the state and region. Depending on available funding, we will also plan some recruiting trips to universities in the state and region to inform students about the field of human factors and the opportunities at the University of Idaho. Within the university, we will publicize the program to our majors and other related majors through class presentations, brochures, and the advising process. Finally, program information will be added to the website of the Human Factors and Ergonomic Society (HFES). HFES maintains a list of graduate programs and this resource is widely used by students to identify appropriate programs.

17. In accordance with Board Policy III.G., an external peer review is required for any new doctoral program. Attach the peer review report as Appendix D.

Pending selection of reviewers by SBOE and Provost. Suggested external peer reviewers are listed in Appendix D with short curriculum vitae of each.

18. Program Resource Requirements. Using the Excel spreadsheet provided by the Office of the State Board of Education indicate all resources needed including the planned FTE enrollment, projected revenues, and estimated expenditures for the first three fiscal years of the program. Include reallocation of existing personnel and resources and anticipated or requested new resources. Second and third year estimates should be in constant dollars. Amounts should reconcile budget explanations below. If the program is contract related, explain the fiscal sources and the year-to-year commitment from the contracting agency(ies) or party(ies). Provide an explanation of the fiscal impact of the proposed discontinuance to include impacts to faculty (i.e., salary savings, re-assignments).

a. Personnel Costs
Faculty and Staff Expenditures

Project for the first three years of the program the credit hours to be generated by each faculty member (full-time and part-time), graduate assistant, and other instructional personnel. Also indicate salaries. After total student credit hours, convert to an FTE student basis. Please provide totals for each of the three years presented. Salaries and FTE students should reflect amounts shown on budget schedule.

As of February 2013, the Department of Psychology and Communication Studies has 14 full-time board-appointed faculty members on our Moscow campus; 12 of whom are dedicated to the psychology program, and 5 of those 12 will have teaching and research emphases in Human Factors Psychology. Our faculty research interests cover a wide range of topics in Human Factors (e.g., visual perception and spatial cognition, pedestrian and vehicular safety, human-computer interaction, automated alarm systems, virtual aviation displays), which will provide students with excellent research training in these areas.

Training doctoral students will only minimally increase faculty workloads and allow them to gain maximum use of their laboratory equipment and facilities. There will be no increase in the number of courses each faculty member teaches per semester. We anticipate each faculty member in our HF program to be the major advisor for at most 5 graduate students at a time (3 master's level and 2 doctoral students) at a time. Our admissions standards will be selective, ensuring that we have high quality doctoral students who have the potential to enhance faculty research programs. Moreover, our advanced doctoral students will be able to help teach our undergraduates and mentor newer graduate students.

The department has an administrative assistant and financial technician on staff who would be able to provide support for the anticipated 2-3 additional students per year or a total of 10 additional graduate students.

Year 1

<table>
<thead>
<tr>
<th>Name, Position &amp; Rank</th>
<th>Annual Salary Rate</th>
<th>FTE Assignment to this Program*</th>
<th>Projected Graduate Student Credit Hours</th>
<th>Projected Ph.D. Student Credit Hours</th>
<th>FTE Ph.D. Students</th>
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<th>Projected Ph.D. Student Credit Hours</th>
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</table>

*Note: Faculty FTE is for the Human Factors graduate program inclusive of both the existing Master’s program and the proposed extension of the existing graduate program to offer the Ph.D.. That is, the effort devoted only to the Ph.D. program would be difficult to disentangle from the effort for the M.S. program in terms of advising or research. Projected credit hours are per year and based on the assumption that a faculty member would oversee 1-2 graduate students generating thesis/dissertation credit hours or research credit hours in addition to the credits generated by taking core coursework. The distribution of students across faculty should be relatively even, though for the purposes of this table the even
distribution of students across faculty would not be evident until the third or fourth year. Faculty members with a higher FTE are those who are more involved in our distance education program.

Project the need and cost for support personnel and any other personnel expenditures for the first three years of the program.

**Administrative Expenditures**
Describe the proposed administrative structure necessary to ensure program success and the cost of that support. Include a statement concerning the involvement of other departments, colleges, or other institutions and the estimated cost of their involvement in the proposed program.

