

INDIANA COMMISSION *for* HIGHER EDUCATION

AGENDA

September 10, 2015

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INDIANA COMMISSION *for*
HIGHER EDUCATION

**SEPTEMBER COMMISSION MEETING
AGENDA**

Wednesday, September 9, 2015

INDIANA UNIVERSITY KOKOMO

2300 South Washington Street
Kokomo, IN 46902

Please use the attached campus map to navigate to various buildings.

*Parking is available in **Parking Lot D** in "A" and "V" sections.*

STUDENT SUCCESS AND COMPLETION COMMITTEE

2:00 P.M. – 3:30 P.M.

Library Building (KA)

Cole Room 106

CALL IN INFORMATION:

DIAL: (812) 856-3600

PIN: 444102

CAMPUS TOUR

4:00 P.M. – 5:45 P.M.

Tour Begins at Alumni Hall

RECEPTION

5:45 P.M. – 6:30 P.M.

Indiana University Kokomo Art Gallery

DINNER

6:30 P.M. – 8:00 P.M.

Indiana University Kokomo Alumni Hall

HOTEL ACCOMMODATIONS

Courtyard by Marriott Kokomo

411 Kentucky Drive

Kokomo, IN 46902

Thursday, September 10, 2015

COMMISSION MEETING

Indiana University Kokomo
Kelley Student Center
2300 South Washington Street
Kokomo, IN 46902

COMMISSION BREAKFAST

8:00 A.M. – 9:00 A.M.
Library Building (KA)
Cole Room 106

Breakfast Guest

Susan Sciame-Giesecke
Chancellor

STAFF BREAKFAST

8:00 A.M. – 9:00 A.M.
Kelley Student Center (KC)
Room 114

WORKING SESSION

9:00 A.M. – 11:30 A.M.
Kelley Student Center (KC)
Room 130

CALL IN INFORMATION:

DIAL: (812) 856-3600
PIN: 48317

WiFi INFORMATION:

to be provided

WORKING SESSION TOPICS

- Math Innovation Council Report
- Financial Aid Moving Forward
- Indiana University Shared Services
- Teacher Shortage Update
- Early Intervention Policy
- Strategic Plan Update
- Committee Report Outs

COMMISSION MEMBER LUNCH

11:45 A.M. – 1:00 P.M.

Library Building (KC)

Cole Room 106

Lunch Guest

John Applegate

Executive Vice President for University Academic Affairs

STAFF LUNCH

11:45 A.M. – 1:00 P.M.

Kelley Student Center (KC)

Room 114

BUSINESS MEETING

1:00 P.M. – 3:00 P.M.

Kelley Student Center (KC)

Room 130

CALL IN INFORMATION:

DIAL: (812) 856-3600

PIN: 485317

WiFi INFORMATION:

to be provided

I. Call to Order – 1:00 P.M. (Eastern)

Roll Call of Members and Determination of Quorum

Chair’s Remarks

Commissioner’s Report

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The next meeting of the Commission will be on **October 8, 2015, in South Bend, Indiana.**

**State of Indiana
Commission for Higher Education**

Minutes of Meeting

Thursday, August 13, 2015

I. CALL TO ORDER

The Commission for Higher Education met in regular session starting at 1:00 p.m. Purdue University, Calumet, Student Union and Library Building, with Chairman Dennis Bland presiding.

ROLL CALL OF MEMBERS AND DETERMINATION OF A QUORUM

Members Present: Gerald Bepko, Dennis Bland, John Conant, Dan Peterson, Jon Costas, Susana Duarte de Suarez, Lisa Hershman, Chris LaMothe, Chris Murphy, John Popp, and Caren Whitehouse.

Members Absent: Sarah Correll, Jud Fisher, Allan Hubbard

CHAIR'S REPORT

Mr. Bland began his remarks by thanking Purdue University Calumet leadership for their hospitality during yesterday's events and for hosting our meeting today.

There are several important events being held throughout the fall of 2015. On September 1, there will be a meeting with each campus's Guided Pathways to Success 8-member teams to talk about meta-majors, math pathways and the interaction between the two. On September 16, faculty and other academic leaders will be convened for a rich conversation about competency-based education which will help inform and vet the ideas included in the Competency Section of the next strategic plan. Later this fall, there will be a first-of-its-kind Student Advocate Conference, which will be an opportunity for all varieties of mentors, advisors and student support staff to come together and learn about state policies and initiatives impacting student success. This will also be an opportunity to highlight innovative practices spearheaded by our campuses.

As all of you know, Officers for the positions of Chair, Vice Chair and Secretary of the Commission are voted on each year in August. The Nominating Committee of the Commission met last month to establish a Slate of Officers to present at our meeting today. Chris LaMothe chaired the Nominating Committee and I asked that he chair this portion of the meeting today.

Mr. LaMothe began his remarks by saying that this slate was created by the Nominating Committee consisting of one member per class, including: Jon Conant, Faculty Member, 2015 Class; Chris LaMothe, 5th Congressional District, 2014 Class; John Popp, 3rd Congressional District, 2013 Class; Dan Peterson, 9th Congressional District, 2012 Class; Caren Whitehouse, 8th Congressional District, 2011 Class. Typically, Officer positions change on an annual basis but there have been times where the Commission is elected to retain Officers for another year of

service. The precedent has been set because that has occurred around the time that we are in the process of strategic planning and shifting leadership may not be the best way to go.

After discussion, the Nominating Committee recommended that we retain the current Officer Slate for 2015-2016. That would be, Dennis Bland as the Chair, Dan Peterson as the Vice Chair and Susana Duarte De Suarez as the Secretary.

R-15-05.1 RESOLVED: That the Commission for Higher Education hereby approves the Officer Slate for 2015-2016 (Motion – Murphy, second – Costas, unanimously approved)

COMMISSIONER’S REPORT

Commissioner Lubbers began her report stating that on behalf of the staff, I’m delighted to announce the reappointment of three members of the Commission – Susana Duarte De Suarez, Jud Fisher and Caren Whitehouse. New members for the Commission are sometimes surprised by the commitment that is necessary to serve on the Commission for Higher Education. We have been graced by people like Susana, Jud, Caren and all of you who so generously share your time, knowledge and experience with us. Also, my thanks for your willingness to serve in these critical leadership roles as officers.

As you know, one of the Commission’s key reports in our Return on Investment report, developed to show the value of higher education to the individual and the state. In our ongoing effort to include a wide range of factors that impact higher education value, we are working with colleges and universities to produce a “first in the nation” index that measures both the quantitate and qualitative benefits of higher education. Participating schools will receive a discounted rate, underwritten by Gallup, USA Funds and the Commission. At this point, we have strong interest expressed by many of our schools and we are moving forward.

Today, I would like to make a special call-out to thank the staff members who are working tirelessly on behalf of the students who receive financial aid and the schools who serve them. When the General Assembly brought the distribution of financial aid under the Commission and dismantled State Student Assistance Commission of Indiana (SSACI), it made it possible for us to use financial aid to reinforce student success policies. It was the right thing to do, but it hasn’t been easy. For example, credit completion requirements must be met before the level of financial aid can be communicated. Getting students to accelerate their degrees is a great idea and now must be considered in setting the award amount. There are new reasons why students may file appeals. Our technology and systems, as well as our support service staff are stretched. We will do everything within our power to smooth the transitions to new expectations and systems, but these are complex policies to implement. Thanks, too, to our partners at the colleges and universities.

In recent weeks, there has been considerable coverage of the current and impending teacher shortage in the K-12 sector. The legislative interim committee on education issues will take up the issue, along with the redesign of the high school diploma at their August and September meetings. The Indiana Department of Education says 1000 fewer teachers got their first licenses in 2013 compared to four years earlier. We will be drilling down to see just what subjects and geographical regions are experiencing shortages.

With both issues – teacher shortages and high school diploma redesign, the Commission will be testifying and providing context, data and recommendations to the legislative members.

You may have seen a new face in the room, Zach Smith, who has taken over as the new Policy Analyst. Christian Hines held that position before and he is off to Harvard Law School. Zach is a recent graduate of the School of Public and Environmental Affairs as a graduate student. We are delighted to have him with us and you will be seeing more of him in the future, but please join me in welcoming him to the Commission staff.

CONSIDERATION OF THE MINUTES OF THE JUNE, 2015 COMMISSION MEETING

R-15-05.2 RESOLVED: That the Commission for Higher Education hereby approves the Minutes of the May, 2015 regular meeting (Motion – LaMothe, second – Bepko, unanimously approved)

II. PUBLIC SQUARE

A. State and Federal Policies and Their Effect on Competency-Based Education

Mr. Bland began the Public Square stating that at our last meeting we heard from Stephanie Krauss with the Forum for Youth Investment to discuss Models for Competency-Based Programs. Today we will finish this three part series with a conversation on State and Federal Policies and Their Effect on Competency-Based Education (CBE). Our guest today is Allison Bell with HCM Strategists.

Dr. Bell stated that the focus today would be on State Policy and CBE. She began by defining CBE. CBE programs take on many forms but have some commonalities. At the very core, they establish clear expectations about what knowledge, abilities, skills and attitudes students must have. They encourage student and faculty engagement and learning outside the classroom setting. CBE programs rely on valid and reliable assessments that include both objective and performance-based tools. They do not necessarily follow traditional academic calendars or the accumulation of credit hours. CBE programs allow students to progress at their own pace.

She continued by giving some high-level examples of what CBE programs look like. For example, Purdue University has a course-based program in which students register for courses and the coursework helps students meet competencies.

Another example is an online modular program, Kentucky's Learn on Demand program in which courses are broken into three modules and students can enroll in a course or a module and satisfy competencies with prior learning. This program has flexible start dates.

Another example is a subscription-based model such as University of Wisconsin's flexible option that is completely self-paced. Students take assessments when they are ready and can satisfy multiple competencies within the subscription period.

There are many ways that these programs can be designed and what dictates the design is what is best for students on a given campus and what is most appropriate for the program.

Dr. Bell provided context by describing the CBE ecosystem. She stated that foundations, associations and other external entities that are interested in helping institutions design programs and helping states think through ways to support the growth of CBE, and help provide solutions to some of the challenges they face. Institutions in higher education are part of this ecosystem because the CBE movement is at the institutional level. There is a great deal of interest by regional, professional accreditors about how to ensure quality in CBE programs. The accreditors are engaged in conversations with each other, with institutions and with all the external entities. Part of the conversation is between the accreditors and the Department of Education (DOE) in helping to establish some clear guidelines about how to accredit these programs that are not necessarily credit-based. The Federal Government is involved in CBE programs helping to ensure that students who may not be in programs using credit hours and grades are progressing satisfactorily, determining if they are full-or part-time and working to give them access to Pell Grants. The Pell Grant is set up for a credit-based system, so that is an obstacle for students in CB Programs that are not necessarily credit based, don't award grades and don't follow traditional academic calendar. The Federal Government has exercised their Experimental Sites Authority to waive some requirements for participation in Title IV Programs. This will help answer questions about how to distribute Federal Aid dollars to students in CBE programs.

In response to Mr. Bland's question why industry leaders and employers are not being discussed as part of this ecosystem, Dr. Bell said that the workforce is an important component that she will discuss what those partnerships could look like and how they are being fostered.

In response to Dr. Bepko's question is there some dissent bubbling up directed at the DOE for not having guidelines, Dr. Bell said that there are a lot of conversations going on between institutions and the Federal Government, the DOE, right now. You may have heard of the direct assessment provision which allows institutions that have CB Programs but are not credit based to apply to the direct assessment institution and they can award aid. They have to do some equating of progress to the credit hour. There has been some lack of clarity at the DOE as to what qualifies as a direct assessment program and what doesn't and the DOE is working hard to make clarifications through working with institutions to help guide their decision making. There is still progress to be made.

Dr. Bell continued to talk about the fifth category in the CBE ecosystem, the State and system offices. She is part of a project looking at ways that the states can think about how to support and encourage CBE in their higher education institutions. Indiana has a lot of the policies in place that are enablers for CBE.

There are six State Policy areas that affect CBE. In statutory and regulatory language, these policies have been written for traditional programs based on the

credit hour and academic calendar. Sometimes there is language that is challenging for CBE programs.

In response to Mr. Murphy's request for an explanation as to what a competency is in terms of what we are accrediting, Dr. Bell said that it is the knowledge, skill, ability or aptitude that a student must have. Mr. Murphy stated that he understands the definition but wants an example. Dr. Bell provided an example of when she was in Arizona talking to the department giving certificates for auto body repair and in that situation they discussed what their competencies might be, including vehicle prep paint application and you might be able to get a certificate in special kinds of paint application and maybe an environmental awareness competency. She said that it is not unlike the transfer pathways in which competencies are set for different disciplines to be able to transfer in Indiana, it is what the faculty says in terms of knowing specific things then they feel comfortable awarding you this certificate for this major or that program.

In response to Mr. Murphy's question if he could get a competency in English literature, for example, or is it all work related, Dr. Bell stated that there are varying opinions about this. Her opinion is that any program can be delivered from a CBE. For Mr. Murphy's example, in order to get that degree you would have to show mastery in the competencies that are applicable for that degree.

State Policies that affect CBE include those concerning funding. They must be flexible enough to support innovative learning-centered credentials. Financial aid policies have a reliance on standard definitions of satisfactory academic progress.

In response to Mr. LaMothe's question, how do students show mastery, Dr. Bell explained that is where the assessment piece comes in and faculty need to decide how to assess the knowledge, skills and abilities of the student. In some cases a program might have 12 competencies that the faculty need to feel comfortable conferring a Bachelor's degree in a field. Within that, there can be sub-competencies, but the student would be assessed against each of those areas rather than saying, you need to take 12 classes in English literature.

In response to Dr. Conant's question, is it fair to say that a competency is what we call a learning objective, Dr. Bell stated that she thinks they are extremely related. One way to think about the difference is that in a course you might have four learning objectives, when you assess that student you test and grade them with a midterm and a final. They have to get 70% of the answers correct in order to pass those exams. In a CB program you have your four learning outcomes and instead of being tested on them as a whole, there is a threshold to show mastery in each of those outcomes individually and are being tested on each of those outcomes individually.

Dr. Bell returned to discuss the six State Policies that affect a state's ability to support CBE. In many states, funding is tied to the credit hour and if the state wants to use CBE and not rely on the credit hour, then there are funding challenges. In many states, financial aid is tied to the credit hour and how the Federal Government

awards financial aid. State transfer articulation agreements often rely specifically on the courses or credits rather than learning are not conducive to CBE programs. Student information systems and data systems are not set up well to operate in a non-term environment to accommodate non-standard terms, courses or calendars. There is potential for partnerships to help meet labor force needs in shaping competencies and skills needed for the workforce. And finally, tuition-setting policies often do not take into account cost differentials of different types of education.

Dr. Bell presented questions to consider for supporting the growth of CBE: how can you ensure policies and plans are inclusive of institutions and students participating in CBE programs; how can you allow institutions flexibility to design programs to fit their students' needs while helping institutions ensure quality; what are the best ways to build stakeholder understanding and support for innovative approaches to education; how do you encourage innovation; how do you ensure that state goals are being met without being prescriptive; and, how can CBE be used to support alignment with K-12 and the workforce.

In response to Mr. Costas' question, how extensive is it that students, freshman or upperclassman, can test out of classes, Dr. Bell responded that she would classify that as a form of PLA which is very much intertwined with CBE but also operates on traditional campuses. She said PLA is an extremely important piece of CBE and traditional models and it can allow students to not have to spend the time or money on tuition for courses they already know required material. How widespread that is depends on the institution and state. More states are incorporating PLA to help students not have to repeat their learning.

Ms. Lubbers stated that because we are so familiar with WGU in Indiana, our level of understanding are the four areas they look at, business, teaching, health and IT. She asked Dr. Bell to extrapolate from WGU and discuss how much of that would be typical in CBE and what is purely based on assessments. She asked Dr. Bell to use WGU as the basis to help us understand beyond WGU about competency. Dr. Bell responded the students at WGU go through an initial round of assessment to see where their knowledge, skills and abilities are and what competencies they already have. For each of the programs, they have a set of defined competencies students must demonstrate mastery in to earn their degree.

In response to Ms. Lubbers' question, how do they measure competency to say that they're ready to go to the next level, Dr. Bell said that WGU gives the student an initial test for the competency in the area of interest. Each student is assigned a faculty coach. There is a pre-test given to the student, and if the student does not show mastery of that competency, the student works with that coach to focus on the things to study up on in order to show you have mastery of this competency. They meet frequently and are in close consultation with the faculty mentor before they take the assessment again. That model is one way that a CBE program gets delivered. To expand on that concept, the Learn on Demand system operates in a similar way. The student signs up for a module and is given a pre-test. If they pass, the student does not have to do all of the work that is associated with learning that

competency for that module. If the student does not pass, the student must engage in the module and may take the test again. What those tests look like is different from institution to institution.

In response to Dr. Conant's question as to how many students is reasonable for a coach to have at once, Dr. Bell responded that the coach isn't necessarily the subject matter expert necessarily, but helps guide the student through his or her education. She said the average number was around 12 students.

In response to Dr. Conant's question as to the human resources involved, Dr. Bell responded that sometimes there are online lectures given by subject matter experts. Dr. Bell stated that they know these programs are incredibly work-intensive to get off the ground. You have to define the competencies, determine the assessments, decide upon the best delivery of the material to the students and think through and design them with the end in mind.

Ms. Lubbers said that the interesting thing is that WGU has incredibly high passage rates with the teaching programs putting them as one of the highest in the country. As Dr. Bell mentioned, some areas of study are more conducive to this kind of CB program and some students are more suited to this kind of CB program.

In response to Dr. Conant's question asking about the degree of person power it requires to get a student from very little knowledge to mastery, Dr. Bell said that it depends on how the program is designed. In the WGU model, the academic coaches have somewhere around 12 students they work with but the learning of the content is based more on how the student learns best.

Dr. Conant gave an example of a course taught online in which the learning objectives are there and there are certain things the students have to do, but there is no schedule on it and they can do it whenever they want. In response to his question, is that a CB course, and if not, what would make it one, Dr. Bell said that at the end of the semester they get a grade for the entire course rather than being assessed along the way on each of the different competencies.

In response to Mr. Popp's question, are some universities doing this 100% and how is their staffing changing, Dr. Bell said, yes, but many of the universities who are doing CBE started out that way so their staffing hasn't increased or changed.

Dr. Conant stated that when he teaches a course face to face his class size can be much larger than when it is taught online and that online courses are more work.

Dr. Bell said that the more personalized attention may lead to a more successful student.

In Ms. Duarte De Suarez requested to discuss CBE models at the macro-level in light of the Commission's attention to competencies in its strategic planning. In response to her question whether there is an approach in which policy has served the state better than another in this particular blossoming area, Dr. Bell said that Indiana is

one of the leaders in having these conversations specifically around CBE. CBE specifically is one of the strategies within a competency area which is broader and talks about PLA among other things. Dr. Bell said that while she doesn't know the best way, the more options and flexibility we have for students to be successful the better off we are.

Ms. Lubbers said that part of the challenge for us is we're looking for a simple explanation for something that is very complicated. If we cannot articulate it, we go to many of the various models and identify what the unifying factor is, and I think that is student learning at their own pace showing they have mastered that material. That comes in a lot of different flavors and why we think it is worth the time to have these discussions. This is going to happen in many different ways but we have to figure out what is working very well in some places. Why this is so difficult is because we are looking for answers while the programs are being developed. The bottom line is that we do not have many of the answers to a lot of good questions.

Dr. Bell stated that simply having the discussion is a step in the right direction.

