HFES Accreditation Requirements, Guidelines, and Process

Barbara S. Chaparro, Pat DeLucia, and Kim-Phuong L. Vu
HFES Webinar FAQs

1. There are no CEUs for this webinar.

2. This webinar is being recorded. HFES will post links to the recording and presentation slides on the HFES Web site within 3-5 business days. Watch your e-mail for a message containing the links.

3. Listen over your speakers or via the telephone.
   
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4. All attendees are muted. Only the presenters can be heard.

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Introductions

- Barbara S. Chaparro, current Accreditation Chair
  - Wichita State University
  - Accredited since 2002

- Pat DeLucia, past Accreditation Chair
  - Texas Tech University
  - Accredited since 2002

- Kim-Phuong L. Vu, Professor
  - California State University, Long Beach
  - Accredited since 2012
This webinar is targeted to:

- programs that are NEW to accreditation
- programs that will be RENEWING their accreditation
- Students and industry representatives who want to learn more about HFES Accreditation

The focus of the webinar is:

- Process
- Guidelines
- Examples from successful programs
- Chance for you to ask questions
Agenda

- History
- Benefits
- Requirements
- Application Process
- Decision Process
- Case Study
- Q&A
History (Pat DeLucia)

- Approved by the Executive Council in 1987
- Task force in 2010 re-examined the criteria for accreditation
  - More flexible criteria to accommodate a wider range of programs
  - Core competency focus
  - Specific approaches and/or content not mandated
Current Status: 15 Accredited Programs

- Auburn University
- California State University, Long Beach
- Clemson University
- Georgia Institute of Technology
- NC State Dept of Industrial Engineering
- NC State Dept of Psychology
- Ohio State Dept of Industrial and Systems Engineering
- Old Dominion
- State University of New York Buffalo
- Texas Tech Dept Industrial Engineering
- Texas Tech Dept of Psychology
- University of Central Florida
- University of Idaho
- Virginia Polytechnic Institute and State University
- Wichita State University
Benefits

2009 Education and Training Needs Survey
- 90% of students, 71% of practitioners, 70% of academics indicated accreditation info is a primary need to enhance HF/E education and/or training.

2013 Education and Training Needs Survey
- Top 5 Issues facing the HFES Profession in terms of education and training needs:
  - 24% identified Accreditation of graduate programs
  - 13% identified Accreditation of undergraduate programs

2014 Professional Division reaching out to industry
Benefits

Survey of existing programs that have accreditation shows that it is beneficial in 4 ways:

- Recruiting Students
  - Students impressed by accreditation
  - Some apply only to accredited programs

- Internal lobbying
  - Administrators impressed by accreditation
  - Helps when lobbying for resources
  - Solidifies program in College
Benefits

- Education
  - Insures that the foundation is there for well-rounded training
  - Well-trained graduates benefit university in the long run
  - Assures standards and expectations are consistent with other top HF/E programs

- Job placement
  - Accreditation may impress industry hires
  - Students may be more marketable
Requirements

- HFES Accreditation Self-Report Guide
- Go to: https://www.hfes.org/web/Students/grad_programs.html

Revised 25 August 2011
Requirements

- [http://www.hfes.org/web/educationalresources/GradProgramAccreditation.html](http://www.hfes.org/web/educationalresources/GradProgramAccreditation.html)

Revised 25 August 2011
Requirements

- Self-Study Document Requirements:
  - Description of the program and its environment
  - Human Factors program specifics
    - Program History and yearly application statistics
    - Courses
  - Facilities
  - Faculty
  - Other Participating Departments
  - Plans
Requirements

▪ Pre-Req:
  - At least 6 students have graduated from the program

▪ Requirements
  - Graduate program in Human Factors and Ergonomics
  - May be composed of courses from several departments and colleges within the university
  - In-depth training in cognitive OR physical ergonomics
  - Three requirements that MUST be satisfied
    ▪ Curriculum
    ▪ Professional Skills/Practical Experience
    ▪ Staffing
Curriculum Core Area 1

- Core areas:
  1. An Understanding of Human Capabilities and Limitations
  2. Skills in carrying Out Evidence-Based HF/E Methods
  3. Knowledge of Application Domains in the Field of HF/E
Requirements: Curriculum

- Each program MUST have a 3-credit survey course in Human Factors and Ergonomics. This course must include at least 7 of following:

CORE AREA 1. An Understanding of Human Capabilities and Limitations

- Information processing
- Biomechanics
- Perception and action
- Ecological psychology
- Anthropometry
- Kinesiology
- Neuropsychology
- Cognitive science
- Communication
- Sociology
- Anthropology
- Physiological Psychology
- Organizational Psychology
- Naturalistic decision making
- Human performance
- Social Psychology
- Situated cognition
- Macroergonomics
- Joint action
- Physiology
- Industrial/Workplace
- Ergonomics
- Human Systems Integration
- Human Error
- Environmental Effects
- Other (to be approved by accreditation committee)
Core Area 2 & 3

CORE AREA 2. Skills in Carrying Out Evidence-Based HF/E Methods
- Cognitive task analysis
- Task analysis
- Knowledge elicitation/acquisition
- Experimental design
- Industrial design
- Computational modeling
- Dynamical Systems modeling
- Mathematical modeling
- Experimental Statistics
- Prototyping
- Simulation
- Usability Testing
- Neuroergonomics
- Discrete event simulation
- Reliability
- Control Theory
- Other (to be approved by accreditation committee)

CORE AREA 3. Knowledge of Application Domains in the Field of HF/E
- Environmental design
- Cognitive Engineering
- Expert Systems
- Human-Computer Interaction
- Safety
- Inspection
- Human Systems Integration
- Displays
- Controls
- Transportation
- Aviation
- Training and assessment
- Augmented cognition
- Medicine
- Energy
- Disaster Response
- Industrial Ergonomics
- System/Product design
- Workstation Design
- Tools
- Other (to be approved by accreditation committee)
Requirements: Curriculum

- Point system – minimum of 12 credits (4 courses); 3 credit hours in each core area
- 3 credits – if course is required
  - Online course = # credits
  - Partial credit
    - 1 credit – if required course covers topic
    - Reading and discussing relevant articles
    - Independent readings
    - Research, internships
- Total points for each competency area
Requirements: Curriculum

- Recommendations on how to present courses:
  - Make a sheet for each of your courses and include all 3 Core Areas
  - Check off the applicable subareas
  - Use a spreadsheet to tally proportion of core areas per course
**Requirements: Curriculum**

**PSY 533 Seminar in Cognition and Learning**

**CORE AREA 1. An Understanding of Human Capabilities and Limitations**
- Information processing
- Biomechanics
- Perception and action
- Ecological psychology
- Anthropometry
- Kinesiology
- Neuropsychology
- Cognitive science
- Communication
- Sociology
- Anthropology
- Physiological Psychology
- Organizational Psychology
- Naturalistic decision making
- Human performance
- Social Psychology
- Situated cognition
- Macroergonomics
- Joint action
- Physiology
- Industrial/Workplace Ergonomics
- Human Systems Integration
- Human Error
- Environmental Effects
- Other (to be approved by accreditation committee)

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- Mathematical modeling
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- Usability Testing
- Neuroergonomics
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- Control Theory
- Other (to be approved by accreditation committee)

**CORE AREA 3. Knowledge of Application Domains in the Field of HF/E**
- Environmental design
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- Inspection
- Human Systems Integration
- Displays
- Controls
- Transportation
- Aviation
- Training and assessment
- Augmented cognition
- Medicine
- Energy
- Disaster Response
- Industrial Ergonomics
- System/Product design
- Workstation Design
- Tools
- Other (to be approved by accreditation committee)
### Requirements: Curriculum

<table>
<thead>
<tr>
<th>CORE AREA</th>
<th>PSY</th>
<th>HF</th>
<th>PSY</th>
<th>PSY</th>
<th>PSY</th>
<th>PSY</th>
<th>PSY</th>
<th>Total</th>
<th>Total – HF SURV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Und Human Capabilities</td>
<td>0.4</td>
<td>1</td>
<td>1.5</td>
<td>0.5</td>
<td>1.75</td>
<td>1.5</td>
<td>0.75</td>
<td>8.15</td>
<td>7.15</td>
</tr>
<tr>
<td>2. Skills HF/E Methods</td>
<td>1.1</td>
<td>1</td>
<td>1.1</td>
<td>2</td>
<td>0.6</td>
<td>0.5</td>
<td>0.75</td>
<td>0.85</td>
<td>7.9</td>
</tr>
<tr>
<td>3. Knowledge Application</td>
<td>1.5</td>
<td>1</td>
<td>0.4</td>
<td>0.5</td>
<td>0.65</td>
<td>1</td>
<td>1.5</td>
<td>1.4</td>
<td>7.95</td>
</tr>
</tbody>
</table>