<table>
<thead>
<tr>
<th>Name, Position &amp; Rank</th>
<th>Annual Salary Rate</th>
<th>FTE Assignment to this Program</th>
<th>Value of FTE Effort to this Program</th>
</tr>
</thead>
</table>

Our current administrative structure is sufficient to support the addition of 2-3 per year for a total of 10 additional graduate students to our program.

Additional assistantship funding is typically provided to graduate students in return for teaching or research assistantships at 20 hours per week during the academic year ($10,500 per student per year).

In order to attract high quality Ph.D. students we will need to provide tuition and fee waivers or cover these expenses ($7,162 per student per academic year).

In addition, summer funding would allow students to complete necessary research during the summer months to ensure an on-time graduation in the fourth year ($3,640 per student per summer).

We anticipate accepting 2-3 students each year into the Ph.D. program. We intend to use department F&A return, grant funding, and cooperative internships to cover some of these expenses when possible and rely on outreach revenue to cover the remainder of these costs.

**Operating Expenditures**
Briefly explain the need and cost for operating expenditures (travel, professional services, etc.)

We typically provide graduate students with funds to travel to conferences and disseminate their work. Indeed the HFES meeting each year is a key employment networking opportunity for students. We currently fund this for our master’s students in their second year. However, Ph.D. students will need funds to attend this and other conferences for four years. Finally, we hope to use some of the travel money to fund recruiting trips in the early years of the program to build our applicant pool for the Ph.D. and existing M.S. Human Factors programs. Again, grant funding could feasibly offset some of this expense, but the remainder would need to be covered by the department through outreach revenue or grant F&A returned to the department.
Over the longer term, we anticipate some advanced doctoral students teaching sections of certain courses independently or securing (and helping our faculty to secure) additional external funding. In summary, we will be able to provide competitive funding and quality training to doctoral students with our current staffing and funding levels.

However, if outreach revenue is redistributed within the University or College additional funds would be needed to fund graduate assistantships and tuition and fees for doctoral students.

b. Capital Outlay

(1) Library resources
   (a) Evaluate library resources, including personnel and space. Are they adequate for the operation of the present program? If not, explain the action necessary to ensure program success.

   The current library resources are sufficient to meet the needs of our program and the anticipated addition of a Ph.D. program. We are requesting additional funding for the library in the budget to offset the costs associated with continuing to provide the necessary journal subscriptions to our faculty and students as costs of electronic journals continues to increase.

   (b) Indicate the costs for the proposed program including personnel, space, equipment, monographs, journals, and materials required for the program.

   We currently have over 2,400 square feet across five laboratories dedicated to Human Factors Research.

<table>
<thead>
<tr>
<th>Lab Name</th>
<th>Location</th>
<th>Square Footage</th>
<th>Contact Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho Child Safety Lab</td>
<td>Forney 003</td>
<td>226 sq. ft.</td>
<td>Barton, Ben</td>
</tr>
<tr>
<td>Mind in Movement Laboratory</td>
<td>Forney 001</td>
<td>370 sq. ft.</td>
<td>Cohen, Rajal</td>
</tr>
<tr>
<td>Visual Psychophysics Lab &amp;</td>
<td>SHC 016D,</td>
<td>470 sq. ft.</td>
<td>Dyre, Brian</td>
</tr>
<tr>
<td>General Lab Space</td>
<td>SHC 005,</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>SHC 008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evolved Navigation Lab</td>
<td>SHC 014</td>
<td>390 sq. ft.</td>
<td>Jackson, Russell</td>
</tr>
<tr>
<td>Cognitive Lab</td>
<td>SHC 009</td>
<td>279 sq. ft.</td>
<td>Werner, Steffen</td>
</tr>
<tr>
<td>Driving &amp; Flight Simulation Lab</td>
<td>Memorial Gym B46A</td>
<td>700 sq. ft.</td>
<td>Werner, Steffen</td>
</tr>
<tr>
<td></td>
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<td>Dyre, Brian</td>
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</table>

   (c) For off-campus programs, clearly indicate how the library resources are to be provided.

   Our distance program students make use of the digital collections provided by the University of Idaho Moscow campus library. The vast majority of literature relevant to HF research is available digitally.