Mr. Peterson said, building partially on what Ms. Lubbers said, one of the multiple ways to think about this is that a lot of this focus is dependent upon the assessment process. He said that you think back to when you were in school to someone who received straight As but did not master the subjects but, instead, phenomenally good at memorizing information because he was good at understanding the structure of how a course was delivered to then be tested in a type of multiple choice test environment. He walked out with a better grade but didn't understand the subject and within a year that can exacerbate. Mr. Peterson stated that he strongly believes that there is commendable effort in trying to get at how to teach and then assess whether someone is mastering the subject versus packing the information in in perhaps irrelevant ways. In response to Mr. Peterson's question as to what the schools of education are doing and thinking about with regard to methodology and assessment, Dr. Bell said that some examples show performance based education at the K-12 level and those programs partnered with the local university and many teacher education students are going into the K-12 schools and helping to think through how to best deliver CBE to K-12.

III. BUSINESS ITEMS

A. Indiana's Proposed High School Diploma Requirements

1. Proposed Indiana High School Diploma
2. Resolution to Adopt Indiana's High School Diploma Requirements

In response to Mr. Murphy's question as to how would a student know what pathway to choose if they are uncertain about what area they want to study in college, Ms. Lubbers responded that you tell them that you have to be on the calculus pathway.

Mr. Bearce added that it is not as early on as you might think, with the exception of the technical math, the pathways are practically identical until senior year in high school.

Ms. Lubbers stated that getting a student to choose the right diploma and getting them to understand the implications of that decision requires good counseling and will be what makes this work.

Ms. Lubbers said that the challenge with these two diplomas is that as you see, the College and Career Ready has a total of 44 total credits and the Workforce Ready has 40. Part of the Workforce Ready Diploma is that at some point around the beginning of your tenth grade year, if you have not been successful in several of the courses along the way it may mean that you did not get to 44 which may mean you may not earn your high school diploma. What is so critical about all of this is having an understanding with families and students what that means when you opt-in to that diploma. If you are going for the Workforce Ready Diploma you are essentially saying, I am not considering college as an option.

Mr. Murphy stated that he does not want any unintended consequences of getting on that track and not being able to get off of it. Ms. Lubbers responded that you could still at the end of your junior year accomplish that, it would be difficult. The other thing about the Workforce Ready Diploma is that it is an academically more rigorous program than the General Diploma. Our goal is to make it more academically rigorous, drive fewer people to it but acknowledge that they need a high school diploma in order to get a job and this is going to be a more academically challenging diploma than they've gotten before.

In response to Ms. Duarte De Suarez's question if she had been interested in getting out into the workforce but then decide I want to go to college and only had the Workforce Ready Diploma, how does this restrict getting into college, Ms. Lubbers said that admissions criteria will always be determined by the colleges. The reality is, if you have the Workforce Ready Diploma, some schools would not accept you.

Mr. Bearce stated that the reality is that in a situation like that, you'd likely start at a community college which is actually the way it is right now if you don't have a minimum Core 40. He said his philosophy is to keep as many doors open for students for as long as possible and eventually those doors start closing based upon choices they make. For many of our students, it will likely come down to math which is why you'll notice a bit of flexibility there.

In response to Mr. Popp's question as to whether there would just be these two diplomas, Mr. Bearce said yes, with an honors option.

Mr. Bearce presented this item and gave the staff recommendation.

R-15-05.3 RESOLVED: That the Commission for Higher Education approves the recommendation of the Resolution to Adopt Indiana's High School Diploma Requirements consistent with this agenda item. (Motion – Bepko, second – Murphy, unanimously approved)

B. Academic Degree Programs for Full Discussion

1. Bachelor of Science and Ph.D. in Intelligent Systems Engineering to be offered by Indiana University Bloomington

Mr. John Applegate presented this item.

Mr. Murphy stated that this was a wonderful opportunity to address some issues and the staff recommendation packaged this very nicely and the university responded positively to that packaging. He said that he thinks the response to collaboration has been an important element of all of this. We heard the staff recommendation state the greater need for engineering and the skill sets or competencies that come with engineering systems, analysis or constructive capabilities are coming together at the level of basic sciences and natural sciences. He said he thinks that is something that Indiana is somewhat behind in the application of these skills and we need to address this in the longer term. We have two wonderful fledgling universities who have had historically separate missions and having said that, there is a coalescence of certain skillsets in academic areas that we need to pay attention to and make sure that our institutions are equipped to provide the kind of education that our students need. He said he is in the financial services industry and hires people today coming out of engineering programs because we need that skillset to better compete locally and globally. If we look at what is going on in health sciences and medicine, you can't do things at that level without some knowledge, experience and background in engineering. There is a whole set of new skills that need to be developed and we need more of our institutions involved. There is a risk to collaboration when you move below the senior level where it's executed and doesn't occur quite as rich as you might have hoped it would.

Mr. Costas said that the whole issue of differentiation is a conversation we need to have a little further and discuss if it is by type of institution or by program. To reinforce this whole issue of collaboration, we have a world class research triangle between the three institutions and collaboration partnerships are absolutely necessary whether it be between private, public, government, education, but particularly by our two research institutions, there is tremendous opportunity if we think about ways to partner and collaborate on the various expertise each has. This can be a way for us to augment collaborative patterns.

Dr. Sauer gave the staff recommendation.

- R-15-05.4 RESOLVED:** That the Commission for Higher Education approves by consent the Bachelor of Science and Ph.D. in Intelligent Systems Engineering to be offered by Indiana University Bloomington, in accordance with the background information provided in this agenda item. (Motion – Popp, second – Hershman, unanimously approved)

C. Academic Degree Programs for Expedited Action

1. Master of Science and Ph.D. in Environmental and Ecological Engineering to be offered by Purdue University West Lafayette
2. Bachelor of Art and Bachelor of Science in Business Analytics to be offered by Ball State University
3. Master of Science in Quantitative Psychology to be offered by Ball State University

4. Bachelor of Science in Respiratory Therapy to be offered by the University of Southern Indiana
5. Master of Science in Sport Management to be offered by the University of Southern Indiana
6. Master of Arts in Second Language Acquisition, Policy, and Culture to be offered by the University of Southern Indiana

Dr. Sauer gave the staff recommendation.

R-15-05.5 RESOLVED: That the Commission for Higher Education approves by consent the following academic degree programs, in accordance with the background information provided in this agenda item. (Motion – Bepko, second – Whitehouse, unanimously approved)

D. Capital Projects for Full Discussion

1. Multi-Institutional Academic Health Science and Research Center - Evansville

Dr. Tom Morrison and Ms. Cindy Brinker presented this item.

In response to Mr. Murphy's question as to who will actually be designing the building because the Evansville Health Facility is a corporate convention, Dr. Morrison stated that they have hired an architect to design the building with Indiana oversight.

In response to Mr. Murphy's question as to whether they will fund the R and R for the each year, Dr. Morrison said yes. Dr. Morrison said Mr. Hawkins had asked him if the building would be eligible for R and R from the state and the answer is yes, but we know that none of us could solely exist based upon what the state provides so we will need to put money into that as well and part of that operating expense over time.

Ms. Whitehouse expressed excitement in how transforming this is to the students of the Indiana University School of Medicine, University of Southern Indiana and University of Evansville. The site was chosen by the Indiana University Board of Trustees but there was a lot of background communication that went along prior to this decision that includes input from the community.

Dr. Morrison addressed Mr. Murphy's question as to what happens if things change over time and someone vacates space, that this is one of the benefits of the condominium. Each university is an owner of their space and it is each university's responsibility.

In response to Mr. Popp's question whether IU is going to train pre-med or medical students, Dr. Morrison said yes, the Indiana University School of Medicine has regional medical education centers around the state and one happens to be on the campus of the University of Southern Indiana. In this case, it will move downtown to this facility.

In response to Mr. Bland's question, what will happen to the space that is currently being used on your campus, Ms. Brinker said the use of the third floor will allow them the opportunity to expand additional programs in the health professionals area and the entire nursing program is not moving to the downtown facility.

Mr. Hawkins gave the staff recommendation.

R-15-05.6 **RESOLVED:** That the Commission for Higher Education approves by consent the following capital project, in accordance with the background information provided in this agenda item. (Motion – LaMothe, second – Bepko, unanimously approved)

E. Capital Projects for Expedited Action

1. Vermont Street Parking Garage Face Repair and Replacement – Indiana University Purdue University - Indianapolis
2. Indiana University School for Medicine – Center for Drug Discovery – Wishard/Dunlap Building Lab Renovation – Indiana University Purdue University – Indianapolis
3. Regional Campuses – Multi-Campus Special Repair and Rehabilitation for Deferred Maintenance – Indiana University East, Kokomo, Northwest, South Bend, and Southeast
4. Old Crescent Renovation – Phase II – Indiana University Bloomington

R-15-05.7 **RESOLVED:** That the Commission for Higher Education approves by consent the following capital projects, in accordance with the background information provided in this agenda item. (Motion – Duarte De Suarez, second – Whitehouse, unanimously approved)

IV. INFORMATION ITEMS

- A. Proposals for New Degree Programs, Schools, or Colleges Awaiting Commission Action
- B. Requests for Degree Program Related Changes on Which Staff Have Taken Routine Staff Action
- C. Capital Projects Awaiting Action
- D. Media Coverage

V. NEW BUSINESS

There was none.

VI. OLD BUSINESS

There was none.

VII. ADJOURNMENT

The meeting was adjourned at 3:17 P.M.

Dennis Bland, Chair

Susana Duarte De Suarez, Secretary

COMMISSION FOR HIGHER EDUCATION

Thursday, September 10, 2015

PUBLIC SQUARE – A:

Progress Report: Indiana’s 21st Century Scholars Program

Staff Recommendation

For discussion only.

Background

In 1990, Indiana created the 21st Century Scholars program as the state’s premier college readiness and early-promise scholarship for low-income Hoosier students. Students who fulfill the Scholar Pledge can earn up to four years of tuition assistance at an eligible Indiana college or university.

With more than 110,000 students currently enrolled in the program from middle school through college, the 21st Century Scholars program has become a national model for state efforts to increase aspirations for and access to higher education among low-income, first-generation college students. Scholars graduate high school and enroll in college at higher rates than their peers, regardless of income. Scholars also persist and complete college at higher rates than their low-income peers, but they trail the general population in this regard.

As Indiana commemorates the 25th anniversary of the Scholars program in 2015, the Indiana Commission for Higher Education is preparing a comprehensive report highlighting the program’s long-term and recent progress trends in alignment with key success metrics. The report is designed to complement and build upon the 21st Century Scholars Scorecard, a progress dashboard that the Commission has published annually since 2012.

Supporting Document

21st Century Scholars 2014 Scorecard

21st Century Scholars 2014 SCORECARD



Entering College

	SCHOLARS	NON-SCHOLARS LOW-INCOME	ALL INDIANA STUDENTS
COLLEGE ACCESS Indiana students entering any college directly after high school.	76%	42%	65%
COLLEGE READINESS Indiana students entering any college directly after high school.	72%	61%	77%

During College

	SCHOLARS	NON-SCHOLARS LOW-INCOME	ALL INDIANA STUDENTS
COLLEGE PERFORMANCE Indiana public college students who earn a cumulative Grade Point Average (GPA) of 2.5 or higher.	58%	57%	68%
COLLEGE RETENTION Indiana public college students who persist from the first to second year.	72%	67%	76%
ON-TIME COLLEGE COMPLETION Indiana public college students who earn an associate degree within 2 years or a bachelor's degree within 4 years.	20%	14%	25%
EXTENDED-TIME COLLEGE COMPLETION Indiana public college students who earn an associate degree within 3 years or a bachelor's degree within 6 years.	35%	24%	44%



2-year colleges & 4-year colleges

	SCHOLARS		NON-SCHOLARS LOW-INCOME		ALL INDIANA STUDENTS	
	4-year	2-year	4-year	2-year	4-year	2-year
COLLEGE PERFORMANCE	62%	46%	65%	43%	74%	50%
COLLEGE RETENTION	81%	54%	82%	47%	86%	54%
ON-TIME COLLEGE COMPLETION	25%	5%	21%	3%	32%	6%
EXTENDED-TIME COLLEGE COMPLETION	44%	13%	42%	10%	56%	12%

Scholars.IN.gov



COMMISSION FOR HIGHER EDUCATION

Thursday, September 10, 2015

PUBLIC SQUARE – B:

**Panel Discussion: Indiana’s College & Career Success
Mentoring Initiative**

Staff Recommendation

For discussion only.

Background

In 2010, the Indiana Commission for Higher Education (ICHE) was awarded a College Access Challenge Grant (CACG) from the U.S. Department of Education. The CACG Program was designed to foster partnerships among Federal, State and local government entities and philanthropic organizations to increase the number of underrepresented students who enter and remain in postsecondary education.

As part of Indiana’s CACG program, in Fall 2010, the ICHE and the Indiana Youth Institute (IYI) joined forces to plan, develop and implement a mentoring model used by mentoring organizations in partnership with selected high schools to support 21st Century Scholars. Designed to help students persist in college, the mentoring model included some key components:

- Mentoring focused on postsecondary access, persistence and completion;
- Additional support and resources from staff;
- Additional programming, as needed, to address completion barriers and needs;
- Utilization of student data to track progress, target interventions and refine programming; and
- Communication with the students’ high school counselors and postsecondary mentors (ScholarCorps)

After studying the work in several communities (East Chicago, Evansville, Fort Wayne, Gary, Indianapolis and Marion) over five years, ICHE and IYI solidified the mentoring model and finalized its components to build the College and Career Mentoring Toolkit. Based on data collected and information learned, the Toolkit is complete and primed for statewide use.

Supporting Document

Tracy Butler Bio
Molly Chamberlin Bio
Timothy M. Clark Bio
Kelly Nelson Bio
Tammy Pearson Bio

Tracy Butler

Consultant for the Indiana Youth Institute

Tracy Butler has provided support to the Indiana College Success Mentoring Initiative and has worked with the Indiana Mentoring Partnership (IMP) since its inception in 2008 and the Indiana Youth Institute since 2002. Tracy has worked with youth mentoring organizations and initiatives for more than 15 years. Her portfolio within and beyond the Indiana Youth Institutes includes facilitating community mobilization projects, delivering mentor training regarding Grit and resilience, developing strategic planning for nonprofit organizations and communities. Prior to working with IYI, Tracy worked on the West and East coasts in the nonprofit and public sectors.

She earned a Bachelor's degree from U.C. Berkeley and a Master's degree from Tufts University in Urban Policy and Child Development.

Molly Chamberlin, Ph.D.

Director of Program Evaluation

Indiana Youth Institute

Molly Chamberlin serves as Director of Evaluation for the Indiana Youth Institute. Prior to coming to IYI, she spent nearly 11 years in Indiana state government, most recently serving as Chief Assessment and Accountability Officer for the Center for Education and Career Innovation, where she was responsible for promoting alignment across K-12, higher education, and workforce with regards to accountability, assessment, and data. She spent two years as Associate Commissioner for Research and Information at the Indiana Commission for Higher Education, overseeing data collection, warehousing, reporting, and evaluation and analysis, and seven years as a Director at the Indiana Department of Education, overseeing program evaluation; data collection, reporting, and warehousing; and policy implementation. Before working in state government, she spent time doing program evaluation and policy analysis at the Center for Evaluation and Education Policy at Indiana University and teaching English as a Second Language at Berlitz Indianapolis and in Tokyo, Japan at the Nova Intercultural Institute.

Molly has a Bachelor's degree in Liberal Arts from Middlebury College and a Master's and Ph.D. in Educational Psychology from Indiana University.

Timothy M. Clark

**Outreach Coordinator, Central Region
Indiana Commission for Higher Education**

Tim Clark serves as Regional Outreach Coordinator–Central Region for the Indiana Commission for Higher Education. Prior to coming to CHE, he spent 5 years at the Indiana Youth Institute as Outreach Manager for the Indiana Mentoring Partnership where he oversaw the development and management of the Indiana College Success Mentoring initiative. He spent a year with Starfish Initiative Inc., with regards to preparation of scholars for college success. Tim served on the staff of Herron High School as the Director of the Graduation Coach Program and Athletic Director. Prior to Herron, Tim worked in collegiate athletics and with national based organizations centered on youth and student-athlete centered educational programs. As Director of Youth Sports Initiatives with the National Youth Sports Corporation, he developed and coordinated programs in collaboration with collegiate conferences and the National College Athletic Association. He spent 7 years at the national office of the NCAA where he managed programs to promote student-athlete leadership development and has worked as a collegiate coach. He traveled to Algeria as a consultant with the Indiana Center for Cultural Exchange’s Unity through Sports project.

Tim has a Bachelor’s degree in Sociology and Education from Hobart College, Geneva, NY.

Kelly Nelson

Consultant for the Indiana Commission for Higher Education

Kelly Nelson serves as a consultant to the Indiana Commission for Higher Education. She has developed, coordinated and implemented several grants over the past 10 years including Learn More Indiana’s College Success Mentoring initiative. She managed the initiative from start to finish, coordinating support for 21st Century Scholars with schools, youth-serving organizations and communities to provide students with mentoring services as they complete high school and enter college. Kelly also oversees Indiana’s College Access Challenge Grant, which focuses on managing resources that support student persistence in higher education. She is also part of the Commission’s Americorps VISTA initiative and helps supports training in community capacity building. Prior to her work with ICHE, she taught high school English and special education and served as an assessment consultant for the Indiana Department of Education for several years.

Kelly graduated from Indiana University Bloomington with a Bachelor’s degree in secondary English teaching and K-12 special education. She also earned a Master’s degree from Indiana University Bloomington in Curriculum and Instruction, and holds school administration licensure.

Tammy Pearson

Director

Project Leadership

Tammy Pearson serves as the director of Project Leadership, a non-profit organization serving Delaware and Grant counties that encourages students to complete high school and post-secondary educations. Pearson joined Project Leadership in 2007 after working 16 years as a journalist at community newspapers in Indiana. Under Pearson's leadership, Project Leadership has become increasingly focused on bridging the educational gap between affluent and low-income youths and on providing youths with needed tools to complete post-secondary degrees or credentials. Pearson leads Project Leadership through a desire to design and implement strong community programming that has meaning, believing that any new undertaking must have a purpose that will make a difference – the kind that creates positive change for families in our communities.

COMMISSION FOR HIGHER EDUCATION

Thursday, September 10, 2015

BUSINESS ITEM A:

Ph.D. in Biology and Ph.D. in Chemistry and Chemical Biology to be offered by Purdue University at Indiana University Purdue University Indianapolis

Staff Recommendation

That the Commission for Higher Education approve the Ph.D. in Biology and the Ph.D. in Chemistry and Chemical Biology, both to be offered by Purdue University at Indiana University Purdue University Indianapolis in accordance with the background discussion in this agenda item and the Program Descriptions.

Background

Review Process. These programs were discussed by the Academic Affairs and Quality (AA&Q) Committee at its August 24, 2015 meeting.

Similar Programs in Indiana. In the *independent* or private not-for-profit sector, only the University of Notre Dame offers doctoral degree programs in biology and chemistry.

No institution in the *proprietary* or private for-profit sector offers doctoral programs in biology or chemistry.

Within the *public* sector, three institutions (IU Bloomington, Indiana State University, and Purdue West Lafayette) offer doctoral programs in biology, although a fourth institution, IUPUI, has doctoral programs in the life sciences associated with the School of Medicine. Two institutions (IU Bloomington and Purdue West Lafayette) offer doctoral programs in chemistry.

