

# HFES Accreditation Requirements, Guidelines, and Process

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



**Human Factors and  
Ergonomics Society**

# HFES Webinar FAQs

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1. There are no CEUs for this webinar.
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# Introductions

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- 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

# HFES Accreditation Webinar

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- 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

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- History
  - Benefits
  - Requirements
  - Application Process
  - Decision Process
  - Case Study
  - Q&A
-

# History (Pat DeLucia)

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- 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

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- 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

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## 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

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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

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- 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](https://www.hfes.org/web/Students/grad_programs.html)

Revised 25 August 2011



## Information for Students

### Directory of Human Factors/Ergonomics Graduate Programs in the United States and Canada

#### General Information

HFES invites new listings for master's and doctorate programs in human factors/ergonomics and related fields. To submit a listing for consideration, download the [listing form](#) and submit it to [Steve Stafford](#).

View the [HFES Accreditation Self-Report Guide](#) (PDF; 90 KB)

[Using this Directory and How to Apply to Graduate Programs](#)

#### Program Listings by State

##### United States

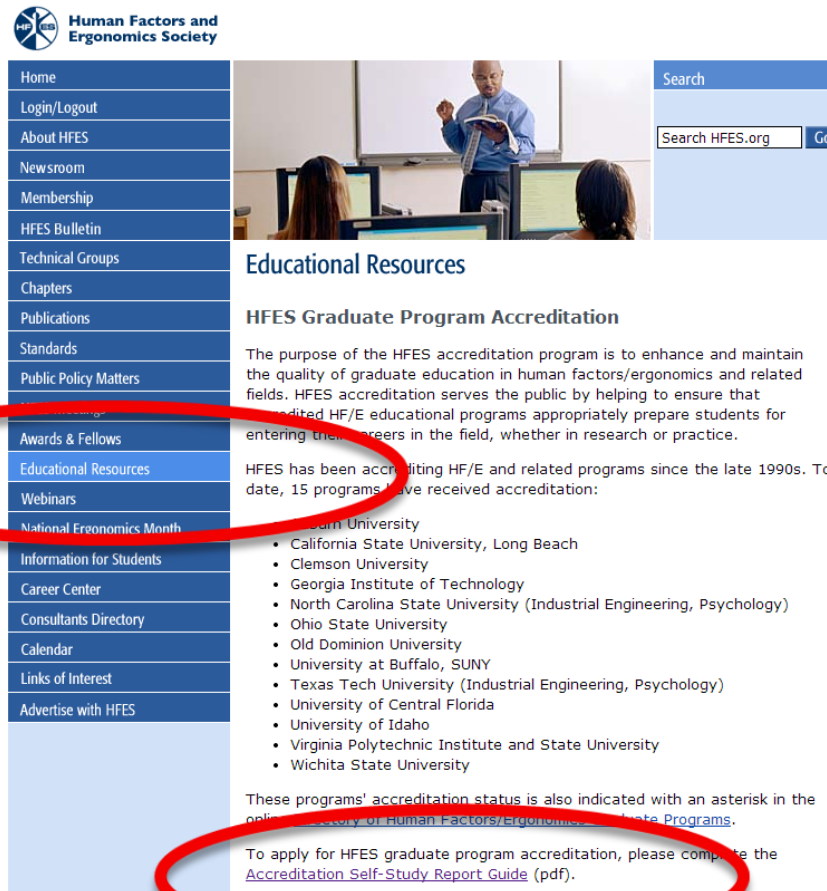
[Alabama](#)  
[Arizona](#)  
[California](#)  
[Colorado](#)  
[Connecticut](#)  
[District of Columbia](#)  
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[Georgia](#)  
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# Requirements

- <http://www.hfes.org/web/educationalresources/GradProgramAccreditation.html>



**Human Factors and Ergonomics Society**

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## Educational Resources

### HFES Graduate Program Accreditation

The purpose of the HFES accreditation program is to enhance and maintain the quality of graduate education in human factors/ergonomics and related fields. HFES accreditation serves the public by helping to ensure that accredited HF/E educational programs appropriately prepare students for entering their careers in the field, whether in research or practice.