(2) Equipment/Instruments
Describe the need for any laboratory instruments, computer(s), or other equipment. List equipment, which is presently available and any equipment (and cost) which must be obtained to support the proposed program.

The department currently has over 2,000 square feet of lab space providing access to cutting edge technology and sophisticated equipment used in human factors research. The department also has a graduate student space with computers available to students for data analysis and typical office functions.

**Human Factors Simulation Lab** housed in B46A Memorial Gym measures 700 sq ft.

**Bay 1 of the simulation lab hosts the Driving Simulator**

NADS (National Advanced Driving Simulator, U of Iowa) seven channel MiniSim driving simulator (3 forward view, 1 dashboard display, 3 rear view mirrors)
- Total forward field-of-view 135° (front-projection screens)
- 3 high-resolution data projectors for the forward view
- 1 fully instrumented Chevy S10 cab with 3D sound
- 3 LCD displays for dash display and side mirrors
- Pedals for breaking and acceleration
- Steering wheel with switches and gear shifter
- 1 60" Plasma screen for the center rear view or alternatively
- 1 “Flight Seat” with controls suitable for aviation simulation
- 1 host PC for simulation control using our in-house-developed ViEWER simulation software using the same front projection setup

**Bay 2 of the simulation lab is set aside to be equipped with**
- 1 Process control simulation station (for INL Alarm Dashboard project)
- 3 large-screen monitors and 1 server running the process control simulation software currently developed in house (to be installed Spring 2013).

**Lab also includes:**
- 5 PCs for office applications (data analysis, manuscript writing)
- Apparatus for “Human Water Maze” for spatial cognition experiments

- **016D SHS** (~250 square feet, painted flat black with black carpeting to control reflections for visual psychophysics experiments) contains the Flight simulator with high-resolution 90 degree FOV (two 54" diagonal rear-projection enclosures with NEC high-resolution/fast phosphor CRT projectors)
  - 2 large (60" diagonal) rear projection cabinets with high-resolution and fast-phosphor NEC CRT projectors (1 of which is currently inoperable).
  - 2 graphics workstations capable of generating high quality 3D graphics for our simulations
  - 1 host computer for controlling simulations
  - 1 ASL head mounted eye-head tracking system that also can be used for measurement of pupil diameter with its own dedicated computer
  - Sensors and amplifiers for monitoring heart rate, breathing rate, and skin conductance (on loan from WSU psych department due to my adjunct status)
there)
  - 1 file server with redundant back-up systems
  - 1 height-adjustable participant seat with various controls (joysticks, steering wheels, etc.)
  - Flock of Birds magnetic head tracking system and IS-300 3DOF inertial tracking system.

- **The Idaho Child Safety Lab** in Forney Hall 003 is housed in a 226 square foot lab space that contains both eye-tracking technology and a sound booth for auditory studies.
  - Eye tracking: ASL EYE-TRAC6 System with remote desk-mounted tracking. The system uses an infrared beam to track head position so that the person doesn't have to lock their head into a device to hold it still.
  - Sound booth: 4x4 feet, lined with fabric for visual isolation, insulated with foam and fabric sound-deadening material, equipped with two 5-inch powered studio monitors, sound is controlled externally by the researcher. The idea is that the person is placed in a semi-isolated environment so that they can experience traffic sounds (or other auditory stimuli), and we can measure physiological reactions, self-reports, etc.
  - In addition this lab includes technology allowing for the measurement of heart rate and electrodermal response.
  - Several GPS trackers for use in real-world behavioral data collection

- **Cognition and Usability Lab** is located in SHC 009 Student Health Center, a 279 square foot mixed lab/office space. The cognition and usability lab will be structurally divided into a usability lab (approximately 120 square feet) containing:
  - 1 Wacom Cintiq 24" graphics tablet with multi-touch capability
  - 2 iMac 24" personal computers
  - 1 Tobii eye-tracker (pending purchase)
  - 1 Windows computer workstation running ePrime II for time-critical experiments.
  - The remaining 150 square feet are going to be used as graduate student office space and meeting space

- **The Evolved Navigation Lab** is a 390 sq. ft. space in Student Health Center Room 014 featuring immersive single-user virtual reality capacities. The lab houses a 4 camera PPTX and InertiaCube system with an NVIS SX60 Head Mounted Display. The PPTX machine runs Vizard software and the rendering computer is a liquid-cooled machine with a solid state drive and state of the art graphics capacities. Users receive 60 degree field of view with integrated sound across virtual environments. Additionally this lab has a Kaiser PV-60 head-mounted stereo display (FOV 45 degrees) and Intersense 300 head tracking.