Life Sciences

In FY2014, across all doctoral programs in the life sciences, including those associated with the IU School of Medicine, IU Bloomington enrolled 271 headcount students and had 35 graduates, Purdue West Lafayette enrolled 278 students and had 47 graduates, IUPUI enrolled 249 students and had 41 graduates, and Indiana State enrolled 26 students and had three graduates.

Chemistry

In FY2015, IU Bloomington enrolled 191 headcount doctoral students and graduated 26, while Purdue West Lafayette enrolled 315 students and graduated 48.

Related Programs at IUPUI. Students at IUPUI are currently able to take all of the coursework and do all of the research needed to complete a Ph.D. in Biology or a Ph.D. in Chemistry and Chemical Biology in Indianapolis. In fact, this has essentially been the case for over two decades. Between 1992-2014, a total of 32 students completed their requirements for a Ph.D. in Biology at IUPUI, and between 1986-2015, a total of 54 students completed their requirements for a Ph.D. in Chemistry at IUPUI.

However, because the IUPUI programs were not considered to be “independent” of the related programs at West Lafayette, the enrollments were reported to the Commission for IUPUI, but not the graduates, who were counted in the totals for the West Lafayette programs. For example, in FY2014, IUPUI reported that 26 doctoral students were enrolled in Biology, but the four graduates of that program were counted in the total reported for West Lafayette. For that same year, IUPUI reported 22 doctoral students enrolled in Chemistry, but the three graduates were included in the West Lafayette total. Neither of the IUPUI doctoral programs in Biology or Chemistry reported any graduates for FY2014.

Purdue University now proposes that the IUPUI programs be recognized as being “independent” of the related West Lafayette programs and “site approved” for IUPUI, and that all Ph.D. graduates in Biology and Chemistry and Chemical Biology be reported for IUPUI. An “independent” status would also mean that certain current restrictions would be relaxed. For example, presently IUPUI Biology students must have a faculty member from West Lafayette chair their doctoral advisory or dissertation committee. Likewise, in Chemistry, the student’s advisory committee must consist of two faculty members from IUPUI and two from West Lafayette. Under the new model, students could have dissertation committees that consist entirely of IUPUI faculty, although students would still have the option of including West Lafayette faculty on their committees, if the student’s research interests are better served by this. It should be noted that West Lafayette students would be able to include IUPUI faculty on their committees as well.

Other Programs. Purdue has indicated that in the coming months, the University will seek Commission authorization for four additional Ph.D. programs for IUPUI, which are presently not recognized as “independent” or “site approved,” but whose circumstances are similar to those described above. Should the Commission approve the Biology and Chemistry and Chemical Biology Ph.D. programs, this action should not be perceived in any way as obligating the Commission to act similarly on these

forthcoming programs, each of which must be considered separately on its own merits.

Supporting Documents

Program Description – Ph.D. in Biology

Program Description – Ph.D. in Chemistry and Chemical Biology

Graduate Council Document Number 15-9a
Approved by the Graduate Council on May 4, 2015

PROPOSAL PH.D.

IN BIOLOGY

SUBMITTED BY THE DEPARTMENT OF BIOLOGY

SCHOOL OF SCIENCE

PURDUE UNIVERSITY
INDIANAPOLIS

Executive Summary

Purdue University PhD Program in Biology at Indiana University–Purdue University Indianapolis

The School of Science at Indiana University – Purdue University Indianapolis (IUPUI) proposes the creation of an independent doctoral program in Biology, leading to the PhD degree awarded by Purdue University on the Indianapolis campus. This would establish a site-approved, independent PhD program in the Department of Biology at IUPUI, which has a successful 25-year track record in training doctoral students under the aegis of the Department of Biological Sciences at Purdue University West Lafayette (PUWL). The new program will complement the vigorous research program in biological sciences in the department, the life sciences research emphasis of the IUPUI campus and will strengthen the ability of the department to compete nationally for the best faculty and students. The program is closely aligned with the campus emphasis on life and health sciences and state economic development priorities related to these sectors of the economy.

Training of doctoral students in the Department of Biology has a twenty-five year history, and for the last decade the program has had most of the elements of an independent doctoral program, in particular: (1) students normally complete all coursework on the IUPUI campus; (2) the qualifying exam is administered by IUPUI faculty in the Department of Biology; (3) doctoral research is conducted in the laboratories of IUPUI Biology faculty or their collaborators in Indianapolis; (4) students are recruited by IUPUI Biology and supported with funds generated by the IUPUI School of Science. The current connection with Biological Sciences at PUWL is limited to formal approval of admissions by their graduate committee and the requirement that PUWL faculty chair students' doctoral advisory committees. Outcomes in terms of job or advanced placement training for the program have been excellent, with recent graduates in postdoctoral training or employed in the life sciences, and their predecessors advancing in academic careers, in the life sciences industry, or in complementary areas such as law, business and medicine, where the high level skills developed in doctoral training are valued. For a PhD program, an unusually high fraction of former graduates are in positions in industry in Indiana.

The proposed program will follow the successful graduate training model used over recent decades, with a broad menu of graduate courses that allow the student's coursework to be tailored to their research interests. The department currently offers 12-15 graduate courses each academic year, and students also have easy access to courses in the IU School of Medicine, augmenting the wealth of training opportunities. As with comparable PhD programs, the majority of time is spent in mentored research. Research rotations in the first semester ensure a good match between students and mentors. Student progress is assessed through qualifying and preliminary examinations and through regular meetings with the doctoral advisory committee. Program faculty represent unique areas of research, particularly in biomedical science, such as regenerative biology and medicine, distinguishing this program from other Biology PhD programs in the state.

COVER PAGE

INSTITUTION: Purdue University

CAMPUS: IUPUI

COLLEGE: School of Science

DEPARTMENT/SCHOOL: Department of Biology

DEGREE PROGRAM TITLE: Doctor of Philosophy in Biology

SUGGESTED CIP CODE:

PROJECTED DATE OF IMPLEMENTATION: August 2015

Program Description

Ph.D. in Biology to be Offered by Purdue University at Indiana University – Purdue University Indianapolis (IUPUI)

1. Characteristics of the Program

- a. *Campus Offering Program*: Indiana University – Purdue University Indianapolis.
- b. *Scope of Delivery (Specific Sites or Statewide)*: IUPUI
- c. *Mode of Delivery (Classroom, Blended or Online)*: Classroom
- d. *Other Delivery Aspects (Co---ops, Internships, Clinical, Practica, etc.)*: Participation in research.
- e. *Academic Unit(s) Offering Program*: IUPUI School of Science, Purdue University Graduate School.

2. Rationale for Program

- a. *Institutional Rationale (Alignment with Institutional Mission and Strengths)*

This proposal is to establish a site---approved, independent PhD program in the Department of Biology at IUPUI, which has a successful 25---year track record in training doctoral students under the aegis of the Department of Biological Sciences at Purdue University West Lafayette (PUWL). The new program will complement the vigorous research program in biological sciences in the department, the life sciences research emphasis of the IUPUI campus and will strengthen the ability of the department to compete nationally for the best faculty and students. The program is closely aligned with the campus emphasis on biomedical sciences and its designation as the “Life and Health Sciences Campus” within the Indiana University System. Increasing the number of PhD graduates is a central goal of the IUPUI strategic plan, adopted in 2013. There is also an obvious alignment with state economic development priorities related to the life and health sciences sectors of the economy.

The program serves several critical needs: (1) supporting and enhancing the research mission of the Department of Biology, increasing the profile of the department nationally, enhancing faculty recruitment and creating an environment in which undergraduate students in biology are immersed in cutting---edge research in biomedical science; and (2) producing doctoral graduates with rigorous classroom training in contemporary biology and first hand experience in research that advances biological science, particularly in areas relevant to human health and wellbeing.

As stated above, the proposed program does not represent a new training program, but rather a new, independent status for an existing training program that has operated successfully for twenty-five years and with a considerable

degree of autonomy for the last decade. Independent status for the program will only minimally change most aspects of program operation and structure. Currently, students already take all coursework and exams in Indianapolis, conduct research with IUPUI faculty mentors, and are not required to visit the Purdue West Lafayette (PUWL) campus at all during their graduate careers. The new program structure follows the current structure for graduate training and the requirements of the Purdue University Graduate School, but removing requirements for PUWL Biological Sciences approval for admissions and participation in doctoral advisory committees. This will allow the program to grow in ways that best support student success and to be tailored to the particular research strengths of IUPUI Biology and its faculty.

The Department of Biology at IUPUI has developed particular research strengths as a consequence of its location on the IUPUI campus and the opportunities afforded by collaborations with the IU School of Medicine, other departments in the School of Science, and local life sciences enterprises, particularly Eli Lilly and Dow Agrosciences. In particular, a collaboration with Eli Lilly (“LGRAD”) allows Lilly scientists to obtain the PhD degree while working on collaborative research projects involving Lilly Research Labs and IUPUI.

Research strengths include regenerative and developmental biology, vision and hearing research, metabolic diseases, crop plant adaptation to environmental stress. In addition, the department has emerging strengths in forensic biology and population genetics. The general approach to this range of biological problems is from the molecular and cellular perspective. Approval of autonomy for the program will enhance opportunities for our graduates by raising the status of the program and by making the program eligible for funding sources such as the NSF IGERT program, for which independent status is required.

- b. *State Rationale “Reaching Higher, Achieving More calls for institutions that advance the specific mission and strengths of each institution.”*

The mission and vision statements of the IUPUI Campus are:

Indiana University–Purdue University Indianapolis (IUPUI), a partnership between Indiana and Purdue universities, is Indiana’s urban research and academic health sciences campus.

IUPUI’s mission is to advance the state of Indiana and the intellectual growth of its citizens to the highest levels nationally and internationally through research and creative activity, teaching and learning, and civic engagement.

By offering a distinctive range of bachelor’s, master’s, professional, and Ph.D. degrees, IUPUI promotes the educational, cultural, and economic development of central Indiana and beyond through innovative collaborations, external partnerships, and a strong commitment to diversity.

Our vision: To be a leading urban research institution recognized for the success of its students, its advances in health and life sciences, and its intellectual, economic, and cultural contributions to the well-being of the citizens of Indianapolis, the state of Indiana, and beyond. Indianapolis, the state of Indiana, and beyond.

It should be clear that the Biology PhD program directly addresses multiple aspects of this mission and vision, including the life/health sciences, research a distinctive range of doctoral degrees, and the economic development of the central Indiana region. This proposal will advance campus goals of increasing the number of doctoral graduates, strengthening life sciences research and forging partnerships with regional life sciences enterprises.

c. Evidence of Labor Market Need

i. National State, or Regional Need.

Employment demand for doctoral graduates in biological sciences is steady or increasing. According to O-Net Online (www.onetonline.org), demand for molecular/cellular biologists (a category that includes nearly all graduates from the Biology doctoral program) in Indiana is projected to increase by 13% from 2012--2022 (although demand nationally for this category is predicted to be flat). Moreover, of employment opportunities in this category, 68% require a doctoral degree (27% requiring a doctoral degree alone, 41% also requiring postdoctoral training). Opportunities in the related area of Biochemistry/Biophysics are projected to increase in Indiana and nationally by 19%, and again, the majority of these positions require doctoral training. Median salary in Indiana is \$67,000 (10th..90th percentile is \$43,200--\$121,000).

ii. Preparation for Graduate Programs or Other Benefits.

The PhD is a terminal degree, but a large fraction of graduates will go on to post-doctoral training in related fields. Some graduates may go on to medical school. Some graduates will use their training in other careers such as law and business and will seek advanced degrees in these areas.

iii. Summary of Indiana DWD and/or U.S. Department of Labor Data

Indiana Department of Workforce Development data do not specifically address demand for doctoral graduates, but overall demand in the life sciences in the state is strong. For example, DWD predicts growth in employment for medical scientists by 421 positions or 27.8% over the current decade, and a need for an additional 113 biological technicians (6.56% growth) over the same period. The state is unlikely to be able to achieve significant growth in high priority sectors such as biotechnology without access to a pool of individuals trained to the doctoral level in biological and biomedical sciences. Overall demand for college graduates in these economic sectors will drive sustained demand by public and

private institutions of higher education in the state for doctoral graduates to serve their instructional and research needs.

iv. *National, State or Regional Studies*

Nationally reports, such as the Report of the Working Group of the Advisory Council to the Director of the National Institutes of Health (NIH) *Biomedical Research Workforce Working Group Report* (2012; http://acd.od.nih.gov/Biomedical_research_wgreport.pdf) shows a high fraction of doctoral graduates in biomedical science are employed in research careers, either in academic institutions or in other settings (government, industry). The fraction of graduates not in the labor force remains very low. In particular, data from the NSF Survey of Doctoral Recipients (SDR; <http://www.nsf.gov/statistics/srvydoctortework>) shows that of 211,900 doctoral graduates in Biological/agricultural/environmental life sciences, only 4200 (2%) were unemployed at the time of the most recent survey (2013). This is in the context of a significant increase in the number of PhDs granted in these fields. Employment of doctoral graduates in Indiana in these sectors was approximately 2400 in this sector in 2013 (SDR). Thus, the job market for graduates from this program remains robust.

v. *Surveys of Employers or Students and Analyses of Job Postings*

The track record of IUPUI Biology graduates in advancing their careers is clear evidence of demand for the skills. This is documented in Appendix A

vi. *Letters of Support*

See Appendix B

3. Costs of and Support for the Program

a. *Costs*

- *Faculty and Staff*

Biology has 23 tenure track faculty with regular appointments in the Purdue University Graduate School and who are currently able to serve on graduate committees and to mentor students. They will constitute the graduate faculty for the new program. No new faculty positions are required to establish the independent program.

- *Facilities*

The program will be supported by teaching and research facilities that currently exist on the IUPUI campus.

- *Other Capital Costs (e.g. Equipment)*

Student research will be supported by existing capital equipment in the School of Science or by equipment purchased with funds secured by external research awards.

b. Support

- *Nature of Support (New, Existing, or Reallocated)*

Since this is a continuation of an ongoing program, only existing funding will be used.

- *Special Fees above Baseline Tuition*

The Biology PhD program will have the same tuition and fees as other School of Science graduate programs.

4. Similar and Related Programs

a. List of Programs and Degrees Conferred

- *Similar Programs at Other Institutions*

There are several Biology or “Life Sciences” Ph.D. programs in Indiana with the largest being at Indiana University Bloomington (IUB) and Purdue University West Lafayette (PUWL), the program through which we are now operating. The IUPUI campus also has Ph.D. programs in the Schools of Dentistry and Medicine, with the latter being significant in size. There are also Ph.D. programs at the University of Notre Dame and Indiana State University in Terra Haute. Each of these programs has a focus or flavor that makes each different in some but not in all ways. For example, biochemists may be on staff everywhere and all will direct research in some aspect of biochemistry. However, at other levels and in certain life sciences sub-disciplines, clear distinctions emerge.

PUWL organizes its research into three areas.

1. Development and Disease. This encompasses many sub areas including developmental biology, neuroscience, plant biology, cancer biology, and microbial pathogenesis.
2. Ecology and Evolution.
3. Molecular Biosciences

IUB promotes a research program of breadth and depth and identifies 11 research clusters that have recently been reduced to the following 3 programs:

1. Evolution, Ecology and Behavioral Science
2. Microbiology
3. Molecular, Cellular and Developmental Biology

Indiana State lists 3 areas of research focus.

1. Cell & Molecular Biology

2. Ecology, Systematics and Evolution
3. Physiology

The **University of Notre Dame** advertises a wide range of research opportunities but does combine them into four fields of study.

1. Cellular and Molecular Biology
2. Developmental Biology
3. Ecology, Evolution and Environmental Sciences
4. Immunology, Microbiology and Global Health

- *Related Programs at the Proposing Institution*

The most similar program at the proposing institution is the current “shadow” PhD program in Biology, which this program will replace.

The **IU Schools of Medicine and Dentistry** have research areas in the standard basic biomedical sciences with the obvious emphases on the appropriate applied areas of human health.

b. List of Similar Programs Outside Indiana

There are too many biology PhD programs to list in this proposal – essentially, there are programs at every research university, since a doctoral program is an important complement to a high level of research activity. The most recent National Research Council ranking of research doctoral programs (<http://sites.nationalacademies.org/PGA/Resdoc/index.htm>) lists 120 programs under the category of Biology/Integrated Biology, and a further 122 under Cell and Developmental Biology. Each program is unique and distinguished by the particular research interests of the participating faculty. This includes programs at all the research institutions in the MHEC States

c. Articulation of Associate/Baccalaureate Programs

Not applicable.

5. Quality and Other Aspects of the Program

a. Credit Hours Required/Time to Completion

- *Credit hours required for the program and how long a full time student will need to complete the program.*

The minimum number of credits required to complete the PhD degree is 90 hours, comprised of coursework and research hours (BIOL 69900) under the supervision of the student’s mentor. For students directly admitted to the PhD program the total number

of credit hours will typically comprise 24 hours of coursework and a minimum of 76 hours of research. Typically, graduate students enroll in 9--12 credit hours of combined coursework and research. The credit hour requirements for the PhD can easily be completed in 4 years; accomplishing the research goals usually takes longer in Biology, with 5 years being typical. Students may also transfer in credits from a MS degree or a more limited number of graduate non--degree hours. Sample plans of study are included as Appendix C.

b. Exceeding the Standard Expectations of Credit Hours

Not applicable.

c. Program Competencies or Learning Outcomes

- *List the significant competencies or learning outcomes that students are expected to master.*

Upon completion of the Ph.D. in Biology, students should be able to:

- Design and conduct well conceived, significant research projects in a sub-discipline of biology that advance knowledge in the field;
- Critically analyze and evaluate data collected by themselves or others in the field and make judgments about the quality and significance of the data;
- Effectively communicate the results of research in written form to qualified individuals in the field in publications in the scientific literature;
- Write effective proposals to secure support for research projects in biology;
- Orally communicate research results to a professional audience and engage in dialogue with other researchers in the field;
- Demonstrate in--depth knowledge of the scientific literature in the chosen field of inquiry and use this knowledge effectively to inform the selection of research questions and the approach to be taken;
- Conceive new ideas or new ways of understanding biological questions.
- Demonstrate an appreciation of ethical concerns in biological research and the importance of research integrity.

d. Assessment

Assessment of progress towards achieving the competencies expected of PhD graduates will be assessed at multiple stages during the student's career:

- Coursework is assessed through examination, oral presentation and written reports.
- Students are assessed on their knowledge in one of the sub-disciplines of biology with a written qualifying exam set by the graduate faculty and taken at the end of the first year.
- In a preliminary exam at the end of the second year, students present and defend a written proposal of the work planned for inclusion in the doctoral dissertation. The student's advisory committee of four or more graduate faculty, including the research mentor, oversees the preliminary exam.
- Students meet at least annually with their advisory committee to review progress towards completion of the research that will be included in the dissertation.
- Students submit the final dissertation to the advisory committee for approval and are examined at an oral defense of their research by the advisory committee and the graduate faculty.

e. Licensure and Certification

Not applicable.

f. Placement of Graduates

Placement of graduates is indicated in the list of previous IUPUI Biology Department PhD students. Students have gone on to postdoctoral fellowships at prestigious national research institutions, including Stanford, Johns Hopkins, MD Anderson Cancer Center. Graduates have progressed to faculty positions in research institutions (Ohio State, Louisville, Wake Forest, St. Louis. Several graduates are in positions in the life sciences industry, at Lilly, Dow, Genentech, Cook Biotech. A list of former graduates is included in Appendix A.

g. Accreditation

Accreditation is not available for PhD programs in Biology.