HFES has been accrediting HF/E and related programs since the late 1990s. To date, 15 programs have received accreditation:

- California State University, Long Beach
- Clemson University
- Georgia Institute of Technology
- North Carolina State University (Industrial Engineering, Psychology)
- Ohio State University
- Old Dominion University
- University at Buffalo, SUNY
- Texas Tech University (Industrial Engineering, Psychology)
- University of Central Florida
- University of Idaho
- Virginia Polytechnic Institute and State University
- Wichita State University

These programs' accreditation status is also indicated with an asterisk in the online directory of [Human Factors/Ergonomics Graduate Programs](#).

To apply for HFES graduate program accreditation, please complete the [Accreditation Self-Study Report Guide](#) (pdf).

Revised 25 August 2011

# Requirements

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- 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

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- 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

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- 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

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- 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**

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Information processing | <input type="checkbox"/> Sociology                    | <input type="checkbox"/> Joint action                                      |
| <input type="checkbox"/> Biomechanics           | <input type="checkbox"/> Anthropology                 | <input type="checkbox"/> Physiology  |
| <input type="checkbox"/> Perception and action  | <input type="checkbox"/> Physiological Psychology     | <input type="checkbox"/> Industrial/Workplace Ergonomics                   |
| <input type="checkbox"/> Ecological psychology  | <input type="checkbox"/> Organizational Psychology    | <input type="checkbox"/> Human Systems Integration                         |
| <input type="checkbox"/> Anthropometry          | <input type="checkbox"/> Naturalistic decision making | <input type="checkbox"/> Human Error                                       |
| <input type="checkbox"/> Kinesiology            | <input type="checkbox"/> Human performance            | <input type="checkbox"/> Environmental Effects                             |
| <input type="checkbox"/> Neuropsychology        | <input type="checkbox"/> Social Psychology            | <input type="checkbox"/> Other (to be approved by accreditation committee) |
| <input type="checkbox"/> Cognitive science      | <input type="checkbox"/> Situated cognition           |  |
| <input type="checkbox"/> Communication          | <input type="checkbox"/> Macroergonomics              |  |



# Core Area 2 & 3

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## CORE AREA 2. Skills in Carrying Out Evidence-Based HF/E Methods

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Cognitive task analysis           | <input type="checkbox"/> Dynamical Systems modeling | <input type="checkbox"/> Discrete event simulation                         |
| <input type="checkbox"/> Task analysis                     | <input type="checkbox"/> Mathematical modeling      | <input type="checkbox"/> Reliability                                       |
| <input type="checkbox"/> Knowledge elicitation/acquisition | <input type="checkbox"/> Experimental Statistics    | <input type="checkbox"/> Control Theory                                    |
| <input type="checkbox"/> Experimental design               | <input type="checkbox"/> Prototyping                | <input type="checkbox"/> Other (to be approved by accreditation committee) |
| <input type="checkbox"/> Industrial design                 | <input type="checkbox"/> Simulation                 |  |
| <input type="checkbox"/> Computational modeling            | <input type="checkbox"/> Usability Testing          |  |
|  | <input type="checkbox"/> Neuroergonomics            |  |

## CORE AREA 3. Knowledge of Application Domains in the Field of HF/E

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Environmental design       | <input type="checkbox"/> Controls                | <input type="checkbox"/> Industrial Ergonomics                             |
| <input type="checkbox"/> Cognitive Engineering      | <input type="checkbox"/> Transportation          | <input type="checkbox"/> System/Product design                             |
| <input type="checkbox"/> Expert Systems             | <input type="checkbox"/> Aviation                | <input type="checkbox"/> Workstation Design                                |
| <input type="checkbox"/> Human-Computer Interaction | <input type="checkbox"/> Training and assessment | <input type="checkbox"/> Tools   |
| <input type="checkbox"/> Safety                     | <input type="checkbox"/> Augmented cognition     | <input type="checkbox"/> Other (to be approved by accreditation committee) |
| <input type="checkbox"/> Inspection                 | <input type="checkbox"/> Medicine                |  |
| <input type="checkbox"/> Human Systems Integration  | <input type="checkbox"/> Energy                  |  |
| <input type="checkbox"/> Displays                   | <input type="checkbox"/> Disaster Response       |  |