- A 279 square foot **Mind in Motion laboratory** facility The focus of the Mind in Motion Laboratory is to investigate how cognitive abilities (and cognitive deficits) influence movement and posture. The lab includes a large open space equipped with an 8-camera Vicon Bonita motion capture system and the Motion Monitor integration package. This combined system allows us to (1) collect three-dimensional position data from passive reflective markers on the body; (2) accurately identify the reflective markers in real time to generate a model of the human body in motion; (3) seamlessly integrate and
synchronize of data from future equipment purchases (such as force plates, accelerometers, electromyography, and biofeedback). It also (4) allows students working in my lab to collect and analyze data without spending years learning to program computers, thus freeing up more of their time to focus on learning about science.

- All Labs contain PCs for data analysis and manuscript preparation. Multiple high-performance graphics workstations for the development of synthetic environments

d. Revenue Sources

(1) If funding is to come from the reallocation of existing state appropriated funds, please indicate the sources of the reallocation. What impact will the reallocation of funds in support of the program have on other programs?

We currently have 5 full-time faculty members who offer coursework in the graduate program and mentor graduate students. This effort would continue and the addition of 2 more students per year to courses would not significantly impact their workload. In addition, faculty already provide advising and mentorship to graduate students and this would continue for two additional years for Ph.D. students. Again, this would not significantly impact allocation of time for faculty. Salaries are already allocated in the amount of $315,000 for these lines and there is no foreseeable need for an increase in this amount nor a significant redistribution of labor for these faculty members based on the addition of the Ph.D. Program. As noted in item 18.b.1, an additional $2,000 would need to be reallocated to the University of Idaho library for capital outlay each year.

(2) If the funding is to come from other sources such as a donation, indicate the sources of other funding. What are the institution’s plans for sustaining the program when funding ends?

Currently, all of our on-campus graduate students are fully funded through a combination of sources, including graduate teaching assistants funded by our College, research assistantships funded through grants and paid internships, and assistantships provided by departmental funds generated by faculty research and outreach activities. These resources will be sufficient to fully fund the number of Ph.D. students that we expect to admit over the next few years. Ph.D. students would need to have tuition and fees covered and this can be managed with generated revenue from outreach courses and faculty research grants. We do not anticipate a decline or end to outreach revenue, though our ability to support students will rely on the continued distribution of funds to departments or equivalent budget lines to the department. Funding and training Ph.D. level graduate students is a priority for many federal grants and the addition of a graduate program would make our faculty more competitive for these awards.

(3) If an above Maintenance of Current Operations (MCO) appropriation is required to fund the program, indicate when the institution plans to include the program in the legislative budget request.

This program does not require an MCO appropriation as proposed.
(4) Describe the federal grant, other grant(s), special fee arrangements, or contract(s) to fund the program. What does the institution propose to do with the program upon termination of those funds?

While, faculty grant funding will off-set the costs for the proposed Ph.D. program and the existing M.S. program in human factors, the program is not entirely reliant on these funds and could support the program with current resources and outreach revenue. Currently, we have three grants or contracts funding four students in the program through partial assistantships and in some cases funds covering tuition and fees.

(5) Provide estimated fees for any proposed professional or self-support program. The program being proposed does not fit a professional or self-support graduate program model, but rather a more traditional model in which graduate student support and tuition would be paid by the institution. However, the students currently in the distance program are part-time students who pay tuition and fees for their coursework and do not receive assistantships or other funding from the institution.
Appendix A – Proposed Curriculum

NOTE: Total required credits = 78; maximum # 400-level credits = 26; maximum # PSYC 600 credits = 45.