6. Projected Headcount and FTE Enrollments and Degrees Conferred

See attached tables.

6. Projected Headcount and FTE Enrollments and Degrees Conferred
April 30, 2015

Institution/Location: Indiana University-Purdue University Indianapolis
 Program: Ph.D. in Biology (Purdue)
 Proposed CIP Code: 26.0101
 Base Budget Year: 201415

	Year 1 2016-17	Year 2 2017-18	Year 3 2018-19	Year 4 2019-20	Year 5 2020-21
Enrollment Projections (Headcount)					
PhD Program	6	12	18	24	30
Master of Arts Program	6	12	18	24	30
Enrollment Projections (FTE)					
PhD Program	5	9	14	18	23
Master of Arts Program	5	9	14	18	23
Degree Completion Projection					6

CHECode:
 Campus Code:
 County Code:
 Degree Level:
 CIP Code:

Department of Stem Cell and Regenerative Biology
Harvard University



Douglas Melton
*Thomas Dudley Cabot Professor
of Natural Sciences*

9 March 2011

Dr. Sherry Queener
Director of the Graduate Office, IUPUI
Associate Dean
Indiana University Graduate School

Comments on a Proposal for a Ph.D. Program in Biology at IUPUI

This proposal concerns the conversion of an existing Purdue University PhD program to one that is based and administered entirely at IUPUI. The proposal builds on strong and successful program of training PhD students on the Indianapolis campus (IUPUI).

The proposed curriculum is rigorous, sensible, and demonstrably effective. The program is research intensive and is complemented by 90 credit hours of registration, including 24 credit hours of advanced course work. The course offerings are broad and provide a sound training in modern biology. The requirement that students present two separate one-hour seminars on research topics is an example of the strong training that will be given to candidates for the PhD degree.

The requirements for admission to the program are in keeping with standard practice at our nation's top research universities. A basic grounding in modern science is expected, but there is sufficient flexibility in the program to allow for so students who wish to pursue a career in the biological sciences but may have some deficiencies in their disciplinary background.

Provisions have been made to provide stipends for the degree candidates and it is noted that the present level of support may be slightly under the average for other institutions of this quality.

The faculty present a well thought out plan of study and the advising program is consistent with other programs that train top quality PhDs. Using the Graduate Committee as an Examination Committee is a very good practice so that faculty remain intimately involved with students during the course of their degree.

I have no substantive criticisms of the proposed program. It has functioned very well for twenty years and the courses, plan of study, mentoring, and supervision are all demonstrably effective.

The principal issue seems to be whether this program should continue with its present, albeit curious, administrative structure. Specifically, whether the program should be credited to the Purdue West Lafayette

campus or gain local institutional control in Indianapolis? It would seem that local control, meaning both local authority and responsibility for the program, is essential if the University wishes to garner additional resources, take advantage of other local centers such as the Center for Regenerative Biology and Medicine, and strengthen ties with more local faculty and the professional schools. Without local authority and independence, granting agencies may view this program as a satellite operation and be less inclined to provide significant resources. In short, the strongest PhD programs are those controlled and operated by the faculty who are directly involved and committed to the program's success.

Sincerely,

A handwritten signature in black ink that reads "Doug Melton". The signature is written in a cursive, flowing style.

D.A. Melton
Thomas Dudley Cabot Professor of Natural Sciences
Harvard University
Investigator, Howard Hughes Medical Institute
Co-Chair and Co-Director the SCRB Department and the Harvard Stem Cell Institute

John C. Lechleiter, Ph.D.

Chairman, President, and Chief Executive Officer

317.276.6997 | jcl@lilly.com



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Lilly Corporate Center
Indianapolis, Indiana 46285
U.S.A.

www.lilly.com

May 11, 2015

Simon J. Rhodes, Ph.D.
Dean, School of Science
IUPUI
402 North Blackford Street, LD 222
Indianapolis, IN 46202

Dear Dr. Rhodes,

I am pleased to offer my support for your proposals for independent Ph.D. degrees in the School of Science at IUPUI. My colleagues at Lilly and I have been pleased to witness the emergence of the School of Science as an excellent research and learning institution and key asset in our shared ambition to make Indiana a hub of discovery and innovation. IUPUI graduates of the current Ph.D. programs awarded through the West Lafayette campus hold important positions in both our research laboratories and in other areas of our company. We have benefitted from the outstanding training they received. Clearly, you are ready to operate your own Ph.D. programs.

We have been particularly pleased with the benefits to our employees who have taken advantage of the opportunity to enhance their qualifications and contributions to our discovery mission by studying for the Ph.D. through the LGRAD program that we developed together. They are well prepared to assume higher levels of responsibility in their research groups. Moreover, this training is beneficial to the company as we seek to develop our own scientists as leaders in their fields of inquiry and to retain the best and brightest.

We also realize that your undergraduate degree students (the vast majority of whom are from Indiana) enjoy opportunities to have significant engagements in research. These research experiences help develop important skills that Indiana employers seek in new hires. Enriching the research environment by solidifying the Ph.D. degree programs will further improve the education and preparation of your undergraduates.

I believe that approval of the independent status you are requesting will strengthen your programs even further by allowing them to participate in national rankings and by making them fully eligible for external funding programs that are restricted to those with independent doctoral degrees. All of us in Indiana's life sciences community, and other contributors to our economy and quality of life, will share the benefits.

Sincerely,

A handwritten signature in black ink that reads "John C. Lechleiter".

APPENDIX C

Sample Plans of Study

Student #1

This student is entering the program straight from the Baccalaureate degree and has no transferrable credits.

First semester:	BIOL 59500 Special Assignments (Laboratory rotations; Chooses Research Advisor)	3 cr. hrs.
	BIOL 50700 Prin. Molec. Biol.	3 cr. hrs.
	BIOL 56600 Developmental Biol.	3 cr. hrs.
Second semester:	BIOL 69700 TPCS: Stem Cell Biol.	3 cr. hrs.
	BIOL 69900 Research (Qualifying Exam passed)	6 cr. hrs.
Third semester:	BIOL 55900 Endocrinology	3 cr. hrs.
	BIOL 69900 Research (Grad. Advisory Committee formed and Plan of Study filed)	6 cr. hrs.
Fourth semester:	BIOL 56800 Regen. Biol. & Medicine	3 cr. hr.
	BIOL 56100 Immunology	3 cr. hr.
	BIOL 69900 Research (Preliminary Exam passed)	3 cr. hrs.
Fifth semester:	GRAD G651 Intro. Biostatistics I	3 cr. hr.
	BIOL 69900 Research	6 cr. hrs.
Sixth semester:	BIOL 57100 Devel. Neurobiology	3 cr. hrs.
	BIOL 69600 Seminar	1 cr. hr.
	BIOL 69900 Research	5 cr. hrs.
Seventh semester:	BIOL 69900 Research	9 cr. hrs.
Eighth semester:	BIOL 69600 Seminar	1 cr. hr.
	BIOL 69900 Research	8 cr. hrs.
Ninth semester:	BIOL 69900 Research	9 cr. hr.
Tenth semester:	BIOL 69900 Research	9 cr. hr.

Total: 90 hours as Ph.D.; 24 cr. hrs. of course work.

Student #2

This student has completed a non-thesis M.S. that was comprised of 30 hours of eligible course work. All are included on the Plan of Study. One seminar (BIOL 69600) was satisfied within a graduate course.

First semester:	BIOL 59500 Special Assignments (Laboratory rotations; Chooses Research Advisor)	3 cr. hrs.
	BIOL 69700 TPCS: Molec. Bone Biol.	3 cr. hrs.
Second semester:	BIOL 69700 TPCS: Stem Cell Biol.	3 cr. hrs.
	BIOL 69900 Research (Qualifying Exam passed)	6 cr. hrs.

Third semester:	GRAD G819 Basic Bone Biol. BIOL 69900 Research (Grad. Advisory Committee formed and Plan of Study filed)	3 cr. hrs. 6 cr. hrs.
Fourth semester:	BIOL 69900 Research (Preliminary Exam passed)	9 cr. hrs.
Fifth semester:	GRAD G651 Intro. Biostatistics I BIOL 69900 Research	3 cr. hr. 6 cr. hrs.
Sixth semester:	GRAD G825 Adv. Tpcs. Molec. Biol. BIOL 69900 Research	3 cr. hrs. 6 cr. hrs.
Seventh semester:	BIOL 69900 Research	9 cr. hrs.
Eighth semester:	BIOL 69600 Seminar BIOL 69900 Research	1 cr. hr. 5 cr. hrs.

Total: 30 hours for M.S. plus 69 hours as Ph.D.; 45 cr. hrs. of course work.

Student #3

This student had 6 credit hours of graduate course work (BIOL 50700, Prin. Molecular Biology, 3 cr. and BIOL 54800, Techniques in Biotechnology, 3 cr.) taken as excess undergraduate course work that are eligible for transfer into the thesis M.S. These six hours appear on the Ph.D. Plan of Study as well. During the M.S. the student registered for an additional six hours (BIOL 69700, TPCS; Plant Physiology, 3 cr. and BIOL 55000 Plant Molecular Biology, 3 cr.) of graduate course work. The M.S. degree is worth a maximum of 30 credits toward the Ph.D. Seminar (BIOL 69600) requirements were satisfied within two of the graduate courses.

First semester:	BIOL 54000 Biotechnology BIOL 69900 M.S. Research*	3 cr. hrs. 6 cr. hrs.
Second semester:	BIOL K483 Biological Chemistry BIOL 69800 M.S. Research (Qualifying Exam passed)	3 cr. hrs. 6 cr. hrs.
Third semester:	BIOL 69800 M.S. Research (Grad. Advisory Committee formed and Plan of Study filed)	9 cr. hrs.
Fourth semester:	BIOL 69700 TPCS: Plant Molec. Genet. BIOL 69800 M.S. Research (Preliminary Exam passed)	3 cr. hrs. 6 cr. hrs.
Fifth semester:	BIOL 69900 Research	9 cr. hrs.
Sixth semester:	BIOL 69700 TPCS: Plant "omics" BIOL 69900 Research	3 cr. hrs. 6 cr. hrs.
Seventh Semester	BIOL 69700 TPCS: Plant Genetics BIOL 69900 Research	3 cr. hrs. 3 cr. hrs.
Eighth semester:	BIOL 69900 Research	6 cr. hrs.

Total: 30 hours for M.S. plus 66 hours as Ph.D.; 27 cr. hrs. of course work.

Graduate Council Document Number 15-10a
Approved by the Graduate Council on May 4, 2015

PROPOSAL

PH.D. IN CHEMISTRY AND
CHEMICAL BIOLOGY

SUBMITTED BY THE DEPARTMENT OF
CHEMISTRY AND CHEMICAL BIOLOGY

SCHOOL OF SCIENCE

IUPUI

COVER PAGE

INSTITUTION: Indiana University–Purdue University Indianapolis (IUPUI)

CAMPUS: Indianapolis

COLLEGE: Purdue School of Science

DEPARTMENT/SCHOOL: Chemistry & Chemical Biology

DEGREE PROGRAM TITLE: Ph.D. in Chemistry & Chemical Biology

SUGGESTED CIP CODE: 40.0501

PROJECTED DATE OF IMPLEMENTATION: August 2015

Executive Summary

A Proposal to Convert the Current Stewarded Chemistry Ph.D. Program at the IUPUI Purdue School of Science, Department of Chemistry & Chemical Biology, to a Site-Approved Ph.D. Program in Chemistry and Chemical Biology

The Purdue School of Science at IUPUI seeks to convert its current “stewarded” Chemistry Ph.D. training program within the Department of Chemistry & Chemical Biology (C&CB) to a site-approved Ph.D. degree program in Chemistry & Chemical Biology. C&CB has been actively involved in highly successful chemistry Ph.D. training for approximately 30 years under the “stewardship” of the Department of Chemistry at PUWL. However, as will be described herein, given the experience and maturity of the present C&CB department, this old arrangement is now bureaucratically cumbersome, it lacks the flexibility to be customized for current local training needs and emerging opportunities, and it does not correctly attribute the degrees to the Indianapolis campus at which all course and thesis work is currently performed. Accordingly, the Purdue School of Science at IUPUI now seeks to convert its ongoing Ph.D. training program to a degree program that is site-approved for Indianapolis. This new degree program (culminating in a Ph.D. in Chemistry and Chemical Biology) will now also closely reflect and complement the campus emphasis on life and health sciences as well as the local life-sciences economy it seeks to serve.

The proposed Ph.D. program in Chemistry and Chemical Biology will provide a focal point for scientific exchange and training that will be unique and much needed to support the local and central Indiana life sciences economy. Currently, there are no other Ph.D. programs in chemistry or chemistry and chemical biology in metropolitan Indianapolis. It is also clear that local Ph.D.-training opportunities in chemistry are desired by local employers, such as Eli Lilly. The creation of a site-approved Ph.D. in chemistry and chemical biology will serve also the goals of the university by increasing graduate research and training with a focus of expertise that aligns and synergizes with the ongoing life-sciences activities on campus, e.g., activities within the School of Medicine at IUPUI. Aside from the obvious impact of the planned degree program on the local economy, nationally, the labor market for graduates with doctoral degrees in chemically related sciences remains quite strong; growth in chemistry, biochemistry and biophysics employment in Indiana through 2022 is projected to be 16-19%.

The name of the planned Ph.D. degree program, “*Chemistry and Chemical Biology*” derives from a modern sub-discipline within the chemical sciences, *chemical biology*, that has been defined as “*the application of chemical techniques, tools, and analyses, and often compounds produced through synthetic chemistry, to the study and manipulation of biological systems.*” Chemical Biology is thus distinctly chemistry and clearly not “biochemistry”, “molecular biology” or “biology.” Indeed, acknowledging our departmental emphasis on this subfield, the historical department name was converted from simply “Department of Chemistry” to the “Department of Chemistry & Chemical Biology” in 2005. This name and our proposed degree emphasis reflects well the strategic planning outcomes of the C&CB department: C&CB has consciously chosen to focus the research efforts of the department towards avenues that complement the stated focus of IUPUI as the “life and health sciences” campus of IU. In this way, C&CB has also minimized overlap and redundancy with existing “pure” chemistry programs such as the Ph.D.s in Chemistry available from both PUWL and IUB. As is described by this proposal, while the degree name sought will better reflect the activities that lead to it, the course of work, both in the classroom and in the laboratory-based thesis research, will remain programmatically identical to and as rigorous as it has been for the past 30 years.

Since this proposal is, in effect, a petition to rename and site-approve a 30-year ongoing activity, no new resources are necessary to implement it: the faculty, staff, library resources, and laboratory resources necessary to conduct this degree program are all currently in place.

Section I

Program Description

Ph.D. in Chemistry & Chemical Biology to be offered by the Purdue School of Science Indiana University–Purdue University Indianapolis

1. Characteristics of the Program

- a. *Campus Offering Program:*
Indiana University – Purdue University Indianapolis (IUPUI)
- b. *Scope of Delivery (Specific Sites or Statewide):* IUPUI campus
- c. *Mode of Delivery (Classroom, Blended, or Online):* Classroom
- d. *Other Delivery Aspects (Co-ops, Internships, Clinicals, Practica, etc.):* Ph.D. students will be required to participate in research.
- e. *Academic Unit Offering Program:* Purdue School of Science, IUPUI

2. Rationale for Program

- a. *Institutional Rationale*
IUPUI is identified as the urban research campus of Indiana University and, additionally, as a consequence of the presence of a contingent of health-related schools, the IU “Health & Life Sciences” campus of the state. Given the rapid growth and specialization of IUPUI over the past 46 years, IUPUI and the Purdue School of Science now seek to convert a well-established Purdue Ph.D. program in Chemistry currently operating within the Department of Chemistry & Chemical Biology (C&CB) to a *site-approved doctoral degree program in Chemistry & Chemical Biology* that reflects the unique emphasis and mission of this department towards biologically-oriented chemical research. As also reflected in ongoing efforts, this program will leverage the life science resources available in Indianapolis and on the IUPUI campus to provide research experiences and training for modern chemistry professionals to meet the needs of the central Indiana workforce, in particular the growing life-sciences sector of the central Indiana economy.

The campus *Vision Statement* is very clear about the future direction of IUPUI: The *IUPUI Vision* is “*to be the best urban research university by conducting world-class research, scholarship, and creative activities that develop knowledge and contribute to the economic growth and social advancement of Indiana and the nation and benefit humanity as a whole.*” This clarity of purpose, together with the natural maturation of the IUPUI campus and changes in the local economy over nearly 50 years, makes Indianapolis-based doctoral programs not just an aspiration but also a pressing need to sustain the research and educational enterprise of central Indiana, the home of many life and health

sciences industries. Indeed, building the research capacity of the Purdue School of Science at IUPUI has been of pressing importance to the campus for at least 39 years: C&CB began offering the MS degree in the early 1970s and admitted its first Ph.D. student in the mid 1980s under a plan that designated the PUWL Department of Chemistry a “steward” department. However, the *status quo* of the Department in terms of maturity, size, and specialization, has outgrown the practical utility and need for the present, often cumbersome, system of oversight. The department is no longer new to Ph.D. training and it is on the cusp of a major expansion – the current rate of faculty hiring (2-3 new faculty/year), with more new positions planned, will solidify the faculty base and enhance external funding significantly. Thus, paralleling the burgeoning growth of the undergraduate student population at IUPUI seeking STEM education, the construction of yet another laboratory building in 2013, increased external grant income, and an expanding C&CB graduate student body, the conversion of the department’s currently “stewarded” Ph.D. program to one that is specific to the Indianapolis campus will go far towards making this vision a reality. By directly offering a Ph.D. administered exclusively in Indianapolis, C&CB will be able to improve its reputation through inclusion of *its own graduates* in national ranking systems (e.g., those administered by the American Chemical Society; currently, graduates are attributed to the “steward” department!) and directly act upon the goals set forth by recent external review teams. Further, although the C&CB commitment to research is clear in all new faculty hires, for the department to be increasingly competitive in the recruitment of top faculty talent (and for these new hires to be successful), a robust, high quality graduate program at the Ph.D. level is an absolute necessity. The impact of Ph.D. training is clear – C&CB has already observed the positive impact of graduate programs over the past twenty-nine years on faculty productivity, external funding success, and the overall intellectual climate of the department.

Finally, a site-approved Ph.D. program provides tangible benefits to the undergraduate institutional mission: it is clear that the presence of an active Ph.D. program inspires undergraduate students in the Science, Technology, Engineering and Mathematics (STEM) research enterprise. Conversely, active undergraduate student involvement in research provides opportunities for Ph.D. students to gain experience in mentoring and directing research projects. The positive educational synergism that occurs between an active Ph.D. program and undergraduate students in the same discipline of science cannot be overstated.

b. *State Rationale*

This proposal aligns with two of the goals of the strategy paper “*Reaching Higher, Achieving More*” published by the Indiana Commission for Higher Education (ICHE). Firstly, the continued “mission driven” development of our Ph.D. program, drawing upon the proximity of the medical, dental, engineering,

and public health schools and the C&CB department in Indianapolis, provides a distinct but integrated approach to chemistry and chemical biology research education within Indiana's academic landscape. Furthermore, the existing program and C&CB are "workforce-aligned". Located in Indiana's urban economic hub and providing unique opportunities for partnership, this program is integral to the delivery of high quality training to graduates with an emphasis on the skills required by the state's major employers, such as Eli Lilly, DowAgroSciences, Roche Scientific, and countless startups. Indeed, C&CB is actively engaged in the newly instituted "LGRAD" graduate training partnership between the School of Science and Eli Lilly – through this program, eligible and academically admissible Lilly employees can receive Ph.D. training through a leave-of-absence with a guarantee of employment upon graduation.

