

## AGENDA

### ACADEMIC AFFAIRS COMMITTEE UNIVERSITY OF SOUTHERN INDIANA BOARD OF TRUSTEES

November 5, 2015

#### 1. REPORT ON INNOVATION IN THE I-69 CORRIDOR

Ms. Daniela Vidal, director of the Center for Applied Research/Economic Development, and Michael Thissen, innovation corridor manager, will give a presentation entitled, "Inducing Innovation in the I-69 Corridor."

#### 2. REVIEW OF THE ACADEMIC PROGRAM DEVELOPMENT PLAN

The Academic Program Development Plan will be reviewed (Attachment A).

#### 3. APPROVAL OF NEW DEGREE PROGRAM: BACHELOR OF ARTS/BACHELOR OF SCIENCE IN PHYSICS

Approval of a recommendation to the Board of Trustees to approve the degree program in Attachment B is recommended.

The Pott College of Science, Engineering, and Education proposes to offer a Bachelor of Arts/Bachelor of Science in Physics degree. A complete abstract describing the program is in Attachment B. The implementation date is fall 2016.

The Pott College of Science, Engineering, and Education plans to offer the Bachelor of Arts/Bachelor of Science in Physics on campus with some core curriculum courses available via online delivery. A major component of the strategic plan of the University of Southern Indiana is to "provide leadership to Indiana and the region." Consistent with this strategy, the Pott College of Science, Engineering, and Education has made its vision "to be a leader in undergraduate science, technology, engineering, and mathematics (STEM) education." With strong programs in biology, chemistry, geology, math, and engineering, it is the plan for the University to continue its leadership in the sciences with the addition of the Bachelor of Arts/Bachelor of Science in Physics degree. The absence of this degree program in the most basic of the sciences limits the University's ability to recruit and retain future scientists and teachers and compromises the University's ability to fulfill the vision as a STEM leader in southwestern Indiana. Currently the University's headcount for biophysics and physics teaching majors is low. With the institution of the Bachelor of Arts/Bachelor of Science in Physics, the University will be able to increase the enrollment numbers without the usual added cost of a new degree program.

In its strategic plan, *Reaching Higher, Achieving More*, the Indiana Commission for Higher Education has charged the higher education community to provide programs that are student centered. The University of Southern Indiana proposes a physics degree that enables students to take multiple paths to success after graduation. This Bachelor of Arts/Bachelor of Science in Physics degree will provide both alignment with the workforce, as well as quality training for post baccalaureate studies. The University of Southern Indiana will be the only public institution in the Southwest region to offer a Bachelor of Arts/Bachelor of Science in Physics degree. While serving a three-state region in the Midwest, the advent of a Physics degree at USI will enable strong students, who would otherwise leave the area for Illinois or Kentucky, to remain in Southwestern Indiana for their physics training. As part of the strategic plan in the Pott College of Science, Engineering, and Education, the College has provided STEM leadership in the region and will enhance the University's opportunities to serve the tri-state area with the addition of a physics degree program.

The proposed program is comprised of 120 credit hours. This program will consist of 48 hours of core courses in physics, math, chemistry, and engineering that are required of all four physics tracks. These tracks are

traditional, teaching, applied, and computational. Each physics track will require an additional 24 to 25 credit hours. The program is recommended by the dean of the Pott College of Science, Engineering, and Education and has been approved by the University Curriculum Committee, the Faculty Senate, the Academic Planning Council, the provost, and the president.

**UNIVERSITY OF SOUTHERN INDIANA**  
**New Program Development Plan**

**Revised by Academic Planning Council**  
**October 26, 2015**

**Baccalaureate Degree**

**Master Degree**

**Doctorate Degree**

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**2013-2015 Biennium**

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**2015-2017 Biennium**

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Business/Engineering  
Civil Engineering  
Electrical and Computer Engineering  
Industrial Engineering  
Manufacturing Engineering  
Mechanical Engineering  
Physics  
Statistics

Food and Nutrition (Dietetics)  
Supply Chain Logistics

Educational Doctorate (Ed.D.)