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APPENDIX B – SURVEY OF STUDENT INTEREST

Survey on Human Factors Psychology

The University of Idaho Institutional Review Board has certified this project as Exempt.

The Department of Psychology and Communication Studies at the University of Idaho is investigating whether to add a doctoral program in human factors psychology. The purpose of this survey is to gather information about the potential interest in this program. The survey will take approximately 5-10 minutes to complete. It consists of questions about your plans to go to graduate school and your interest in human factors psychology. There are no risks to this study beyond what would be encountered in daily life.

Your responses to the survey will be anonymous. No identifying information will be associated with your responses. Your participation in this survey is voluntary and you may withdraw from the survey at any time. If you have any questions about the survey, you may contact Dr. Todd Thorsteinson (tthorste@uidaho.edu; 208-885-4944)

If you are at least 18 years of age and agree to participate in the survey, please click on “Next to start the survey.

[Numbers next to the responses are frequencies; 298 respondents]

1. Are you a psychology major?  
   222 Yes  76 No

2. What year are you?  
   27 Freshman  
   67 Sophomore  
   86 Junior  
   113 Senior  
   5 Other

3. What is your gender?  
   221 Female  
   76 Male  
   1 Prefer not to respond

4. Are you a current resident of Idaho?  
   207 Yes  
   91 No

5. Are you familiar with the field of human factors psychology?  
   [Mean = 2.50]  
   Very familiar  Familiar  Somewhat  A little  Never heard of it  
   5 [10]  4 [40]  3 [107]  2 [71]  1 [69]
6. Are you planning on attending graduate school in psychology?
   139 Yes
   84 No  [If participants selected “No,” they skipped to the last question, Question 12]
   75 Unsure

7. What graduate degree are you interested in pursuing? (check all that apply)
   155 master’s degree
   102 a doctoral degree
   34 unsure

Human factors applies psychological knowledge about human perception, cognition, and social interactions to a range of topics – like product design, human performance and human error, human-machine and human-computer interaction, interface design, safety, and ergonomics. Human factors researchers and user experience engineers try to improve the ways that people interact with products and environments.

8. How interested are you in human factors as a career? [Mean = 3.77]
   Not at all
   Extremely interested

9. How interested are you in pursuing a master’s degree in human factors psychology?
   [Mean = 3.34]
   Not at all
   Extremely interested

10. How interested are you in pursuing a doctoral degree (i.e., a Ph.D.) in human factors psychology?
    [Mean = 2.88]
    Not at all
11. If the University of Idaho offered a Ph.D. in human factors psychology and provided funding that covered your tuition and basic living expenses...

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12. What university are you currently attending?

[111 = Brigham Young University – Idaho]
[69 = Northwest Nazarene University]
[58 = Idaho State University]
[53 = University of Idaho]
[5 = College of Idaho]
[1 = Other]
[1 = Not reported]

Thank you for your participation!
Appendix C

Employment Needs Survey

We did not use a survey instrument to assess employment needs to generate the reported data.
Appendix D
Recommendations for External Reviewers

Below is a list of external reviewer suggestions in order of our preference and suitability for reviewing our program, though all on the list would be able to provide valuable insight into the viability of our proposal. Their biographical sketches follow this page in order of preference.

1. Patricia DeLucia, Department of Psychology, Texas Tech University, Lubbock, TX (currently the Chair of the HFES accreditation committee)
2. Christopher Wickens, Professor Emeritus from the University of Illinois Department of Psychology, Adjunct Professor University of Colorado Department of Psychology, and Senior Scientist at AlionSciences Company Boulder, CO
3. John Flach, Chair, Department of Psychology, Wright State University, Dayton OH (Wright State has a very good Ph.D. program in Human Factors)
4. Douglas Gillan, Head, Department of Psychology, North Carolina State University, Raleigh, NC
5. Mark Scerbo, Professor, Department of Psychology, Old Dominion University, Norfolk, VA
6. David Strayer, Professor, Department of Cognition and Neuroscience, University of Utah, Salt Lake City, UT
7. Thomas Dingus, Director of Virginia Tech Transportation Institute, Virginia Tech, Blacksburg, VA
Patricia DeLucia, Ph.D.
Chair of HFES Accreditation Committee