# Requirements: Curriculum

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- 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

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- 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

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Information processing | <input type="checkbox"/> Sociology                     | <input type="checkbox"/> Joint action                                      |
| <input type="checkbox"/> Biomechanics                      | <input type="checkbox"/> Anthropology                  | <input type="checkbox"/> Physiology  |
| <input checked="" type="checkbox"/> Perception and action  | <input type="checkbox"/> Physiological Psychology      | <input type="checkbox"/> Industrial/Workplace Ergonomics                   |
| <input type="checkbox"/> Ecological psychology             | <input type="checkbox"/> Organizational Psychology     | <input type="checkbox"/> Human Systems Integration                         |
| <input type="checkbox"/> Anthropometry                     | <input type="checkbox"/> Naturalistic decision making  | <input checked="" type="checkbox"/> Human Error                            |
| <input type="checkbox"/> Kinesiology                       | <input checked="" type="checkbox"/> Human performance  | <input type="checkbox"/> Environmental Effects                             |
| <input checked="" type="checkbox"/> Neuropsychology        | <input type="checkbox"/> Social Psychology             | <input type="checkbox"/> Other (to be approved by accreditation committee) |
| <input checked="" type="checkbox"/> Cognitive science      | <input checked="" type="checkbox"/> Situated cognition |  |
| <input type="checkbox"/> Communication                     | <input type="checkbox"/> Macroergonomics               |  |

### CORE AREA 2. Skills in Carrying Out Evidence-Based HF/E Methods

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Cognitive task analysis                      | <input type="checkbox"/> Dynamical Systems modeling         | <input type="checkbox"/> Discrete event simulation |
| <input type="checkbox"/> Task analysis                                | <input type="checkbox"/> Mathematical modeling              | <input type="checkbox"/> Reliability               |
| <input checked="" type="checkbox"/> Knowledge elicitation/acquisition | <input checked="" type="checkbox"/> Experimental Statistics | <input type="checkbox"/> Control Theory            |
| <input checked="" type="checkbox"/> Experimental design               | <input type="checkbox"/> Prototyping                        | Other (to be approved by accreditation committee)  |
| <input type="checkbox"/> Industrial design                            | <input type="checkbox"/> Simulation                         |  |
| <input type="checkbox"/> Computational modeling                       | <input type="checkbox"/> Usability Testing                  |  |
|   | <input type="checkbox"/> Neuroergonomics                    |  |

### CORE AREA 3. Knowledge of Application Domains in the Field of HF/E

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Environmental design                 | <input type="checkbox"/> Controls                           | <input type="checkbox"/> Industrial Ergonomics    |
| <input type="checkbox"/> Cognitive Engineering                | <input type="checkbox"/> Transportation                     | <input type="checkbox"/> System/Product design    |
| <input type="checkbox"/> Expert Systems                       | <input type="checkbox"/> Aviation                           | <input type="checkbox"/> Workstation Design       |
| <input type="checkbox"/> Human-Computer Interaction           | <input checked="" type="checkbox"/> Training and assessment | <input type="checkbox"/> Tools                    |
| <input type="checkbox"/> Safety                               | <input type="checkbox"/> Augmented cognition                | Other (to be approved by accreditation committee) |
| <input type="checkbox"/> Inspection                           | <input type="checkbox"/> Medicine                           |   |
| <input checked="" type="checkbox"/> Human Systems Integration | <input type="checkbox"/> Energy                             |   |
| <input type="checkbox"/> Displays                             | <input type="checkbox"/> Disaster Response                  |   |

