CLEMSON UNIVERSITY

**COLLEGE OF HEALTH, EDUCATION AND HUMAN DEVELOPMENT
EUGENE T. MOORE SCHOOL OF EDUCATION, TEACHER EDUCATION**

PROGRAM PLANNING SUMMARY

TO THE SOUTH CAROLINA COMMISSION ON HIGHER EDUCATION

TO OFFER A NEW DEGREE

DOCTOR OF PHILOSOPHY IN LEARNING SCIENCES

Date of Submission: February 15, 2014

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Classification: College of Health, Education and Human Development, Eugene T. Moore

School of Education, Teacher Education

Name of Program: Learning Sciences

Concentrations/Options/Tracks: Digital Media and Learning, Human-Centered

Computing

Designation, type, and level of degree: Doctor of Philosophy (Ph.D.)

CIP Code: 13.0607

Implementation Date: January 2015

Number of Credit Hours: 60

Program Length (years): 4 years

Methodology (traditional, online, blended): Traditional

Site of delivery: Clemson University Main Campus

Purpose

We are proposing a new interdisciplinary Ph.D. program in the Learning Sciences that we hope to implement by January 1, 2015. This program is designed for individuals who seek practical and theoretical training as research scientists, developers, practitioners in professional, non-profit, and academic settings.

Justification

The Learning Sciences advances understanding of learning processes and the design of innovative learning environments. Psychology, cognitive science, computational, sociological, technological and anthropological sciences often contribute to Learning Sciences. Learning sciences distinguishes itself from other fields by embracing a range of disciplines, believing an interdisciplinary approach offers solutions to understand, design, and implement change as learning is studied across a range of informal and formal real-world settings.

Students within the Learning Sciences program may seek answers to questions regarding best strategies for ensuring that students excel in science, technology and math, or how to leverage digital media to create innovative environments for learning. Graduates pursue employment in digital media or game development, the military, higher education, school administration, curricula design or a host of industries, including Fortune 500 companies and educational toy designers seeking research specialists.

The current high demand for graduates skilled in learning sciences skills is driven by ubiquitous technologies requiring a deep understanding of learning to improve existing technology-enabled learning environments and create new ones. In this regard, the School of Education with its newly constructed Digital Media, Gaming and Learning Labs, and emphasis on theories of learning that inform and motivate the development of new technologies, applications, and designed spaces is uniquely suited to offer a program.

The interdisciplinary and personalized nature of the program further offers students the opportunities to build a strong base of disciplinary knowledge augmented with discrete skills relevant to their area of specialization. Students benefit from multiple perspectives as they apply theoretical, research, and design work to specific topics in learning. For example, a Learning Sciences Ph.D. may draw on the expertise of Human-Centered Computing to learn how to design and evaluate technologies for learning. Alternatively, students in Human-Centered Computing may take courses to understand education and theories of learning.

Currently, the state of South Carolina offers no Ph.D. programs in the Learning Sciences; the proposed program offers no duplication of existing programs. A Learning Sciences PhD program in our state would allow South Carolina to compete with prestigious, highly ranked universities such as Stanford, Northwestern, Indiana University, Purdue, Vanderbilt, University of North Carolina, and Carnegie Mellon.

By initiating this new advanced degree program, we will be fulfilling Clemson's 2020 Road Map goals by providing students with "an exceptional educational experience grounded in engagement", focused on "innovation, through research and service that stimulates economic growth and solves problems." This program can effectively serve the public good by focusing on emphasis areas that address some of the great challenges of the 21st century. Teaching, research, and service within the program will lead Clemson to become one of the nation's top-20 public universities.

Program Demand and Productivity

We anticipate annual enrollment for the planned program to average 10-12 students per year beginning the first year of initiation and thereafter. Program completion is designated for 4 years and we anticipate 5-6 graduates per year.

Employment Opportunities for Graduates

Employment growth following an advanced degree in Learning Sciences varies with the specialization pursued such as research, computer science application development, or entrepreneur. In general, students pursuing STEM-related (science, technology, engineering, and mathematics) research who then decide to pursue higher education and careers in related fields are sought after and highly employable. According to the U.S. Bureau of Labor Statistics (U.S.BLS), computer science related fields have a predicted 30% growth from 2010-2020. The rate is well-above average with mean salaries of $90,000 reported in 2010. The U.S. BLS further reports projected employment growth in professional, scientific, and technical services at 29%, adding 2.1 million new jobs by 2020. Computer systems design and related services will grow by 47 percent, and management, scientific, and technical consulting services is anticipated to grow by 58 percent. The Learning Sciences informs all of these careers. Learning Science related industries contribute to an important growth sector in the national and global economy; having a program in South Carolina that offers a highly qualified work force and intellectual leadership will bring industry to our state.

Program Objectives

Students in the Doctor of Philosophy program in Learning Sciences will:
- Develop, deliver, revise, and evaluate effective learning experiences,
- Design and implement rigorous research studies in areas related to the Learning Sciences,

- Analyze existing research and participate in scholarly discourse in the field
- Apply leadership skills in areas such as Academia, Business, Government, or Healthcare

Curriculum

Doctor of Philosophy: minimum of 60 credit hours
- **Research Courses: minimum 12 credit hours**
  - EDF 9790 Qualitative Research in Education
  - EDF 8770 Experimental and Non-experimental Research Methods in Education I
  - EDF 9770 Experimental and Non-experimental Research Methods in Education II
  - Research Elective
- **Core Courses: 12 credit hours**
  - (2) Doctoral seminars:
    - EDF9xxx Seminar in the Learning Sciences I - Fall, 3 credits
    - EDF9xxx Seminar in the Learning Sciences II - Spring, 3 credits
  - (2) courses from the following:
    - ED 9070 Sociocultural Theories of Learning
    - ED 9550 Theoretical Bases of Instruction
    - EDF 8020 Advanced Educational Psychology
- **Cognate Courses: minimum 18 credit hours**
  - Cognate courses will be selected from the following programs: Architecture (AAH); Communication Studies (AAH); Computer Science (ES); Digital Production Arts (ES); Education (SoE); Early Childhood Education (SoE); Elementary Education (SoE); Educational Foundations (SoE); Educational Leadership (SoE); Literacy (SoE); Middle Level Education (SoE); Secondary Education (SoE); Special Education (SoE); Family and Community Studies (HEHD); Graphic Communications (BBS); Health, Education, and Human Development (HEHD); Human-Centered Computing (ES); Psychology (BBS); Rhetoric, Communication, and Information Design (AAH); and Sociology (BBS).
- **Dissertation: minimum 18 credit hours**

Master's entry option: minimum 30 credits beyond the Master's degree
- minimum of 6 hours of seminar, 6 hours of research, 18 hours of dissertation

Articulation and Inter-institutional Cooperation

Currently no program for the Learning Sciences exists in the state of South Carolina. Thus, the candidates matriculating through the program at Clemson will not negatively impact candidates at other institutions.

Estimate of Costs

There is no cost associated with this proposed program as it will be encompassed by foundational courses offered in the current department of Curriculum and Instruction with additional cognate or specialized courses provided by existing, partnering schools and departments across the Clemson campus.