Patricia DeLucia received her PhD from Columbia University in 1989 and completed her postdoctoral work at Wright Patterson Air Force Base in 1991. She is currently a professor at Texas Tech University and coordinator of their human factors psychology program. On the basis of her outstanding contributions to the field of human factors psychology, she was elected a fellow of both the Human Factors and Ergonomics Society (HFES) and the American Psychological Association (APA). In 2010-2011, she served as president of Division 21 (Applied Experimental and Engineering Psychology) of the American Psychological Association. She currently serves as the Chair of the Accreditation Committee for the Human Factors and Ergonomics Society, is an Associate Editor of Human Factors (one of the leading journals in the field), and is on the editorial board for the Journal of Experimental Psychology: Applied.

Her research program has resulted in over 30 publications focusing on theoretical and applied issues in visual perception and human factors. Her interests include (a) the perception of collision, motion, and depth with applications to transportation (e.g., driving and aviation), health care (e.g., minimally invasive surgery), military (e.g., night vision goggles), and sport (e.g., umpiring), and (b) human factors in health care (e.g., patient safety).

Positions:

Professor, Department of Psychology; Coordinator of the Human Factors Psychology Program; Adjunct Professor, School of Nursing.

Education:


Contact:

Phone: (806) 742-3711, ext. 259  Fax: (806) 742-0818

Email: pat.delucia@ttu.edu  Web site: Web site

Program site: Human Factors Psychology Program


Dr. Wickens is currently working part-time at Alion Science in Boulder, CO.

He received a B.A. from Harvard College in Physical Sciences in 1967. He received a M.A. from the University of Michigan in Psychology in 1969. He completed his Ph.D. under Dick Pew at Ann Arbor in 1974. He rose through the ranks from Assistant Professor to Professor in the Department of Psychology at the University of Illinois at Urbana-Champaign. He was Visiting Professor, Department of Behavioral Sciences & Leadership, U. S. Air Force Academy in 1983-1984, 1991-1992, and 1999-2000.

For over 30 years Chris Wickens' research has focused on the interface between basic research and the applied area of human factors. His research is concerned with two primary themes. From a psychological perspective, one theme has been the study of human attention related to the performance of complex tasks. From a human factors perspective, the second theme relates to the study of how displays and the automation can be used to support the behavior of operators in high- risk systems. Professor Wickens and his students have focused their research interests primarily on aviation vehicle control. Through his career his research has bridged the intersection of these two themes in order to show how basic research in attention can account for human behavior in these complex systems. As a result of his research, he has developed two theories or models of attention: multiple resources theory developed in the early 1980s; and Salience, Effort, Expectancy and Value (SEEV) theory elaborating the selective aspects of attention in the late 1990s and early 2000s.

Wickens' research is internationally recognized. He has been invited to give the keynote address at a number of international conferences. He has supervised 38 Ph.D. theses, 64 master theses and 7 undergraduate honors theses. Many of Wickens' graduate students went on to distinguished interdisciplinary careers in universities, government and industry.

He has authored or co-authored eight books including an introductory text in Psychology, an introduction to human factors engineering and the most widely used advanced textbook in engineering psychology and human performance. Two books on human factors in air traffic control have been published by the National Academy Press. The other three books are concerned with display technology, workload transition and displays. Wickens has published over 200 articles in refereed journals and book chapters.
John Flach is a professor of psychology and former chair of the psychology department at Wright State University (from 2004 to 2012). He has been on the faculty at the University of Illinois at Urbana-Champaign, served as adjunct research scientist at the Air Force Research Laboratory at the Wright Patterson Air Force Base, and worked in engineering departments as well as psychology departments.

Since earning his PhD in 1984 from Ohio State University, he has made significant contributions to the field of applied experimental and human factors psychology. He studies issues of coordination and control in cognitive systems. More specifically, his work focuses on visual control of locomotion, graphical interface design, decision-making, manual control, and tactile displays.

Along with numerous articles, he is the author of two books (one on control theory and another on display and interface design) and has published two edited books on ecological approaches to human-machine systems. His book on control theory attempts to introduce the logic and analytical language of control systems to social scientists, whereas his book on display and interface design offers a theoretical context for designing displays to support human problem solving.