Total hours = 21
# Example Course

<table>
<thead>
<tr>
<th>PSY 533 Seminar in Cognition and Learning</th>
<th>3 units; Lecture 2 hrs, Lab 3 hrs</th>
<th>Offered once every two years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course description:</strong></td>
<td><strong>Course objectives:</strong></td>
<td></td>
</tr>
<tr>
<td>Research methods in cognition, learning and perception. Laboratory includes experiments on selected topics.</td>
<td>To understand the methods used to examine cognition, learning, and perception.</td>
<td>See attached syllabus for course outline and texts</td>
</tr>
<tr>
<td><strong>Core Area 1:</strong></td>
<td><strong>Core Area 2:</strong></td>
<td></td>
</tr>
<tr>
<td>An Understanding of Human Capabilities and Limitations</td>
<td>This course focuses on understanding the fundamentals of human cognition, learning, and perception.</td>
<td></td>
</tr>
<tr>
<td><strong>Core Area 2:</strong></td>
<td><strong>Core Area 3:</strong></td>
<td></td>
</tr>
<tr>
<td>Skills in Carrying Out Evidence-Based HF/E Methods</td>
<td>This course examines methods, theories, and experimental evidence relating to human cognition, learning, and perception.</td>
<td>The skills and knowledge acquired through this course can be applied to any HF/E domain where understanding the human users’ cognitive capabilities and limitations is concerned.</td>
</tr>
<tr>
<td><strong>Core Area 3:</strong></td>
<td><strong>Practical Experience:</strong></td>
<td></td>
</tr>
<tr>
<td>Knowledge of Application Domains in the Field of HF/E</td>
<td></td>
<td>Students will acquire practical skills for examining human cognition, learning, and perception that are useful for HF careers in any industry.</td>
</tr>
<tr>
<td><strong>Practical Experience</strong></td>
<td><strong>Communication Skills:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students will learn to communicate experimental findings to their colleagues and potential stakeholders.</td>
<td></td>
</tr>
<tr>
<td><strong>Communication Skills</strong></td>
<td><strong>Teamwork Skills</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students will work in teams to develop and design experiments that appropriately capture and characterize human cognition, learning, and perception.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 1
**Required Program Components**

<table>
<thead>
<tr>
<th>Core Area Requirement</th>
<th>Doctoral Level Required Course Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Factors and Ergonomics Course</td>
<td>920 Psych. Principles of Human Factors (3)</td>
</tr>
</tbody>
</table>
| Core Area 1: An Understanding of Human Capabilities and Limitations | 904 Biological/Philosophical Foundations of Psychology (3)  
911 Teaching of Psych: Principles, Practices & Ethics (3)  
905 Cognitive/Learning Foundations of Psychology (3)  
920 Psych. Principles of Human Factors (3)  
925 Seminar in Perception (3)  
991 Judgment and Decision Making (3) |
| Core Area 2: Skills in carrying Out Evidence-Based HF/E Methods | 568: Computer Applications to the Behavioral Sciences (3)  
901: Predoctoral Research (3)  
909: Pre-Dissertation Research (3)  
908: Dissertation (3)  
902 Advanced Research Methods I (4)  
903 Advanced Research Methods II (4)  
921 Seminar in Human Factors Psychology (3)  
922 Seminar in Software Psychology (3)  
905 Cognitive/Learning Foundations of Psychology (3) |

Core 2 areas covered include: cognitive task analysis, task analysis, knowledge elicitation/acquisition, experimental design, computational modeling, experimental statistics, prototyping, simulation, usability testing, neuroergonomics, reliability, and control theory.
## Core Area 3: Knowledge of Application Domains in the Field of HF/E

| Core Area 3: Knowledge of Application Domains in the Field of HF/E | 905 Cognitive/Learning Foundations of Psychology (3)  
920 Psychological Principles of Human Factors (3)  
921 Seminar in Human Factors Psychology (3)  
922 Seminar in Software Psychology (3)  