Finally, the correct assignment of Purdue degrees *earned at IUPUI* to the Indianapolis campus through the institution of a site-approved program addresses a direct request made earlier by the ICHE. Clearly attributing the Ph.D. work conducted at IUPUI to the campus as opposed to a "steward" department will go a long way towards accurately reflecting the role and ongoing activities of IUPUI in the state.

c. *Evidence of Labor Market Need*

i. *National, State, or Regional Need*

As reported by the American Chemistry Council, employment demand for scientists involved in all aspects of chemistry is positive, with an annual job growth of 2.4% for 2014 and 3.8% in the developed world for the foreseeable future. The US Bureau of Labor Statistics (US-BLS) states that the best employment opportunities in these STEM areas are for candidates possessing a Ph.D. degree and projects that careers in chemistry will expand by 6% annually (<http://www.bls.gov/ooh/life-physical-and-social-science/chemists-and-materials-scientists.htm>). Biochemistry/biophysical science job opportunities, as categorized by nationally by the US-BLS, provide the best measure of the chemical biology component of the proposed program. Current labor statistics project that these high salary positions (\$81,480) have a strong outlook to 2022, growing faster than average (19%) and requiring a doctoral degree as entry-level education (<http://www.bls.gov/ooh/life-physical-and-social-science/biochemists-and-biophysicists.htm>).

ii. *Preparation for Graduate Programs or Other Benefits*

A Ph.D. is normally considered a terminal degree; however, a Ph.D. in Chemistry & Chemical Biology may also serve as auxiliary or additional specialized training for those seeking ultimate employment in professional areas of business, medicine, or law via the MBA, MD, or

JD. Here again, site approval of the Chemistry & Chemical Biology Ph.D. degree benefits IUPUI as a whole by providing this additional graduate training capacity proximal to the IUPUI schools of business, medicine and law.

- iii. *Summary of Indiana DWD and/or U.S. Department of Labor Data*
As reported on the Indiana DWD website, biochemistry/biophysical science job opportunities should grow by 19.4% through 2022 (http://www.hoosierdata.in.gov/dpage.asp?id=39&view_number=2&menu_level=&panel_number=2); employees in Indiana garner a \$93,200 median salary, exceeding the \$84,940 national average. Additionally, chemists should see a 16.3% employment increase during the same period.
- iv. *National, State, or Regional Studies*
Rather than speculate or project the demand for the proposed independent degree program, we will rely on our experience with the outcomes of the ongoing Ph.D. training in Chemistry & Chemical Biology at IUPUI. It is not typical to expect that a Ph.D. program will have significant local impact on the region in terms of permanent employment. Rather, the Ph.D. is a global degree with recipients most frequently seeking high-level positions wherever they exist, sometimes including opportunities in other countries. *Despite this typical expectation, we note that 16 of 53 Ph.D. graduates from the stewarded IUPUI program are currently employed in Indiana.* These individuals are fully listed in Section II along with out-of-state faculty, governmental and industrial positions taken by the remainder of the Ph.D. graduates. We are confident that similar success in placement of our graduates will continue upon site-approval and as the program grows.

BioCrossroads, which supports the expansion of the life science enterprise in Indiana, highlights the importance of life science research and education in their document “*Using Post-Baccalaureate Education as a Competitive Advantage for Indiana’s Life Sciences Industry*”. The agricultural feedstocks and chemicals, drugs and pharmaceutical, research, testing and medical laboratory sectors employ 27,000 Hoosiers in an industry that has undergone a \$3.2 billion expansion through 2012 (<http://www.biointellex.com/wp-content/uploads/2014/08/BioCrossroads-Professional-Coursework-report.pdf>). Chemistry and chemical biology training underpins many of these positions, and led the Battelle report to place Indiana in the first-tier of states in the life science industry.

Nationally, the National Science Foundation (NSF) Survey of Doctoral

Recipients (SDR; <http://www.nsf.gov/statistics/srvydoctoratework>) reports that of 76,000 doctoral graduates in chemistry, only 1,900 (3%) were unemployed at the time of the most recent survey (2013). Essentially the same status for biochemists/biophysicists with doctoral degrees is also available from the NSF, where 96.9% of 32,400 scientists are employed.

- v. *Surveys of Employers or Students and Analyses of Job Postings*
Job postings requiring a Ph.D. in Chemistry are routinely published in *Chemical & Engineering News*, an American Chemical Society journal, and in major publications, such as *Science* and *Nature*. The track record of IUPUI Chemistry graduates in advancing their careers is clear evidence of demand for the skills.
- vi. *Letters of support*
See Appendix 1 for letters of support from external referees.

3. Cost of and Support for the Program

a. *Costs*

i. *Faculty and Staff*

This is a petition to site-approve an ongoing activity at IUPUI – No new faculty and staff resources are necessary to meet the needs of this proposed degree program. Ongoing and previously planned faculty hires will more than adequately meet the current and future needs of the program. C&CB has 13.0 FTE for 13 tenured or tenure-track faculty members with expertise in chemistry central to the life sciences as well as two professors with administrative appointments in other units. Although not related to the present proposal, the department is actively searching for four tenure-track faculty over the next two years (bioanalytical, computational, organic, chemical biology). In addition to the full-time faculty, C&CB has three jointly appointed faculty members (official IUPUI appointments) whose primary appointments are within the IU School of Medicine at IUPUI. These individuals also hold special graduate certification with the Purdue Graduate School that allows them to serve as members of Ph.D. and thesis MS committees.

ii. *Facilities*

C&CB has been engaged in Ph.D. training for nearly thirty years, there is no immediate need for additional learning resources or space. Since the initiation of our stewarded Ph.D. program, C&CB has been able to provide all graduate classroom courses necessary for our students; C&CB students have never needed to “travel” to obtain classroom credit hours from the PUWL campus “steward”

department. In addition to providing all necessary classroom training in-house, C&CB has at its disposal excellent campus libraries as well as online resources and PI/faculty research laboratories and shared facilities to successfully operate all aspects of a Ph.D. training program in Indianapolis. Other technical resources or multi-user resources are available through core facilities in the Schools of Science and Medicine at IUPUI, and through Indiana University Bloomington (IUB). In addition, the Indiana Clinical and Translational Sciences Institute can provide access to specialized core facilities at PUWL, IUB, and Notre Dame.

iii. Other Capital Costs (e.g., Equipment)

No new equipment is necessary for the implementation of this proposal; all equipment necessary for Ph.D. training is already in place. As is always the case, future instrumentation, equipment, and capital costs will be met by competitive external funding programs or resources within the School of Science; these are continuously ongoing activities.

b. Support

i. Nature of Support (New, Existing, or Reallocated)

Funding for this program will continue as it has for the preceding 30 years: Through existing budgeted resources in the School of Science.

ii. Special Fees above Baseline Tuition

The site approved C&CB Ph.D. program will continue to assess tuition and other fees equal to other graduate programs in the School of Science.

4. Similar and Related Programs

a. List of Programs and Degrees Conferred

i. Similar Programs at Other Institutions

There are several traditional chemistry Ph.D. programs in Indiana, with the largest being the Department of Chemistry, Purdue University-West Lafayette (PUWL), the “steward” program under which we are now operating. Other traditional chemistry Ph.D. programs are present at Indiana University-Bloomington (IUB) and the University of Notre Dame. The IUPUI campus is also home to the chemistry-related biochemistry & molecular biology (BMB) Ph.D. program in the School of Medicine. Each of these programs has a focus that makes them different in some but not in all ways. The independent C&CB Ph.D. program that we propose here will complement existing Indianapolis/IUPUI programs by not only becoming the only site-approved Ph.D. in Chemistry in Indianapolis but by also being the first to declare specialization in the burgeoning chemical sub-discipline of Chemical Biology (defined as the application of chemical techniques, tools, and analyses, and often compounds produced through synthetic chemistry, to the study and manipulation of

biological systems). As already mentioned, our major focal area is in Life Science Chemistry. This focus is synergistic with, and complementary to, research being done in biology, physics, medicine, dentistry and engineering on the IUPUI campus.

ii. Related Programs at the Proposing Institution

There are no graduate-level degrees in chemistry, chemistry and chemical biology, or chemical engineering in Indianapolis/IUPUI. The only program that bears semblance to the proposed degree is a Ph.D. in Biochemistry & Molecular Biology offered by the Department of Biochemistry and Molecular Biology at the IUPUI School of Medicine.

b. List of Similar Programs Outside Indiana

All research universities beyond the confines of Indiana offer a Ph.D. in chemistry. Harvard, Cornell, University of California, San Francisco, and Scripps Research Institute all offer a Ph.D. in chemistry & chemical biology. All peer institutions to IUPUI offer a Ph.D. in chemistry and certain institutions, for example the Univ. of South Florida, also denote a concentration area (e.g., organic or environmental chemistry).

c. Articulation of Associate/Baccalaureate Programs

Not applicable.

d. Collaboration with Similar or Related Programs on Other Campuses

As also articulated in the IUPUI mission statement, C&CB envisions becoming a focal point for bio-related chemical research and to represent Purdue University well in this endeavor at the location of the state's largest medical school. While collaborations between the C&CB department and the biochemistry & molecular biology department of the school of medicine at IUPUI are extensive, faculty initiated collaborations also have been ongoing with disciplinary colleagues on the IUB and PUWL campuses. As the specialization of the C&CB department continues towards the discipline of chemical biology, we fully expect collaborative efforts to increase due to the presence of unique yet complementary tools and areas of expertise. All these aspects are value-added indirect benefits of Ph.D. program site approval.

5. Quality and Other Aspects of the Program

a. Credit Hours Required/Time To Completion

The Ph.D. requires at least 90 credit hours of course work and research.

Students who enter the Ph.D. program with an MS degree can apply a maximum of 30 credit hours toward the 90 credit hours required for the Ph.D. degree.

Program requirements include selecting a Research Advisor, passing five Cumulative Exams, establishing a Graduate Advisory Committee, submitting a Plan of Study, passing an Oral Candidacy Exam, satisfactorily presenting a Formal Seminar, submitting a Research Progress Report, and submitting and defending a thesis. To provide degree consistency, the Ph.D. in Chemistry & Chemical Biology will be operated and managed in the same way as the current Purdue West Lafayette Ph.D. program. The minimum number of credit hours needed to qualify for full-time status for domestic (international) students at IUPUI is six (eight), six (eight) and one (one) credit for fall, spring and a summer semester, respectively. For a sample plan of study see Appendix 2.

b. Exceeding the Standard Expectation of Credit Hours

Not applicable

c. Program Competencies or Learning Outcomes

The Learning Outcomes for the Ph.D. degree program in Chemistry & Chemical Biology, developed with assistance from the Center for Teaching and Learning at IUPUI, are:

1. Demonstrate increased depth of understanding in most sub-disciplines of chemistry.
2. Integrate sub-disciplines of chemistry and other disciplines as applicable in problem solving and research.
3. Search, read and understand peer-reviewed chemical literature, and apply in field of study.
4. Present and communicate results to peers through posters, seminars and/or publishing.
5. Identify chemical problems and design experiments to solve these problems.
6. Teach effectively in labs or recitations in lower-level undergraduate chemistry courses.
7. Think critically and creatively.
8. Propose original research and conduct this research independently, including project design, analysis and conclusion.
9. Demonstrate mastery of chemistry in at least one sub-discipline of chemistry.
10. Communicate and defend scholarly works.

d. Assessment

For the assessment of student applications and degree progress, the IUPUI Ph.D. will be operated in the same way as the current Purdue West Lafayette program.

The program will be evaluated using the following parameters:

1. Number of applicants and admitted students
2. Number of students attending
3. Number of students supported on grants and from institutional sources
4. Profiles of attendees (GPAs, GRE scores, graduate degrees, previous institutions attended)
5. Student performance in course work
6. Student performance on Cumulative Exams
7. Student research productivity (number of publications, presentations)
8. Awards and other special recognition
9. Time to degree
10. Number of graduates
11. Student placement: Number placed and quality of placements

Monitoring the above parameters will be the responsibilities of the Department Chair, the Director of Graduate Studies and the Chemistry & Chemical Biology Graduate Committee. Each year in early fall the recruiting data (Items 1 and 2) from the previous year will be collected and summarized. Historical data (Item 4) on matriculating students will also be compiled at that time. Each annual cohort will be followed through graduation to collect the information for items 9 and 10. Pass rates on the Cumulative Exams will be collected for the previous year in the summer (Item 6). Course work performance will be monitored semester by semester (Item 5). Data regarding student research productivity, awards and placement will be followed for three to five years post-graduation to capture program productivity that appears after leaving and to allow for a long-term view of career trajectory (Items 7, 8 and 11). We will also monitor annually the proportion of institutionally and grant-supported students (Item 3). It is an important measure of program effectiveness that institutional commitment and external research funding success be in balance.

e. Licensure and Certification

Licensing is neither required nor typical for the employment of chemistry and chemical biology graduates.

f. Placement of Graduates

C&CB has a nearly 30-year history of placing graduate students into fulfilling academic, industrial and governmental careers. Data provided for the last 10 years is in Appendix 3.

g. *Accreditation*

Our BS Chemistry & Biological Chemistry degree programs are accredited by the American Chemical Society. The proposed program will not be accredited as no such mechanism exists for US graduate programs in Chemistry (and Chemical Biology).

6. **Projected Headcount and FTE Enrollment and Degrees Conferred (see tables provided)**

See attached tables.

Table 2
Data for Question # 6

NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY

Institution/Location: Indiana University-Purdue University
 Indianapolis
 Program: Ph. D. in Chemistry and Chemical Biology
 Proposed CIP Code: 40.0501
 Base Budget Year: 2014-15

	Year 1	Year 2	Year 3	Year 4	Year 5
	<u>2016-17</u>	<u>2017-18</u>	<u>2018-19</u>	<u>2019-20</u>	<u>2020-21</u>
Enrollment Projections (Headcount)					
Ph.D. Program	8	16	24	32	40
Master of Arts Program	-	-	-	-	-
	8	16	24	32	40
Enrollment Projections (FTE)					
Ph.D. Program	6	12	18	24	28
Master of Arts Program	-	-	-	-	-
	6	12	18	24	28
Degree Completion Projection	-				8

CHE Code:
 Campus Code:
 County Code:
 Degree Level:
 CIP Code:

Appendix 1. Letters of Support.

From: Harry B. Gray [hbgray@caltech.edu]
Sent: Sunday, March 20, 2011 6:11 PM
To: Queener, Sherry F
Subject: Re: IUPUI: Ph.D. in Chemistry

Dear Dr. Queener:

I have studied the proposal to allow a Purdue Ph.D. program in chemistry to be awarded at the Indianapolis site by the IUPUI Department of Chemistry and Chemical Biology. The Ph.D. program has been in existence for many years, so the change requested is to allow degrees to be awarded directly by IUPUI. Given the demonstrated success of the program over the years, this request is most appropriate, in my view.

The proposal is excellent. The department is strong; infrastructure is good; and most faculty members are very active in research. The teaching program is well balanced. I am particularly impressed by the combination of cumulative exams and an original proposal as a key part of graduate training. The three focus areas of research play on faculty strengths and are of enormous current interest in chemistry and chemical biology. The department has attracted very good students and the placement of alumni is impressive. Admitting about 5 students (maybe a few more) per year seems very reasonable, as the student/faculty ratio will be favorable and promote strong interactions. It is clear that the IUPUI doctoral program has made a positive impact on both academic and industrial institutions in Indiana and elsewhere in the country. To me the proposed change in administration will go a long way to further strengthen what already is an outstanding doctoral program.

I can recommend approval of the proposal in the strongest possible terms.

Sincerely,

Harry Gray
Arnold O. Beckman Professor of Chemistry
California Institute of Technology



THE SCRIPPS RESEARCH INSTITUTE

Dale L. Boger, Ph.D.
Richard & Alice Cramer Professor of Chemistry
10550 North Torrey Pines Road, La Jolla, California 92037, USA

March 12, 2011

Sherry F. Queener, Ph.D.
Director, IUPUI Graduate Office
Associate Dean, Indiana University Graduate School

Dear Professor Queener:

It is my pleasure to comment on the proposal for the stand alone, site directed and controlled Ph.D. program in Chemistry at IUPUI. This is an easy task and one that I am a little more familiar with than most external evaluators as a result of having been on the faculty at Purdue University (1985-1990). I am also quite familiar with many of your Organic Chemistry faculty. Since this is, in essence, a program that has been underway since 1986 and that has been quite successful - it is long overdue that this Ph.D. program be given its complete independence. The curriculum is appropriate and adaptable to the individual students, and the requirements for fulfilling a Ph.D. are rigorous (albeit and like Purdue University extend too long into the graduate students career). The Organic Chemistry faculty (the only faculty I feel qualified to comment on) are superb, well qualified to direct this program independently and they will definitely benefit from this increased independence. In addition, IUPUI has also evolved as a University campus to the level of benefiting from and now requiring this autonomy. Personally, I think could have and perhaps should have occurred many years ago. I do think this places the Chemistry faculty in a position where IUPUI will need to place a new level of expectations on all that includes full participation in both the undergraduate and graduate programs and efforts to move IUPUI Chemistry from a local or regional program to one that competes on the national and international level. With the competition for external funds as fierce as it is, it is only the very best in any field, including Chemistry, which can compete. But, like the Ph.D. program itself, this is a feature of the program that you can continue to cultivate over the years to come.

Sincerely,

Dale L. Boger
Richard and Alice Cramer
Professor of Chemistry



TEL: (858) 822-2665
FAX: (858) 822-4442
EMAIL: ckubiak@ucsd.edu

Clifford P. Kubiak
Distinguished Professor and Harold C. Urey Chair
Department of Chemistry & Biochemistry
University of California, San Diego
9500 Gilman Drive, 0358
La Jolla, California 92093-0358

April 6, 2011

Sherry F. Queener, Ph. D.
Director of the Graduate Office, IUPUI
Associate Dean, Indiana University Graduate School
Indianapolis, IN 46202

Dear Dr. Queener:

I am writing in response to your request for an evaluation of the proposal for a doctor of philosophy program in chemistry on the Indianapolis campus, IUPUI. I have read the proposal carefully, and I believe that I am well qualified to evaluate it for several reasons. First, I was a faculty member at the West Lafayette campus of Purdue University for sixteen years (1982-1998). Many of our faculty meetings during my early years as an assistant professor at Purdue were occupied with deciding whether IUPUI should have a Ph. D. program, and how it would be managed by, and interact with the Chemistry Department in West Lafayette. Second, I was one of six members of an external review committee for the Department of Chemistry and Chemical Biology at IUPUI in March, 2006. Much of the external review committee's work at that time concerned the graduate program, and a detailed evaluation of the success and future of the graduate program at the Indianapolis campus.

The Department of Chemistry and Chemical Biology at IUPUI has done a very good job at fulfilling its mission to provide an urban graduate program in the state's largest city that meets the needs of students, the state, and professional expectations for scholarly research in chemistry. The department has had outstanding faculty over the years. It has lost several of the most outstanding of these faculty members, but retained and attracted others. The current faculty staffing level of 16 FTEs is near the all-time high, but clearly further growth will be required to sustain the Ph. D. program. The quality and quantity of scholarly work is very high for such a small program.