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**2017-2019 Biennium**

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Chemical and Biomedical Engineering  
Geography  
Health Informatics

Environmental Science  
Health Informatics  
Human Performance  
Manufacturing Engineering (MSE)

Occupational Therapy  
Pharmacy

## ABSTRACT

### **Bachelor of Arts/Bachelor of Science in Physics To be offered on-campus by the University of Southern Indiana, Evansville, Indiana**

#### **Consistency with Institution's Mission:**

The proposed Bachelor of Arts/Bachelor of Science in Physics program directly supports the University of Southern Indiana's mission by enabling students to engage in learning, advance in education and knowledge, and enhance civic and cultural awareness.

#### **Relation to Institution's Strategic and/or Academic Plan:**

The Pott College of Science, Engineering, and Education plans to offer the Bachelor of Arts/Bachelor of Science in Physics on campus with some core curriculum courses available via online delivery. A major component of the strategic plan of the University of Southern Indiana is to "provide leadership to Indiana and the region." Consistent with this strategy, the Pott College of Science, Engineering, and Education has made its vision "to be a leader in undergraduate science, technology, engineering, and mathematics (STEM) education." With strong programs in biology, chemistry, geology, math, and engineering, it is the plan for the University to continue its leadership in the sciences with the addition of the Bachelor of Arts/Bachelor of Science in Physics degree. The absence of this degree program in the most basic of the sciences limits the University's ability to recruit and retain future scientists and teachers and compromises the University's ability to fulfill the vision as a STEM leader in southwestern Indiana. Currently the University's headcount for biophysics and physics teaching majors is low. With the institution of the Bachelor of Arts/Bachelor of Science in Physics, the University will be able to increase the enrollment numbers without the usual added cost of a new degree program.

#### **Curriculum:**

The proposed program is comprised of 120 credit hours. This program will consist of 48 hours of core courses in physics, math, chemistry, and engineering that are required of all four physics tracks. These tracks are traditional, teaching, applied, and computational. Each physics track will require an additional 24 to 25 credit hours. The program is recommended by the dean of the Pott College of Science, Engineering, and Education and has been approved by the University Curriculum Committee, the Faculty Senate, the Academic Planning Council, the provost, and the president.

#### **Employment Possibilities:**

According to the American Institute of Physics (AIP), approximately 40 percent of graduates with physics degrees enter the workforce. For these graduates, one of the most pressing needs is for high school physics teachers. School districts consistently rank physics as the highest area of need among all academic disciplines with regard to teacher shortages. The US Bureau of Labor Statistics projects that nearly 53,000 new high school teachers will be added to the workforce between 2012 and 2022. The University of Southern Indiana receives multiple requests every year from tri-state high schools asking if any physics teaching majors are nearing degree completion. The University of Southern Indiana needs to help fill this void.

For those graduates who choose careers in industry, their breadth of training provides opportunities in a wide range of jobs. American Institute of Physics data show that most physics graduates enter STEM fields with the majority in engineering and computing jobs. Of the 26 percent of non-STEM employment, the highest paid positions were in finance or banking.

The AIP has thoroughly documented the wide array of employment opportunities enjoyed by physics graduates in the United States. The Indiana Department of Workforce Development (DWD) has provided the "Hoosier Hot 50 Jobs" report documenting the most in-demand professions currently in the state for the period from 2014 to 2016. Cross referencing the AIP and DWD data, 12 of the top 50 hot jobs in Indiana are careers for which graduates in physics currently hold employment nationally. Additionally, the DWD provides detailed employment data in [Hoosiers by the Numbers](#). Here they provide long-term projections for a wide array of careers in Indiana for the time period 2010 to 2020. Jobs for which physics graduates are qualified are many and most hold the opportunity for double digit growth in Indiana.