Requirements: Curriculum

- Final curriculum section will include:
  - Each course listed and how it meets Core Areas
  - Syllabi and relevant materials
  - How course provides:
    - Practical Experience
    - Communication Skills
    - Teamwork skills
Requirements: Professional Skills

- Practical Experience
  - Internships
  - Coop assignments
  - University projects with an “external” client
  - Practicum
  - Consultation with industry
- Communication Skills
- Teamwork Experience
Requirements: Staffing

- Faculty and Staff that contribute to your program, curriculum, and/or training
  - FT Faculty and Staff
  - Adjuncts
  - PT faculty
- 50% of the course offerings must be taught by FT faculty
Requirements: Staffing

- Final staffing section will include:
  - List of all faculty (FT, PT, adjunct)
  - Vita
  - Teaching loads
  - Administrative responsibilities
  - Tenure and Promotion policy
  - Explanation of teaching evaluations
  - Non-academic staff support
  - Other participating departments
Requirements: Other

- Program Information
- Admission Requirements
- Program History (by year)
  - # applicants
  - # offers made
  - # acceptances
- Facilities
  - Plans for expansion (faculty or lab facilities)
- Strengths and weaknesses
- Total package = ~200 pages
Application Process

- Materials submitted electronically
  - Self-Study document & Appendices
  - May use URLs to show supplemental information
  - Review committee will ask for clarification as needed
- $200 nonrefundable fee to HFES main office
- Site Visit only necessary when self-report needs clarification
Decision Process (6-8 weeks)

- Standing committee plus ad-hoc reviewers like a journal editorial board

- Decisions:
  
  - Full 6-year accreditation.
  
  - Accreditation for a period of 3 years, at which time evidence of progress toward satisfying the requirements for full-term accreditation is required.
  
  - Immediate “show cause” notice that accreditation will be denied or revoked unless specified steps are taken.
  
  - Notification of denial or revocation of accreditation. This decision may be appealed to the Executive Council.
RATING SCALE TO EVALUATE EACH OF SECTION OF THE GUIDE:

For each section that is evaluated, please use the following scale to rate the degree to which the criteria shown in self-study guide are met:

0: does not meet criteria at all
1: does not meet criteria; has major deficiencies
2: does not meet criteria; has minor deficiencies
3: meets criteria adequately
4: exceeds criteria
5: far exceeds criteria

*If the rating is below 3, please describe the changes needed to meet the criteria adequately.*

Optional Comments:

Strengths

Weaknesses
Words of Wisdom

- Common mistakes:
  - Not including syllabi for all courses
  - Incomplete syllabi
  - Insufficient info on research experience (i.e., MA non-thesis)
  - Ambiguous practical experience (i.e., not clear whether practical experience is optional/required or what they consist of)
  - Lack of clarification of info that may not be in syllabi:
    - Teamwork experience and communication skills
    - Quantitative and computer skills
  - Not following the self-study guide
Case Study: California State University - Long Beach

- Received accreditation June 2012
  - Why Apply?
    - Increase credibility
      - University
      - Grants/Contracts
      - Potential Applicants
    - Information Gathering Required for Other Reasons
      - Department Self-Study
      - Grants/Contracts
Case Study: California State University - Long Beach

- **Process**
  - Instructions provided are detailed and straightforward
  - Much of the information was already available in other forms
    - Established curriculum
    - Department records (faculty publication, student enrollment, graduation rate)
    - Boiler plate for grants/contracts (info about university accreditation, degree programs, facilities, etc.)
  - Time consuming to compile all the information
    - Course Syllabus
    - Faculty CVs
    - Information about students
    - Useful to have a staff member collect/log the information
Case Study: California State University - Long Beach

- **Process (continued)**
  - Most judgment required was relating to the mapping of the curriculum to the Core areas
    - Especially difficult for survey courses
    - Percent of the class
    - Variability among different professors (use most representative syllabus)

- **Review**
  - Use a “checklist” procedure
    - Check application for completeness
    - Ask a colleague to check the completeness of the application
  - Ask questions for clarifications
  - Know that there is an opportunity to “revise” application
    - Turn in well before the deadline to allow opportunities for revision
Case Study: California State University - Long Beach

- Benefits
  - Applicants to the program have stated that they applied to our program because it was listed as accredited on the HFES website
  - We have included our accreditation status on grants/contracts (not a requirement for funding)
  - We used the information collected for other purposes
    - Program assessment
    - Departmental records
Thank You
Contact Us

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