# Requirements: Curriculum

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CORE AREA	PSY ###	HF SURV	PSY ###	PSY ###	PSY ###	PSY ###	PSY ###	PSY ###	Total	Total – HF SURV	
1. Und Human Capabilities	0.4	1	1.5	0.5	1.75	1.5	0.75	0.75	8.15	7.15	
2. Skills HF/E Methods	1.1	1	1.1	2	0.6	0.5	0.75	0.85	7.9	6.9	
3. Knowledge Application	1.5	1	0.4	0.5	0.65	1	1.5	1.4	7.95	6.95	
										total hours =	21

# Example Course

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<b>PSY 533 Seminar in Cognition and Learning</b>	<b>3 units; Lecture 2 hrs, Lab 3 hrs</b>	<b>Offered once every two years</b>
<b>Course description:</b> Research methods in cognition, learning and perception. Laboratory includes experiments on selected topics.	<b>Course objectives:</b> To understand the methods used to examine cognition, learning, and perception.	<b>See attached syllabus for course outline and texts</b>
<b>Core Area 1:</b> An Understanding of Human Capabilities and Limitations	This course focuses on understanding the fundamentals of human cognition, learning, and perception.	
<b>Core Area 2:</b> Skills in Carrying Out Evidence-Based HF/E Methods	This course examines methods, theories, and experimental evidence relating to human cognition, learning, and perception.	
<b>Core Area 3:</b> Knowledge of Application Domains in the Field of HF/E	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.	
<b>Practical Experience</b>	Students will acquire practical skills for examining human cognition, learning, and perception that are useful for HF careers in any industry.	
<b>Communication Skills</b>	Students will learn to communicate experimental findings to their colleagues and potential stakeholders.	
<b>Teamwork Skills</b>	Students will work in teams to develop and design experiments that appropriately capture and characterize human cognition, learning, and perception.	

# Example Program

<b>Table 1</b> <b>Required Program Components</b>	
<b>Core Area Requirement</b>	Doctoral Level Required Course Numbers
<b>Human Factors and Ergonomics Course</b>	920 Psych. Principles of Human Factors (3)
<b>Core Area 1: An Understanding of Human Capabilities and Limitations</b>	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)
<b>Core Area 2: Skills in carrying Out Evidence-Based HF/E Methods</b>	568: Computer Applications to the Behavioral Sciences (3) 901: <u>Predoctoral</u> 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)  <b>Core 2 areas covered include: cognitive task analysis, task analysis, knowledge elicitation/acquisition, experimental design, computational modeling, experimental statistics, prototyping, simulation, <u>usability</u> testing, <u>neuroergonomics</u>, reliability, and control theory.</b>

# Example Program

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<b>Core Area 3: Knowledge of Application Domains in the Field of HF/E</b>	<p>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)</p> <p><b>Core 3 areas covered include: Environmental Design, Cognitive Engineering, Expert Systems, Human-Computer Interaction, Safety, Inspection, Human Systems Integration, Displays, Controls, Transportation, Aviation, Training, Medicine, Industrial Ergonomics, System/Product Design, <u>Workstation Design</u>.</b></p>
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# Requirements: Curriculum

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- 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

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

# Requirements: Staffing

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- 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

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- 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

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- 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

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- 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)

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- 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.

# Decision Process

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## **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

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- 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

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- 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

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- 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

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- 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

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- Benefits
  - Applicants to the program have stated that they applied to our program because it was listed as accredited on the HFES web site
  - 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

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# Contact Us

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- Barbara Chaparro
  - [Barbara.Chaparro@wichita.edu](mailto:Barbara.Chaparro@wichita.edu)
- Pat DeLucia
  - [Pat.Delucia@ttu.edu](mailto:Pat.Delucia@ttu.edu)
- Kim Vu
  - [Kim.Vu@csulb.edu](mailto:Kim.Vu@csulb.edu)