Education and Degrees:
Ph.D., Human Experimental Psychology, 1984 The Ohio State University
M.A., Psychology, 1978 University of Dayton
B.A. Psychology, 1975 St. Joseph’s College, Indiana

Professional History:
2004(July) – Present Chair, Department of Psychology, Wright State University
2004 (Jan – Mar) Visiting Professor, Departments of Aeronautical, Mechanical, and Industrial Design Engineering, TU Delft (Sabbatical from WSU)
2000 (May - June) Erskine Fellow. University of Canterbury, Christchurch, NZ.
1998 – Present Professor, Department of Psychology, Wright State University
1994 - 1998 Associate Professor, Department of Psychology
Wright State University
1990 – 1996 Adjunct Research Scientist
Air Force Research Laboratory, Wright Patterson AFB
1990 - 1994 Assistant Professor, Department of Psychology
Wright State University
1984 - 1990 Assistant Professor, Department of Mechanical & Industrial Engineering, Department of Psychology, Institute of Aviation, University of Illinois at Urbana-Champaign
Selected Journal Articles, Book Chapters, and Published Proceedings
Douglas Gillan earned a bachelor’s degree in psychology from Macalester College (St. Paul, MN) in 1974 and a PhD in experimental psychology from the University of Texas at Austin in 1978. For the two years following his doctorate, he was a National Science Foundation Fellow at Yale University and a Sloan Foundation Fellow at the University of Pennsylvania. He worked in industry for the next 10 years, conducting taste research for General Foods Research Center’s Sensory Evaluation Department from 1980 to 1984, then human factors research and development for Lockheed Engineering and Sciences Company at NASA-Johnson Space Center in Houston. In 1989, he returned to academia, working the psychology departments at Rice University, the University of Idaho, New Mexico State University, and North Carolina State University.

He is currently a professor of psychology and head of the psychology department at North Carolina State University. He has served as a department head for nearly 20 years at two universities, both of which have doctoral programs in human factors (New Mexico State University and North Carolina State University). As department head at NC State, he manages 33 faculty members, 120 graduate students, and 750 undergraduate majors.

His numerous publications and presentations have focused on perceptual and cognitive processes in reading graphical displays and human-computer interaction. Based on his significant contributions to the field of human factors, he was elected a fellow of the Human Factors and Ergonomics Society.

Research Interests

Human-computer interaction, knowledge acquisition and representation, information visualization and high level perception

Recent Publications


- Gillan, D. J., & Sapp, M. V. (2005a). Out of the box: Approaches to good initial interface


Mark Scerbo graduated with a BA in Psychology from Rutgers in 1981, an MA in Psychology from University of Cincinnati in 1985 and the PhD in 1987. He is currently a professor of human factors psychology at Old Dominion University. He has over 25 years of experience researching and designing systems and displays that improve user performance in academic, military, and industrial work environments. His research interests are focused in two areas: 1) human interaction with automated and adaptive automated systems, and 2) user interaction with medical simulation technology. He has won many awards, most recently the Paper of Distinction at the Association for Surgical Education meeting in 2010. He also has significant experience in human factors research in industry, having supervised the Human Factors Research Laboratory at AT&T from 1987 to 1990. He is an Associate Editor of Human Factors and a Fellow of the Human Factors and Ergonomic Society.

Education
Degree: Ph. D., Psychology, University Of Cincinnati, 1987
Degree: M.A., Psychology, University of Cincinnati, 1985
Degree: B.A., Psychology, Rutgers College, Rutgers University, 1981

Selected Articles
David L. Strayer
Department of Psychology
380 South, 1530 East, Room # 502
University of Utah
Salt Lake City, Utah 84112-0251
(801) 581-5037
David.Strayer@utah.edu