Going back to the mid-1980's when I was a faculty member at Purdue and we had endless meetings about the IUPUI Ph. D. program (when I thought we should be discussing and fixing our own department's many problems), I will tell you straight: I never thought that West Lafayette ownership of the Indianapolis program was a good idea. The only compelling reason that I remember for why IUPUI should *not* have a Ph. D. program, was that it was hard enough to sustain the programs in West Lafayette and Bloomington with the numbers of good students, federal funding, and other resources required. I thought the arguments about quality control and maintaining standards were elitist, arrogant, and wrong. Over the years, the department in Indianapolis has proven that it neither duplicates nor competes with the program in West Lafayette, but rather it has found a niche that works. It attracts students mostly from Indiana, and proportionally more of the professional chemists trained at IUPUI stay in Indiana compared to the other programs in the state. It attracts federal funding, quality faculty members, and produces well-trained modern Ph. D. chemists. I believe that the original quality control measures

IUPUI Ph. D. program
April 6, 2011

imposed by the West Lafayette campus including (1) the requirement that West Lafayette faculty serve on the doctoral committees of IUPUI Ph. D. candidates, (2) the requirement of a common set of cumulative exams for both campuses, and (3) the attribution of the Ph. D. degree to Purdue (implicitly West Lafayette) "for work done at IUPUI" were wrong in the first place, have proven to be unnecessary impediments to graduate students and faculty at both campuses, and should be eliminated immediately. In my view, 25 years is more than long enough to do an experiment. It works!! I offer my strongest possible endorsement to the successful implementation of an autonomous Ph. D. program in chemistry on the Indianapolis campus. Do not hesitate to contact me, if you wish to discuss this in more detail over the telephone.

Respectfully yours,



Clifford P. Kubiak

John C. Lechleiter, Ph.D.

Chairman, President, and Chief Executive Officer

317.276.6997 | jcl@lilly.com



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U.S.A.

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May 11, 2015

Simon J. Rhodes, Ph.D.
Dean, School of Science
IUPUI
402 North Blackford Street, LD 222
Indianapolis, IN 46202

Dear Dr. Rhodes,

I am pleased to offer my support for your proposals for independent Ph.D. degrees in the School of Science at IUPUI. My colleagues at Lilly and I have been pleased to witness the emergence of the School of Science as an excellent research and learning institution and key asset in our shared ambition to make Indiana a hub of discovery and innovation. IUPUI graduates of the current Ph.D. programs awarded through the West Lafayette campus hold important positions in both our research laboratories and in other areas of our company. We have benefitted from the outstanding training they received. Clearly, you are ready to operate your own Ph.D. programs.

We have been particularly pleased with the benefits to our employees who have taken advantage of the opportunity to enhance their qualifications and contributions to our discovery mission by studying for the Ph.D. through the LGRAD program that we developed together. They are well prepared to assume higher levels of responsibility in their research groups. Moreover, this training is beneficial to the company as we seek to develop our own scientists as leaders in their fields of inquiry and to retain the best and brightest.

We also realize that your undergraduate degree students (the vast majority of whom are from Indiana) enjoy opportunities to have significant engagements in research. These research experiences help develop important skills that Indiana employers seek in new hires. Enriching the research environment by solidifying the Ph.D. degree programs will further improve the education and preparation of your undergraduates.

I believe that approval of the independent status you are requesting will strengthen your programs even further by allowing them to participate in national rankings and by making them fully eligible for external funding programs that are restricted to those with independent doctoral degrees. All of us in Indiana's life sciences community, and other contributors to our economy and quality of life, will share the benefits.

Sincerely,

A handwritten signature in black ink that reads "John C. Lechleiter".

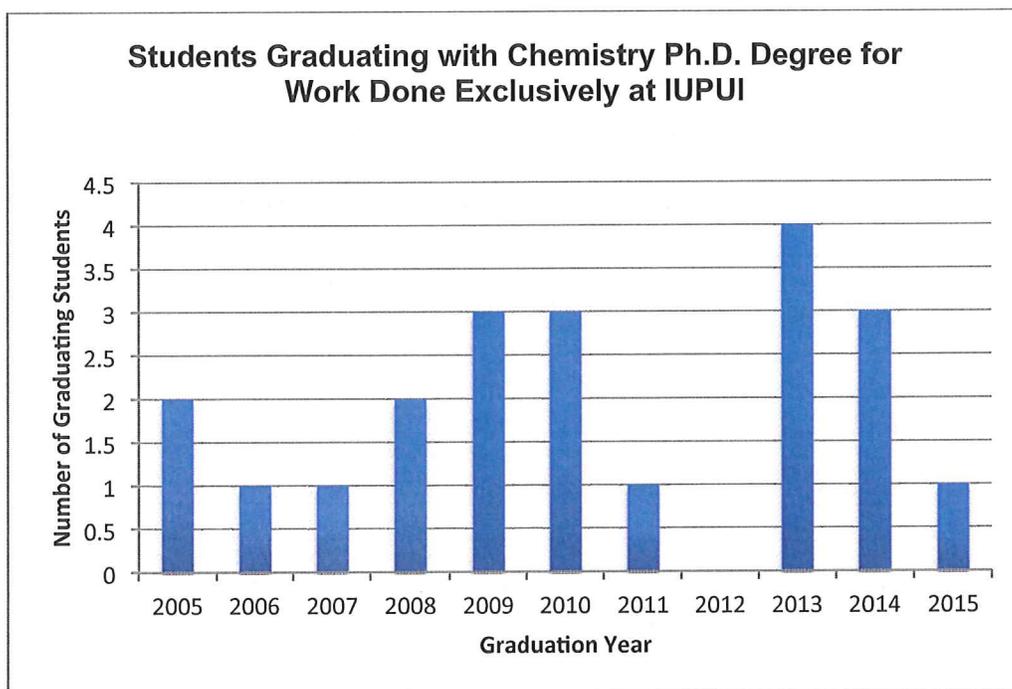
Appendix 2: Sample Plan of Study

Below is a sample Plan of Study for a student entering the program with a B.S. degree; a plan for an entering M.S. student would be expected to contain transferred coursework, approved by the Director of Graduate Studies on consultation with appropriate departmental faculty.

First Semester:	CHEM 62100 Advanced Analytical Chemistry	3 cr. hrs.
	CHEM 69600 Special Topics: Biomaterials	3 cr. hrs.
Second Semester:	CHEM 69600 Special Topics: Analytical Spectroscopy	3 cr. hrs.
	CHEM 65100 Special Topics: Advanced Organic Chemistry	3 cr. hrs.
Third Semester:	CHEM 53300 Introductory Biochemistry	3 cr. hrs.
	CHEM 69600 Special Topics: Bioanalytical Chemistry	3 cr. hrs.
Fifth Semester:	CHEM 69500 Seminar	1 cr. hr.
Sixth Semester:	CHEM 69500 Seminar	1 cr. hr.

Appendix 3: Graduation and External Funding Data for Chemistry and Chemical Biology at IUPUI.

A) Number of Chemistry Ph.D. graduates per year 2010-2015. All coursework, seminars, and research was performed in Indianapolis.



COMMISSION FOR HIGHER EDUCATION

Thursday, September 10, 2015

BUSINESS ITEM B:

Capital Projects for Expedited Action

Staff Recommendation

That the Commission for Higher Education recommends approval to the State Budget Agency and the State Budget Committee of the following projects:

- University of Southern Indiana – Welcome Center
- Purdue University West Lafayette – McCutcheon Hall
University Residences Bathroom Renovation, Phase V

Background

Staff recommends approval to the State Budget Agency and the State Budget Committee of the following capital projects in accordance with the expedited action category originated by the Commission for Higher Education in May 2006. Institutional staff will be available to answer questions about these projects, but the staff does not envision formal presentations.

Supporting Document

Background Information on Capital Projects on Which Staff Proposes Expedited Action, September 10, 2015

Capital Projects for Expedited Action
September 10, 2015

G-0-15-1-04 University of Southern Indiana, Welcome Center - \$2,500,000

The Board of Trustees of the University of Southern Indiana requests to proceed with the construction of a Welcome Center on campus. There is a growing need on campus for dedicated space to welcome students and visitors. This project will significantly impact recruitment efforts. The free-standing structure will include a large meeting room where staff can show videos and make presentations to visitors and smaller meeting rooms to allow guests to receive more personalized attention. The University plans to construct the Welcome Center in a highly visible, easily accessible location on campus.

The estimated cost of the project is \$2,500,000. It will be funded through private gifts (\$2,000,000) and University dedicated funds (\$500,000). The cost per gross square foot is \$128. This low cost per GSF is in part due to the use of below-grade space. Below-grade construction reduces exterior wall, window and roofing costs.

This project was reviewed and approved by the Commission's Budget and Productivity Committee, August 2015.

B-1-16-2-01 Purdue University West Lafayette – South Tower McCutcheon Hall University Residences Bathroom Renovation, Phase V - \$4,800,000

The Board of Trustees of Purdue University requests to proceed with the renovation of the fifth of nine planned phases of renovation of the University Residences H-Hall bathrooms. This phase will renovate floors 1-8 of the South Tower of McCutcheon Hall University Residences. The renovation will increase privacy, appearance, and marketability.

The estimated cost is \$4,800,000 and will be paid using room and board fees. The cost per GSF is \$551, which is the same cost as the 2013 bathroom renovations of the Purdue Harrison Residence hall.

This project was reviewed and approved by the Commission's Budget and Productivity Committee, August 2015.

COMMISSION FOR HIGHER EDUCATION

Thursday, September 10, 2015

BUSINESS ITEM C:

Early Intervention Policy

Staff Recommendation

(1) Under IC 20-32-9-2(1)(A)(ii) adopt The College Board's recommendation of a 38 in Critical Reading and a 40 in mathematics as the national assessment of college and career readiness threshold score.

(2) Under IC 20-32-9-2(3) adopt a threshold score of 69 in Reading and 92 in Mathematics on the ACCUPLACER to determine when a student requires remediation or additional instruction.

Background

HEA 1637-2015 altered the state's early intervention policy. This policy requires the State Board of Education to consult with the Commission, the Department of Workforce Development and the Indiana Department of Education to develop guidelines and thresholds to assist secondary schools in identifying students who will likely require remediation. Specifically, the Commission is tasked with determining a threshold score on a national assessment of college and career readiness which would require a student to be assessed for remediation and once assessed, a score which would require remediation.

Supporting Document

HEA 1637
HEA 1637 Recommendations and Requirements
HEA 1637 Flow Chart
College Board Recommendation

First Regular Session of the 119th General Assembly (2015)

PRINTING CODE. Amendments: Whenever an existing statute (or a section of the Indiana Constitution) is being amended, the text of the existing provision will appear in this style type, additions will appear in **this style type**, and deletions will appear in ~~this style type~~.

Additions: Whenever a new statutory provision is being enacted (or a new constitutional provision adopted), the text of the new provision will appear in **this style type**. Also, the word **NEW** will appear in that style type in the introductory clause of each SECTION that adds a new provision to the Indiana Code or the Indiana Constitution.

Conflict reconciliation: Text in a statute in *this style type* or ~~this style type~~ reconciles conflicts between statutes enacted by the 2014 Regular Session and 2014 Second Regular Technical Session of the General Assembly.

HOUSE ENROLLED ACT No. 1637

AN ACT to amend the Indiana Code concerning education.

Be it enacted by the General Assembly of the State of Indiana:

SECTION 1. IC 20-23-17.2-3, AS ADDED BY P.L.179-2011, SECTION 31, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: Sec. 3. (a) The governing body of the school corporation consists of nine (9) members who shall be elected as follows:

(1) One (1) member shall be elected from each of the school districts described in section 4 of this chapter. A member elected under this subdivision must reside within the boundaries of the district the member represents.

(2) Three (3) members, who must reside within the boundaries of the school corporation, shall be elected as at-large members.

(3) All members shall be elected on a nonpartisan basis.

(4) All members shall be elected at the general election held in the county in 2012. ~~and each four (4) years thereafter.~~

(b) Upon assuming office and in conducting the business of the governing body, a member shall represent the interests of the entire school corporation.

(c) This section expires January 1, 2017.

SECTION 2. IC 20-23-17.2-3.1 IS ADDED TO THE INDIANA CODE AS A **NEW** SECTION TO READ AS FOLLOWS

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[EFFECTIVE JULY 1, 2015]: **Sec. 3.1. (a) After December 31, 2016, the governing body of the school corporation consists of five (5) members, elected as provided in this chapter.**

(b) Three (3) members shall be elected as follows:

(1) From districts established as provided in section 4.1 of this chapter.

(2) On a nonpartisan basis.

(3) At the general election held in the county in 2016 and every four (4) years thereafter.

(c) Two (2) members shall be elected as follows:

(1) At large by all the voters of the school corporation.

(2) On a nonpartisan basis.

(3) At the general election held in the county in 2016 and every four (4) years thereafter.

(d) The term of office of a member of the governing body:

(1) is four (4) years; and

(2) begins January 1 after the election of members of the governing body.

(e) Upon assuming office and in conducting the business of the governing body, a member shall represent the interests of the entire school corporation.

SECTION 3. IC 20-23-17.2-3.2 IS ADDED TO THE INDIANA CODE AS A NEW SECTION TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: **Sec. 3.2. (a) Notwithstanding section 10 of this chapter, as in effect before July 1, 2015, and as amended after June 30, 2015, if:**

(1) a vacancy occurs in the office of a member of the governing body after June 30, 2015; and

(2) the vacancy does not reduce the membership of the governing body to fewer than five (5) members;

the vacancy shall not be filled.

(b) This section expires January 1, 2017.

SECTION 4. IC 20-23-17.2-4, AS ADDED BY P.L.179-2011, SECTION 31, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: **Sec. 4. (a) The boundaries of the districts from which members of the governing body of the school corporation are elected under section 3(a)(1) of this chapter are the same as the boundaries of the common council districts of the city that are drawn under IC 36-4-6.**

(b) This section expires January 1, 2017.

SECTION 5. IC 20-23-17.2-4.1 IS ADDED TO THE INDIANA CODE AS A NEW SECTION TO READ AS FOLLOWS



[EFFECTIVE JULY 1, 2015]: **Sec. 4.1. (a) As used in this section, "council district" refers to a district of the city legislative body:**

- (1) established under IC 36-4-6-3; and**
- (2) as in effect on January 1, 2015.**

(b) The districts from which a member of the governing body is elected under section 3.1(b) of this chapter are as follows:

- (1) School corporation district 1 consists of the territory formed by council district 1 and council district 2.**
- (2) School corporation district 2 consists of the territory formed by council district 3 and council district 4.**
- (3) School corporation district 3 consists of the territory formed by council district 5 and council district 6.**

SECTION 6. IC 20-23-17.2-5, AS AMENDED BY P.L.219-2013, SECTION 88, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: **Sec. 5. (a) The following apply to an election of members of the governing body of the school corporation under section ~~3(a)(1)~~ 3.1(b) of this chapter:**

(1) Each candidate must file a petition of nomination with the circuit court clerk not earlier than one hundred four (104) days and not later than seventy-four (74) days before the general election at which members are to be elected. The petition of nomination must include the following information:

- (A) The name of the candidate.**
- (B) The candidate's residence address and the district in which the candidate resides.**
- (C) The signatures of at least twenty (20) registered voters residing within the school corporation district the candidate seeks to represent.**
- (D) A certification that the candidate meets the qualifications for candidacy imposed by this chapter.**
- (E) The school corporation district that the candidate seeks to represent.**

(2) Only eligible voters residing in the school corporation district as provided in section 4.1 of this chapter may vote for a candidate to represent that school corporation district.

(3) One (1) candidate shall be elected for each school corporation district provided by section 4.1 of this chapter. The candidate elected for a school corporation district must reside within the boundaries of the school corporation district. The candidate elected as the member for a particular school corporation district is the candidate who, among all the candidates who reside within that school corporation district,



receives the greatest number of votes from voters residing in that **school corporation** district.

(b) The following apply to an election of the members of the governing body of the school corporation under section ~~3(a)(2)~~ **3.1(c)** of this chapter:

(1) Each candidate must file a petition of nomination with the circuit court clerk not earlier than one hundred four (104) days and not later than seventy-four (74) days before the general election at which members are to be elected. The petition of nomination must include the following information:

(A) The name of the candidate.

(B) The candidate's residence address.

(C) The signatures of at least one hundred (100) registered voters residing within the school corporation.

(D) A certification that the candidate meets the qualifications for candidacy imposed by this chapter.

(E) The fact that the candidate seeks to be elected from the school corporation at large.

(2) Only eligible voters residing in the school corporation may vote for a candidate.

(3) ~~Three (3)~~ **Two (2)** candidates shall be elected at large. The ~~three (3)~~ **two (2)** candidates who receive the greatest number of votes among all candidates running for an at-large seat are elected as members of the governing body.

SECTION 7. IC 20-23-17.2-6, AS ADDED BY P.L.179-2011, SECTION 31, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: Sec. 6. Voters who reside within the boundaries of the school corporation may vote for the candidates elected under section ~~3~~ **3.1** of this chapter. Each voter may vote only for **the following**:

(1) One (1) candidate to represent the district in which the voter resides. ~~and~~

(2) ~~three (3)~~ **Two (2)** at-large candidates.

SECTION 8. IC 20-23-17.2-8 IS REPEALED [EFFECTIVE JULY 1, 2015]. Sec. 8: (a) The term of each person elected to serve on the governing body of the school corporation is four (4) years.

(b) The term of each person elected to serve on the governing body begins on the date set in the school corporation's organization plan. The date set in the organization plan for an elected member of the governing body to take office may not be more than fourteen (14) months after the date of the member's election. If the school corporation's organization plan does not set a date for an elected member of the governing body to take office, the member takes office

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January 1 immediately following the person's election.

SECTION 9. IC 20-23-17.2-9, AS ADDED BY P.L.179-2011, SECTION 31, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: Sec. 9. The members of the governing body of the school corporation shall be elected at the general election to be held in ~~2012~~ 2016 and every four (4) years thereafter.

SECTION 10. IC 20-30-5-20, AS ADDED BY P.L.139-2014, SECTION 2, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE UPON PASSAGE]: Sec. 20. (a) As used in this section, "psychomotor skills" means skills using hands on practice to support cognitive learning.

(b) Except as provided in subsection (e), each school corporation and accredited nonpublic school shall include in the school corporation's or accredited nonpublic school's high school health education curriculum instruction in cardiopulmonary resuscitation and use of an automated external defibrillator for its students. The instruction must incorporate the psychomotor skills necessary to perform cardiopulmonary resuscitation and use an automated external defibrillator and must include either of the following:

- (1) An instructional program developed by the American Heart Association or the American Red Cross.
- (2) An instructional program that is nationally recognized and is based on the most current national evidence based emergency cardiovascular care guidelines for cardiopulmonary resuscitation and the use of an automated external defibrillator.

(c) A school corporation or an accredited nonpublic school may offer the instruction required in subsection (b) or may arrange for the instruction to be provided by available community based providers. The instruction is not required to be provided by a teacher. If instruction is provided by a teacher, the teacher is not required to be a certified trainer of cardiopulmonary resuscitation.

(d) This section shall not be construed to require a student to become certified in cardiopulmonary resuscitation and the use of an automated external defibrillator. However, if a school corporation or accredited nonpublic school chooses to offer a course that results in certification being earned, the course must be taught by an instructor authorized to provide the instruction by the American Heart Association, the American Red Cross, or a similar nationally recognized association.

(e) A school administrator may waive the requirement that a student receive instruction under subsection (b) if the student has a disability or is physically unable to perform the psychomotor skill component of

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the instruction required under subsection (b).