David Strayer received his PhD in 1989 from the University of Illinois-Urbana Champaign and is currently a professor of psychology at the University of Utah. He is the director of the Applied Cognition Lab at the University of Utah, which has been studying driver distraction to better understand how and why people can become overloaded while multi-tasking. His research has clearly shown the large cost of common distractions - like cell phone use and texting - on driving performance. Talking on the cell-phone increases the risk of accidents fourfold - the same amount as driving while intoxicated above the legal limit. As he and many other researchers have shown, the act of talking on the phone is the culprit - not holding the phone in one's hand. There is thus no difference between handheld and hands-free phones in cars. Apart from his applied research in human attention, Dr. Strayer has also identified a small set of people who seem to be able to multitask without a significant cost to their performance. Identifying the characteristics of these so-called ‘supertaskers’ is a new topic he currently pursues. His research has been covered widely in the media, including The New York Times, PBS News Hour with Jim Lehrer, and the Oprah Winfrey Show.

**Educational History:** 1989 Ph.D. University of Illinois at Urbana-Champaign
Major: Experimental Psychology
Minors: Quantitative, Biological
1982 M.S. Eastern Washington University
Major: Experimental Psychology
1980 B.A. Eastern Washington University
Majors: Psychology, History

**Professional History**
2004 – Present Professor, Department of Psychology, University of Utah
Adjunct Professor, Dept. of Educational Psychology, University of Utah
1995 - 2004 Associate Professor, Department of Psychology, University of Utah
1991 - 1995 Assistant Professor, Department of Psychology, University of Utah
1990 - 1991 Member of Technical Staff, Network Architecture and Services Laboratory, GTE Laboratories
1989 - 1990 Post-Doctoral Research Associate, Department of Psychology, University of Illinois at Urbana-Champaign

**Recent Publications**


Thomas A. Dingus  
Director of Virginia Tech Transportation Institute  

Newport News Shipbuilding/Tenneco Professor of Civil and Environmental Engineering  
Transportation Infrastructure and Systems Engineering  
VTTI (0536); 3500 Transportation Res. Plaza  
tdingus@vt.edu  
(540) 231-1501  
Certified Human Factors Professional, Board of Certification in Professional Ergonomics  

Thomas Dingus received his B.A. and M.S. in Experimental Psychology from Eastern Washington University. In 1989 he completed his PhD at the University of Illinois-Urbana Champaign in Experimental Psychology in the area of Human Factors. He is the Director of the Virginia Tech Transportation Institute (VTTI) and is the Newport News Shipbuilding Professor of Civil and Environmental Engineering at Virginia Tech. He is center director of the Tier 1 Connected Vehicle/Infrastructure University Transportation Center (CVI-UTC), which comprises a consortium of Virginia Tech/VTTI, the University of Virginia, and Morgan State University.  

Since 1996, Dr. Dingus has managed the operations and research at VTTI. This multidisciplinary organization annually conducts more than $30 million in sponsored research. Prior to joining Virginia Tech, Dr. Dingus was founding director of the National Center for Transportation Technology at the University of Idaho and was an associate director of the Center for Computer-Aided Design at the University of Iowa.  

Alternate URL for this homepage: [http://www.cee.vt.edu/people/dingus.html](http://www.cee.vt.edu/people/dingus.html)  

Education:  
- B.S. Systems Engineering, Wright State University, 1979  
- M.S. Engineering and Operations Research, Virginia Polytechnic Institute and State University, 1985  
- Ph.D. Engineering and Operations Research, Virginia Polytechnic Institute and State University, 1987  

Work Experience:  
- Associate Professor, Department of Industrial Engineering, University of Iowa. 1993-95  
- Assistant/Associate Professor, Department of Psychology, University of Idaho. 1986-92  
- Adjunct Professor, Department of Mechanical Engineering, University of Idaho. 1990-92  

Selected Publications:  


Appendix E  
Letters of Support

These letters were originally requested in 2011 when we began to prepare this proposal and strategically invest in the future of our program. The following pages include letters of support from the following entities:

1. R. M. Craft, Chair, Department of Psychology, Washington State University
2. Ron Boring, Human Factors Principal Scientist, Idaho National Laboratories
3. Jeffrey Joe, Group Leader in Human Factors, Controls, and Statistics Department, Idaho National Laboratory
4. Bill Brown, User Experience Design Manager, Hewlett Packard Company, Boise, ID
5. Shannon Lynch, Chair, Department of Psychology, Idaho State University