(f) If a school is unable to comply with the psychomotor skill component of the instruction required under subsection (b), the governing body may submit a request to the state superintendent to waive the psychomotor skill component. The state superintendent shall take action on the waiver request within thirty (30) days of receiving the request for a waiver. A waiver request must:

- (1) be in writing;
- (2) include the reason or reasons that necessitated the waiver request;
- (3) indicate the extent to which the school attempted to comply with the requirements under subsection (b); and
- (4) be submitted each year for the school year the school requests the waiver.

This subsection expires July 1, 2015.

SECTION 11. IC 20-31-3-4, AS AMENDED BY P.L.286-2013, SECTION 100, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: Sec. 4. The state superintendent shall appoint an academic standards committee composed of subject area teachers, **higher education representatives with subject matter expertise**, and parents during the period when a subject area is undergoing revision.

SECTION 12. IC 20-32-9-1, AS ADDED BY P.L.268-2013, SECTION 9, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: Sec. 1. ~~Not later than July 1, 2013;~~ The state board, in consultation with the:

- (1) education roundtable established under IC 20-19-4-2;
- (2) commission for higher education established under IC 21-18-2-1;
- (3) department of workforce development established under IC 22-4.1-2-1; and
- (4) department;

shall develop guidelines **and thresholds** to assist secondary schools in identifying a student who is likely to require remedial work at a postsecondary educational institution or workforce training program if the student subsequently attends ~~a~~ **an Indiana** postsecondary educational institution or workforce training program upon graduation.

SECTION 13. IC 20-32-9-2, AS ADDED BY P.L.268-2013, SECTION 9, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: Sec. 2. The guidelines **and thresholds** established in section 1 of this chapter:

- (1) ~~must include indicators to assist school personnel in~~

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determining whether a student may be in need of supplemental instruction or remediation to minimize the student's need for remedial course work at a postsecondary educational institution or workforce training program;

(2) (1) must provide standards and guidelines for secondary school personnel to determine when a student is required to be assessed under section 3 of this chapter, including guidelines that include:

(A) **criteria and thresholds that must be based upon:**

(i) **the student's results or score on a state assessment; and**

(ii) **the student's results or score on a national assessment of college and career readiness, with thresholds determined by the commission for higher education and the department in consultation with the state educational institutions, or the student's qualifying grades, which for purposes of this section are a "B" or higher, in advanced placement, international baccalaureate, or dual credit courses;**

(A) (B) **a description of the school official who may make a determination based on the criteria to assess a student under section 3 of this chapter; and**

(B) (C) **thresholds for determining whether a student who takes an examination under section 3 of this chapter requires additional remediation or additional instruction that are determined based on a common score for placement into an entry level, transferable course in English or mathematics as determined by the commission for higher education in consultation with the state educational institutions; and**

(3) (2) **may provide best practices and strategies for improving services and support provided by a school must provide information on strategies and resources that schools can use to assist a student in achieving the level of academic performance that is appropriate for the student's grade level to:**

(A) **reduce the likelihood that a student will fail a graduation exam and require a graduation waiver under IC 20-32-4-4 or IC 20-32-4-5; or**

(B) **minimize the necessity for postsecondary remedial course work by the student.**

SECTION 14. IC 20-32-9-3, AS ADDED BY P.L.268-2013, SECTION 9, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE

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JULY 1, 2015]: Sec. 3. (a) If the appropriate secondary school official determines, using the ~~indicators~~ **criteria and thresholds** established in section 2 of this chapter, that a student ~~before the spring semester, or the equivalent, in grade 11:~~

(1) ~~has failed a graduation exam and may require a graduation waiver under IC 20-32-4-4 or IC 20-32-4-5; or~~

(2) ~~will likely require remedial work at a postsecondary educational institution or workforce training program,~~

the appropriate secondary school official shall require the student to take a college and career readiness exam approved by the state board in consultation with the department, the commission for higher education established under IC 21-18-2-1, the education roundtable established under IC 20-19-4-2, and the department of workforce development under IC 22-4.1-2-1 **at least one (1) time before the student begins the spring semester, or the equivalent, in grade 11.** The cost of the exam shall be paid by the department.

(b) If a student is required to take an exam under subsection (a), the appropriate school official shall make a determination based on the guidelines **and thresholds** established in section 2 of this chapter as to whether the student is in need of additional instruction or remedial action with respect to a particular subject matter covered in the exam. If the appropriate school official determines that a student who takes an exam under subsection (a) is in need of remediation or supplemental instruction to prevent the need for remediation at a postsecondary educational institution or workforce development program, the appropriate school official shall inform the student's parent:

(1) of the likelihood that the student will require remedial course work;

(2) of the potential financial impact on the student or the parent for the additional remedial course work described in subdivision

(1), including that the student may not be eligible to receive state scholarships, grants, or assistance administered by the commission for higher education; and

(3) of the additional time that may be required to earn a degree; while the student attends a postsecondary educational institution or workforce development program. The appropriate secondary school official may establish a remediation or supplemental instruction plan with the student's parent.

(c) Before a student determined to need additional instruction or remedial action under subsection (b) with respect to a particular subject matter may enroll in a dual credit course under IC 21-43 in the same subject matter or a related subject matter, the student may receive



additional instruction or remedial course work and must retake the examination described in subsection (a). If the appropriate school official determines that the student no longer requires additional instruction or remedial action under the guidelines established under section 2 of this chapter after retaking the exam under this section, the student may enroll in a dual credit course under IC 21-43. The cost of the administration of the exam under this subsection **and subsection (d)** shall be paid by the department.

(d) A student who takes an exam under subsection (a) and is identified as being in need of remediation or supplemental instruction shall retake the college and career readiness exam during grade 12 after a remediation or supplemental instruction plan is completed.

(e) Upon implementation of a grade 10 assessment aligned with college and career readiness educational standards adopted by the state board under IC 20-19-2-14.5, the department shall report to the state board and the general assembly in an electronic format under IC 5-14-6 as to the feasibility of using the grade 10 assessment as the initial identifier for determining the remediation needs of students. This subsection expires January 1, 2020.

SECTION 15. IC 20-33-2-13, AS AMENDED BY P.L.43-2014, SECTION 7, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: Sec. 13. (a) A school corporation shall record or include the following information in the official high school transcript for a student in high school:

- (1) Attendance records.
- (2) The student's latest ISTEP program test results under IC 20-32-5.
- (3) Any secondary level and postsecondary level certificates of achievement earned by the student.
- (4) Immunization information from the immunization record the student's school keeps under IC 20-34-4-1.
- (5) Any dual credit courses taken that are included in the core transfer library under IC 21-42-5-4.
- ~~(6) The student's latest PSAT program test results.~~

(b) A school corporation may include information on a student's high school transcript that is in addition to the requirements of subsection (a).

SECTION 16. IC 20-34-7-6, AS ADDED BY P.L.34-2014, SECTION 3, IS AMENDED TO READ AS FOLLOWS [EFFECTIVE JULY 1, 2015]: Sec. 6. (a) As used in this section, "football" does not include flag football.

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(b) ~~Beginning July 1, 2014,~~ Prior to coaching football to individuals who are less than twenty (20) years of age **and are in grades 1 through 12**, each head football coach and assistant football coach shall complete a certified coaching education course that:

- (1) is sport specific;
- (2) contains player safety content, including content on:
 - (A) concussion awareness;
 - (B) equipment fitting;
 - (C) heat emergency preparedness; and
 - (D) proper technique;
- (3) requires a coach to complete a test demonstrating comprehension of the content of the course; and
- (4) awards a certificate of completion to a coach who successfully completes the course.

(c) For a coach's completion of a course to satisfy the requirement imposed by subsection (b), the course must have been approved by the department.

(d) A coach shall complete a course not less than once during a two (2) year period. However, if the coach receives notice from the organizing entity that new information has been added to the course before the end of the two (2) year period, the coach must:

- (1) complete instruction; and
- (2) successfully complete a test;

concerning the new information to satisfy the requirement imposed by subsection (b).

(e) An organizing entity shall maintain a file of certificates of completion awarded under subsection (b)(4) to any of the organizing entity's head coaches and assistant coaches.

(f) A coach who complies with this section and provides coaching services in good faith is not personally liable for damages in a civil action as a result of a concussion or head injury incurred by an athlete participating in an athletic activity in which the coach provided coaching services, except for an act or omission by the coach that constitutes gross negligence or willful or wanton misconduct.

SECTION 17. An emergency is declared for this act.



Speaker of the House of Representatives

President of the Senate

President Pro Tempore

Governor of the State of Indiana

Date: _____ Time: _____

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HEA 1637 Recommendations and Requirements

The 2015 General Assembly altered responsibility for certain aspects of IC 20-32-9, the Postsecondary and Workforce Training Remediation Reduction Chapter. The Commission is now charged with working with Indiana Department of Education to provide criteria and thresholds for when a student must be assessed for remediation or supplemental instruction during his or her 11th grade year. The thresholds must be based on the student's score on a state assessment and either the student's score on a national assessment of college and career readiness or qualifying grades in advance placement (AP), international baccalaureate (IB) or dual credit course. Statute defines qualifying grades in AP, IB, or dual credit as a "B" or higher. However, statute does not provide guidance on how to set threshold scores for the national or state assessment. Since AP, IB and dual credit courses are the equivalent of first year college courses, the Commission assumes the cut scores on the national and state assessment should be predictive of a student receiving a "B" in his or her first year of postsecondary courses.

If a student does not achieve the required score on either the state or national assessment/qualifying grades in AP, IB or dual credit, the student must take a college and career readiness exam to determine whether the student needs remediation or supplemental instruction. The Commission, in consultation with state educational institutions, is charged with setting the threshold score that would require remediation or supplemental instruction. The threshold score must be based on the score needed to enroll in an entry-level, transferable course in English or mathematics. The State Board of Education is tasked with selecting the college and career readiness exam and the Board selected the ACCUPLACER. Below are the Commission's recommendations for the national and state assessment threshold scores, the Commission's requirements for the ACCUPLACER cuts scores, and the Commission's recommendations on how to handle remediation and supplemental instruction.

National Assessment Threshold Scores

PSAT/NSMQT Cut Score:

Based on research received from The College Board, the Commission recommends a minimum cut score of 38 for Critical Reading and 40 for Mathematics on the PSAT/NSMQT. College Board's research shows students who meet these baselines have a 65% probability of earning a GPA of a "B-" or higher during their first year of postsecondary education. With ACCUPLACER administration moving to the fall, these scores are for 10th grade PSAT/NSMQT results from fall 2014.

SAT Cut Score:

Based on research conducted by The College Board, the Commission recommends a minimum cut score of 500 in both Reading and Mathematics on the SAT. The College Board's research shows



students who meet these minimum scores have a 65% probability of earning a GPA of a “B-” or higher during their first year of postsecondary education.

ACT Cut Score:

Based on research conducted by American College Testing, the Commission recommends a minimum cuts score of 22 for Mathematics, 22 in Reading and 18 in English on the ACT. The student must meet both the minimum score in Reading and English. American College Testing’s research shows students who meet this standard have a 50% probability or receiving a “B” or higher and a 75% chance of obtaining a C or higher in the corresponding credit-bearing first year courses.

State Assessment Threshold Score

The Commission does not have data showing the link between the *Indiana Statewide Testing for Educational Progress-Plus End of Course Assessments* (ISTEP+ ECAs) and postsecondary GPA. The Commission defers to the Department’s expertise when setting ISTEP+ ECA cut scores. It should be noted that scoring above the cut score on any national assessment should not exempt a student from being assessed for remediation or supplemental instruction if they did not meet the required score on the state assessment.

Remediation and Supplemental Instruction Threshold

ACCUPLACER Cut Score:

To determine the ACCUPLACER threshold score, the Commission looked at the scores needed to enroll in an entry-level, transferable mathematics and English course at Ivy Tech Community College. The only other institution using ACCUPLACER to determine placement is Vincennes University. However, Vincennes uses a different version from the Department and Ivy Tech. To enroll in an entry-level, transferable course in mathematics and English at Ivy Tech, a student would need a minimum score of 69 in Reading and 92 in Mathematics. Therefore, any student who scores below this threshold is required to meet with the appropriate school official to discuss their college and career goals to determine if and what kind of remediation is required.

Whether a student requires remediation should be based on the student’s ACCUPLACER score in conjunction with the student’s college and career goals. The student’s college and career goals will determine which entry-level mathematics and English course the student will need to take at the postsecondary level. These courses require different ACCUPLACER scores to enroll. Schools should use the following matrix to determine whether a student should be provided further remediation or supplemental instruction.



INDIANA COMMISSION *for*
HIGHER EDUCATION

Postsecondary goal	ACCUPLACER SCORE necessary
4-year institution OR 2-yr institution with intent to transfer to 4-year	76 or higher on Reading, 92 or higher on Math
2-year institution in a STEM or Business field requiring Algebra and Calculus	69 or higher on Reading, 92 or higher on Math
2-year institution in a non-STEM/business field requiring Quantitative Reasoning	69 or higher on Reading, 70 or higher on Math
2-year institution in a technical field requiring Technical Mathematics	69 or higher on Reading, 45 or higher on Math
Industry training or direct workforce entry	69 or higher on Reading, 45 or higher on Math

All scores are tied directly to what is required to enroll in an entry-level, credit bearing mathematics and English course for that postsecondary pathway with the exception of the 4-year pathway. A student planning on attending a 4-year institution should meet the minimum requirements to enroll in Ivy Tech's American Honors program. A student meeting this threshold is more likely to be prepared to enroll in a 4-year institution and be actively sought by schools when transferring. A student planning on entering the workforce should meet the minimum requirements to enroll in credit bearing courses. The student must receive additional remediation if after meeting with the appropriate school official the student's ACCUPLACER score does not meet the threshold for the college and career goals indicated by their diploma pathway or expressed goals.

Best Practices

Per statute, schools are to retest students on the ACCUPLACER after the prescribed course of remediation or supplemental instruction. The Commission recommends the Department collect data from schools about pre- and post-remediation result to identify schools in which remediation is making the biggest difference. The practices in place at those schools should be highlighted as a best practice. The Commission will contribute to the development of best practices by conducting research of the national landscape and coordinating with postsecondary remediation providers, to be sent to DOE at a later date.



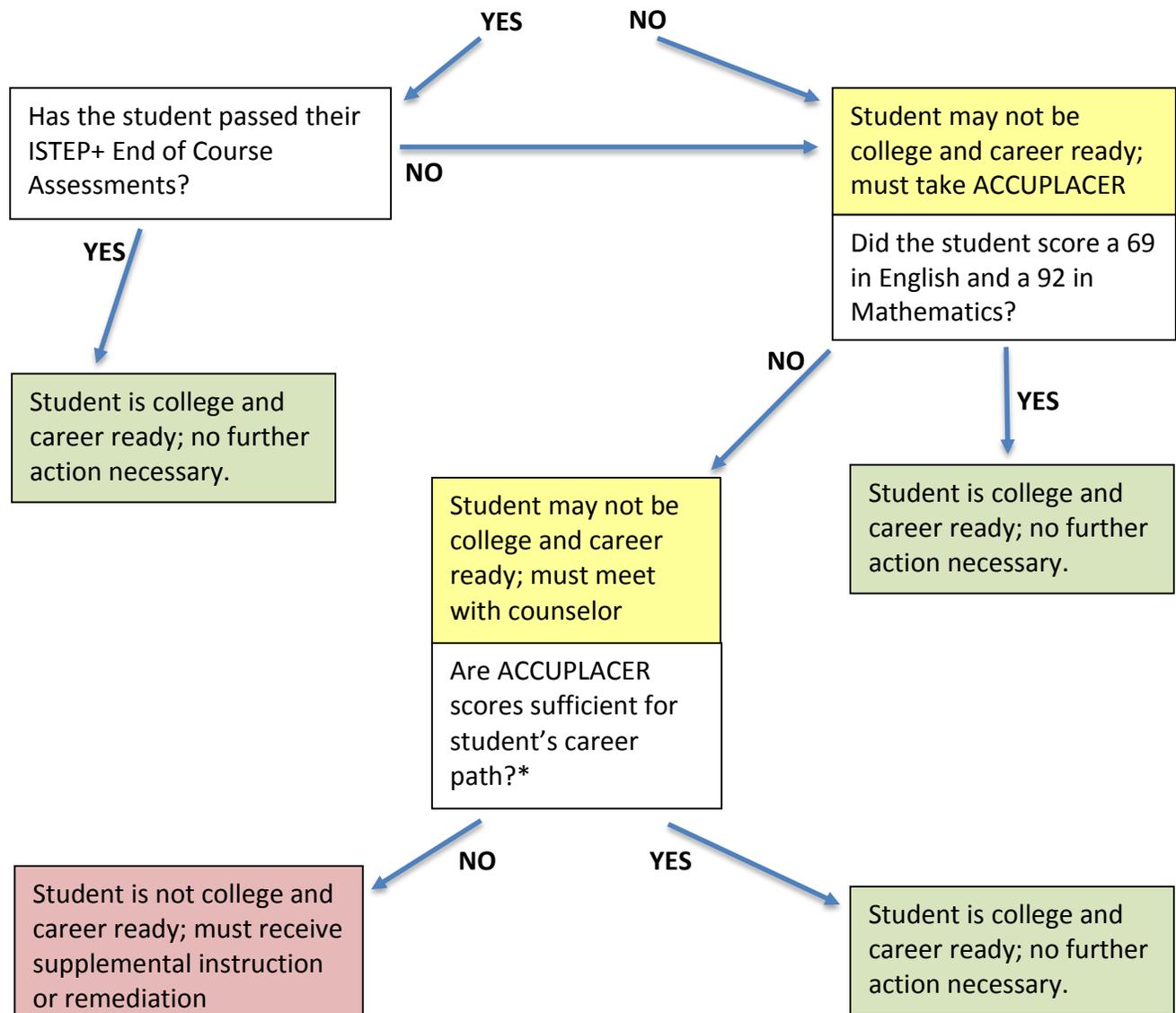
HEA 1637 Assessment and Remediation Flow Chart

Has the student achieved either:

Grade of "B" or higher in postsecondary work in math and English
(AP, IB, Dual Credit)

OR

National Assessment score that predicts ability to earn grade of "B" or higher in college coursework
(PSAT, ACT or SAT)



*Including postsecondary plans (baccalaureate, associate, credential or direct workforce entry) and career focus (STEM, liberal arts, etc.)
Determined based on the high school diploma path selected and/or student's stated intentions during counseling session.



July 16, 2015

Commissioner Teresa Lubbers
Indiana Commission for Higher Education
101 W. Ohio Street, Suite 300
Indianapolis, IN 46204

Commissioner Lubbers,

Since the timing of the Accuplacer administration has changed to the fall, this year schools will only be able to use 10th grade PSAT/NMSQT results from the fall of 2014 for students that are in the 11th grade during the 2015-2016 school year. As such, **The College Board recommendation for the cut score for fall 2015 is a minimum of 38 for Critical Reading and a 40 for Math.**

The College Board's College Readiness Benchmarks for 10th Grade PSAT/NMSQT are Critical Reading 42 and Math 44. The College Board's College Readiness Benchmarks are set using a 65% probability of a student earning a B- or better first year GPA in college.

The Standard Error of Measure (SEM) on the PSAT/NSMQT is approximately 4 points per section. If students were to retake the assessment under the same conditions, their scores on the PSAT/NMSQT would likely be 4 points higher or lower than their current score. College Board recommends that PSAT/NMSQT be interpreted as a range rather than by a single score.

Students scoring at this level on the PSAT/NMSQT in the 35-40 percentile nationally.

Please let us know if you any questions or concerns regarding this recommendation.

Sincerely,

Patricia Renner
Executive Director, Midwest Regional Office of The College Board
preenner@collegeboard.org
937-206-7537

COMMISSION FOR HIGHER EDUCATION
 Thursday, September 10, 2015

INFORMATION ITEM A: Academic Degree Programs Awaiting Action

	<u>Institution/Campus/Site</u>	<u>Title of Program</u>	<u>Date Received</u>	<u>Status</u>
01	Indiana University Purdue University Indianapolis	PhD in Chemistry and Chemical Biology (PU)	5/18/2015	On the CHE agenda for action
02	Indiana University Purdue University Indianapolis	PhD in Biology (PU)	5/18/2015	On the CHE agenda for action
03	Indiana University Bloomington	Master of Arts in International Studies	8/28/2015	Under Review
04	Indiana University Purdue University Indianapolis	Master of Science and Ph.D. in Applied Social and Organizational Psychology (IU)	8/28/2015	Under Review
05	Indiana University Purdue University Indianapolis	Ph.D. in American Studies (IU)	8/28/2015	Under Review
06	Indiana University South Bend	Master of Arts in Communication Studies	8/28/2015	Under Review
07	Indiana University Southeast	Bachelor of Arts in Physics	8/28/2015	Under Review

COMMISSION FOR HIGHER EDUCATION
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INFORMATION ITEM B: Academic Degree Program Actions Taken by Staff

	<u>Institution/Campus/Site</u>	<u>Title of Program</u>	<u>Date Approved</u>	<u>Change</u>
01	University of Southern Indiana	Master of Business Administration	8-24-2015	Adding distance education to an existing program
02	Ball State University	Bachelor of Art and Bachelor of Science in Dance	8-24-2015	Adding a degree to an existing program
03	Ivy Tech Community College – Terre Haute	Associate of Applied Science in Diagnostic Medical Sonography		Splitting a degree program
04	Ivy Tech Community College – Bloomington	Associate of Applied Science in Radiation Therapy	8-24-2015	Splitting a degree program
05	Purdue University West Lafayette	M.S. Ed in Early Childhood Education	8-24-2015	Eliminating an existing program
06	Ball State University	Certificate in Qualitative Research in Education	8-24-2015	Adding a certificate

COMMISSION FOR HIGHER EDUCATION

Thursday, September 10, 2015

INFORMATION ITEM C: Capital Projects Awaiting Action

I. NEW CONSTRUCTION

A-9-09-1-12 Indiana University Southeast
New Construction of Education and Technology Building
Project Cost: \$22,000,000
Submitted to the Commission on January 19, 2010

The Trustees of Indiana University request authorization to proceed with the new construction of the Education and Technology Building on the Indiana University Southeast campus. The new building would be a 90,500 GSF facility and provide expanded space for the IU School of Education and Purdue University College of Technology. The expected cost of the project is \$22,000,000 and would be funded from 2009 General Assembly bonding authority. This project was not recommended by the Commission as part of the biennial budget recommendation.

STATUS: The project is being held by the Commission until funds are identified to support the project.

B-1-08-1-02 Purdue University West Lafayette
Animal Disease Diagnostic Laboratory BSL-3 Facility
Project Cost: \$30,000,000
Submitted to the Commission on July 9, 2007

Purdue University seeks authorization to proceed with the construction of the Animal Disease Diagnostic Laboratory BSL-3 Facility on the West Lafayette campus. The expected cost of the project is \$30,000,000 and would be funded from 2007 General Assembly bonding authority. This project was not recommended by the Commission as part of the biennial budget recommendation.

STATUS: The project is being held by the Commission until funds are identified to support the project.

B-2-09-1-10 Purdue University Calumet
Gyte Annex Demolition and Science Addition (Emerging Technology Bldg)
Project Cost: \$2,400,000
Submitted to the Commission on August 21, 2008

The Trustees of Purdue University seek authorization to proceed with planning of the project Gyte Annex Demolition and Science Addition (Emerging Technology Bldg) on the Calumet campus. The expected cost of the planning the project is \$2,400,000 and would be funded from 2007 General Assembly bonding authority. This project was not recommended by the Commission as part of the biennial budget recommendation.

STATUS: The project is being held by the Commission until funds are identified to support the project.

II. REPAIR AND REHABILITATION

None.

III. LEASES

None.

COMMISSION FOR HIGHER EDUCATION

Thursday, September 10, 2015

INFORMATION ITEM D:

Media Coverage

Staff has selected a compilation of recent media coverage related to the Commission for August 13 through September 2. Please see the following pages for details.

Northwest Indiana Times
Blurring Lines Between Education, Workforce
Doug Ross
August 23, 2015

One of the most important school supplies this year is the eraser, because boundaries are no longer as distinct as they once were.

The day I sat down for a chat with Indiana Commissioner for Higher Education Teresa Lubbers at Purdue University Calumet, the commission endorsed a new high school diploma program aimed at preparing students for college and careers.

Yes, a higher education panel has input on high school preparation. And that's not the only area where boundaries are getting fuzzy.

"We're very focused on blurring the lines between education and employment, Lubbers said.

It isn't difficult to find a college graduate who changed majors and took longer than four years to graduate. Lubbers is very aware of that.

Think of education like a Y-shaped funnel, she said, with students getting a broad education early in life and becoming more and more focused as time goes by. That helps students change their minds earlier, if necessary, and graduate sooner.

Even in college, students should be able to have meta-majors, as she put it, to get exposure to a broad field before settling on a particular specialty.

High school and college students should be looking not just at their classroom walls, but beyond. They should be asking themselves, "What are your opportunities for your careers?"

Increasingly, schools are trying to give students exposure to the work environment, whether through an internship or through a vocation-based high school program.

Employers, it's up to you to help train the future workforce by providing today's students the realistic work experience they need — not just stuffing envelopes, but realistic, demanding work.

Parents and students, you probably already know about the dual credit programs that offer students college credits for demanding courses in high school. Some high school graduates even enter college as sophomores because they completed enough dual credit classes in high school to skip their freshman year.

You also know about vocational programs that train students for blue collar jobs like machine tool operator or those in the construction industry.

Did you know there are programs in some schools, like Hobart High School, that expose students to health professions like emergency medicine or nursing?

Another blurred line.

The commission is working on a "return and complete" campaign to get some 200,000 adults with some college experience, but no degree, to return to college and complete their degree coursework. That's good for the student, but also the state.

But Lubbers, a first generation college graduate, also wants high school students to be better prepared for college. Her message to high school students is simple:

"Your job is to work really hard."

That means more than just studying hard. It also means taking demanding courses, and plenty of them.

"We will make sure you will get to college," she said.

Student aid is one of the commission's priorities, and there's good news for students.

"Indiana is very agnostic when it comes to the distribution of student financial aid," she said.

Private university or public university, the state is prepared to help students get their degrees.

Because the one line that isn't blurred is the finish line of degree completion. A college diploma unlocks doors that dropping out won't.

Northwest Indiana Business Quarterly Magazine
The Big Disconnect
Heidi Prescott Wieneke
August 19, 2015

Gary Bertoline wonders how many times college engineering students have been challenged to redesign the flashlight. They study the circuitry, power source and look for ways to improve its durability, but there are limitations to their assigned task.

"A flashlight is a flashlight. It was designed 100 years ago, and there's only so much you can do with it," says Bertoline, dean of Purdue Polytechnic Institute in West Lafayette. The challenge isn't one that encourages the same amount of creativeness, innovation and ingenuity that another type of question could.

Now, he said, consider this challenge.

"There is a certain type of waterborne illness spreading among the people in Kenya, Africa. It's a poor nation, where disease is easily transmitted. How would you go about solving this problem?" Bertoline

asks. In this assignment, students apply technology to a broader social issue and work in teams to find possible solutions.

Students research and learn about water contamination, with assistance from biology and science instructors. They visit a filtration plant to better understand the process and technologies used to remove organisms and toxins from water supplies. When it's time to write and present a report, English and communications professors visit their classrooms to provide assistance.

"When you learn in context, you have technically prepared students who can write much better, work in teams much better, and who are more creative and innovative. These challenges will make them more motivated individuals," Bertoline says.

Industry leaders and educators generally agree that a the big disconnect exists today because colleges are not graduating students with the abilities and experiences businesses are looking for to compete in the increasingly competitive global marketplace. The relationship between business and higher education has to be strengthened by more conversations between them and a change in mindset. Education must be accompanied with experience in the field.

"We're not preparing graduates for 21st century jobs because the economy has changed," Bertoline says. "Higher education has not caught up with the needs of the workforce. But the wheels on the bus of higher education aren't falling off yet. We do a lot of things right. At the same time, we're trying to focus on the fundamental flaws in higher education. We're addressing the issues."

At Purdue Polytechnic, Bertoline said a learn-by-doing atmosphere integrates humanities and technology application with student majors. The pilot program that involved 30 students in 2014 will be expanded to all first-year students this fall.

"The first giant step is about to happen and we're slowly integrating this into the four-year degree," he says. "This is what business and industry needs. We still have a lot of work to do."

In addition to requiring internships before graduation, Purdue Polytechnic also stands out from other schools with its required year-long industry-sponsored, senior capstone project that matches students with industry mentors in the competency-based program.

Bertoline cites an example of students working with an aerospace company that designs fan blades for jet engines. Students studied the painstaking weeklong process engineers took to convert data into a three-dimensional model used to cut the metal into the appropriate size and scale. Working as a team, the Purdue Polytechnic students found a way to trim the amount of time taken for that process to about four hours.

"Needless to say, the rest of the story is that this company now uses our process and they're so happy they keep coming back with more projects," Bertoline says. "They were so impressed with one group of students that they flew them to Europe to present their solution to company leaders. Think of that experience for those kids."

And by integrating liberal arts and learning across the curriculum, the university is producing technically prepared students who can write better, work in teams better, create and innovate.

“Industry leaders say college graduates don’t know the right questions to ask. And when they do, they don’t know how to ask them. Higher education has divorced itself, to some extent, from the real needs of business and industry. I’m not sure it was done on purpose,” he said. “It’s just where we’re at right now.”

Purdue Polytechnic is not alone. Last spring, the Indiana Commission for Higher Education launched an initiative aimed at improving Indiana’s talent pipeline by serving as a link between businesses, schools and students. The goal of the “Career Ready” campaign announced by Teresa Lubbers, Indiana’s Commissioner for Higher Education, is to give more students internship experience.

“We have certain fields like teaching and nursing, where you have an opportunity to do work in that field as part of your preparation,” Lubbers says. “But the challenge is transitioning this into a rule for everyone, as opposed to the exception. We want to align education with employment in the workforce.”

Already, Lubbers said the commission is seeing educators and business leaders talking to each other more than she has seen in decades, and discussing how to create more work-based learning experiences.

“There’s a desire on the part of education and employers to prepare more students for the jobs that this economy needs. I don’t think it’s a stretch to say we’re determining the place Indiana will be in the next decade. How successful we are in strengthening our economy depends on both human talent and a more educated workforce.”

During the last school year, Purdue University Calumet collaborated with the Northwest Indiana Small Business Development Center on a pilot project that also connects students with small businesses.

Kasia Firlej, a continuing lecturer in marketing, approached the NISBDC with the idea of finding business clients who could use the skills of her ad management students. In the spring, students collaborated as teams to develop Google Ads campaigns for six area small businesses as part of the Google Online Marketing Challenge.

“Students are initially a bit put off about having to contact a business and explain to the business the premise of the project. Some students feel like the business owners will not take them seriously and some feel inexperienced in being assertive and working with the client on setting marketing goals and navigating the project specifics,” Firlej says. “However, most students find the experience most valuable upon its completion.”

Lorri Feldt, regional director of the Northwest Indiana Small Business Development Center, helped line up the businesses for the class project. The businesses ranged from a furniture manufacturer with four employees to a Hammond-based manufacturer with 90 employees.

“Students win by getting real world experience, and the business wins by getting something to help their business. I don’t know how much better you can get than that,” Feldt says. “Results were stellar.”

Crowley Engineering, based in Schererville, learned the value of search engine optimization to project the correct image to prospective clients, and the company was so impressed by the project results, it hired the student team leader right out of college.

Wilson and Stronks also hired student leader Meredith Neis to work part-time during her senior year on marketing and human resource projects. Neis obtained valuable and diverse experience that led to a full-time job in human resources with local industrial distributor Jupiter Aluminum, Firlej says.

For participating in its program, Google provided each student team \$250 in SEED money toward their campaign. When students participate in the competition again this fall, participating business owners will have the opportunity to add their own money to that student budget.

“In the past, we’ve seen students develop a general marketing campaign that the client may or may not have tried, because it may or may not have added value,” Feldt says. “But this project offered the students’ technical knowhow to get more clicks to their websites. It’s something a lot of businesses don’t take the time to learn.”

CLR Auto Transport in Merrillville participated in the ad management class project. CLR is an employee-owned and operated vehicle relocation company that operates nationally, relocating vehicles for corporate and commercial fleets, government agencies and private individuals. Students were asked to develop a marketing plan that CLR could use to expand its customer base.

Patricia Shaw, CLR vice president and National Fleet Coordinator, said the students worked long and hard and developed a plan that offered a unique spin on old ideas.

“When our company was looking at our website, we saw things that needed to be changed, but we were unsure how to develop those changes and make them market-savvy to attract new customers,” Shaw says. “The students showed us some new ideas about color palettes and changing pictures to grab the customer and make our website more appealing.”

CLR is still in the early stages of implementing the new marketing plan, but Shaw believes it was a win-win. “The partnership with Purdue has been a successful one, and with the growth of our business, we would welcome a renewed partnership with the school,” she says.

Students today are looking for experiences like this one, Shaw says. “That’s what these school projects can offer individuals who have hopes to enter their field of choice with the confidence and know how that potential employers need. When a student can enter a job with confidence that they have knowledge, that’s something that can’t be taken away, and it develops a sense of pride and accomplishment.”

It’s also a tool that Shaw says many unemployed people lack. “Education, accompanied with experience, is a boost to a resume that lacks job experience in the field to which the student wants to enter.”

As a result of working with the students, and hiring intern Loriann Reed, a Purdue Calumet graduate with marketing experience, Shaw says CLR has created a new PowerPoint presentation for clients, new letterhead and new proposals to expand and compete for customers.

Reed says she decided go back to school in her 50s and change careers. But she didn’t anticipate the difficulty she experienced in landing employment upon graduation. “I was either over-qualified or too old to take a risk on. I was experiencing some difficulty in landing employment,” the Gary resident says.

“CLR embraced me with open arms and gave me the opportunity to show that I do have something to offer the work world and I’m not too old to make a difference,” Reed says.

“It has shown me that there is work for me and my skills can be transferred to a job skill set. Businesses should invest in students that have the potential to expand their minds and learn what is really out there. Confidence is the key, and that confidence comes with experience,” Reed says. “That’s what a great collaboration between a university and business can achieve.”

Greene County Daily World
STEM Teacher Recruitment Grants Placing More Teachers in High Need Subjects
August 24, 2015
(Also WBIW, Recruiter, WKVI)

The Indiana Commission for Higher Education is accepting applications for the STEM Teacher Recruitment Fund grants until Friday, October 2, 2015, at 5 p.m.

The grant program was created by the Indiana General Assembly in 2013 to provide financial support for organizations working to recruit, prepare, place and retain educators in schools where there are shortages of teachers with appropriate training and expertise in science, technology, engineering and math (STEM) subject areas.

"To continue leading the Midwest in life sciences and technological innovation, we must focus on growing opportunities for students to experience STEM in our classrooms," Governor Pence said. "That starts by encouraging our future educators to pursue a career in STEM teaching. The STEM Teacher Recruitment grant program is a positive step toward ensuring that education works for all of our children and that every Hoosier student has an opportunity to achieve a brighter future."

The full grant application and budget worksheet are available on the Commission's website at www.in.gov/che.

New or existing non-profit organizations are eligible to apply for a portion of nearly \$10 million to support their efforts to recruit, train, retain and place STEM-field teachers in high need Indiana schools. In 2015, the General Assembly charged the Commission for Higher Education to administer and monitor the grant program.

"We know that the need for teachers trained in STEM subject areas is increasing along with demand for qualified candidates in STEM industries," Commissioner for Higher Education Teresa Lubbers said. "This grant will help Indiana gain ground in filling these critical teaching positions to prepare students for success in college and careers in high-demand STEM industries."

Ensuring Indiana has enough STEM educators is critical considering the rapidly growing STEM sector of our state's economy. The Indiana Department of Workforce Development (DWD) projects that Indiana STEM jobs will grow at a faster rate than other occupations over the next decade. All occupations are projected to grow about 13.9 percent in Indiana from 2010 to 2020; STEM jobs are projected to grow by 21.2 percent. By 2020, they will represent 12.1 percent of all jobs in Indiana.

To be eligible for the grant, applying organizations must present programs that result in individuals becoming licensed or trained to teach science, technology, engineering, or math in Indiana public K-12 schools. Individuals receiving program support through this grant must seek employment in an eligible Indiana public school.

Winning entries will be selected by a committee of K-12, higher education and workforce stakeholders and announced in November 2015.

To view past recipients of the STEM Teacher Recruitment Grant and learn about their efforts, visit www.in.gov/sboe/files/STEM_Teacher_Recru...

NUVO
High School Diploma Changes Approved
The Statehouse File
August 17, 2015

The Indiana Commission for Higher Education approved proposed changes to Indiana’s high school diploma requirements on Thursday.

“The new diploma requirements are more academically challenging and set clearer expectations for college and career readiness,” said Teresa Lubbers, Indiana commissioner for higher education. “Our goal is for all students to be successful in the next phase of their lives after graduation—whether that’s college, the workforce or post-secondary training.”

The approval clears the way for further consideration by the State Board of Education this fall and the Indiana General Assembly in the 2016 legislative session.

The changes are a culmination of more than a year of discussion and work comprised of K-12, business and higher education stakeholders as well as input gathered from the public. Lubbers and Superintendent of Public Instruction Glenda Ritz co-chair the Core 40 Subcommittee that examines Indiana’s current diplomas and proposes updated high school diploma requirements.

The highlights of the proposed diploma changes are as follows:

Three Diploma Options

- College & Career Ready Diploma (Replaces the Core 40 Diploma)
- Workforce Ready Diploma (Replaces the General Diploma)
- College & Career Ready Diploma w/ Honors (Replaces the Academic and Technical Honors Diplomas)

Increased Academic Rigor

- Increased credit requirements for the College & Career Ready Diploma (44 compared to 40 in the current Core 40 Diploma)
- Four years of math for each proposed new diploma. Currently, only Honors Diplomas require four years of math.

Focused Career Exploration

All proposed diplomas require students to complete a College and Career Readiness Sequence with a graduation capstone experience. This could be early college credits, career and technical education courses, internships, or other experiences designed to help students familiarize themselves with the world of work before graduation.

- Personal Financial Literacy course required for all proposed diplomas.

After being finalized and approved, Indiana's new diplomas will go into effect beginning with the students entering high school in 2018.

Indiana Daily Student
Diploma Requirement Changes Aim to Put Indiana High School Students on Track for Careers
Emily Beck
August 20, 2015

Diploma requirements may change for Indiana high-school students within the next few years.

The Indiana Career Council's Core 40 Subcommittee came up with a proposal to alter the requirements, making them more rigorous and career-focused.

Communications Director for the Indiana Commission for Higher Education, Stephanie Wilson, said the committee's proposed changes are based on how well diploma requirements align with workforce needs and what students need to know upon graduating. She said she thinks the changes will help college-bound students better explore their interests before going to college.

"They include a career sequence and more focused elective pathways for kids," Wilson said.

She said she thinks the alterations will allow more students to have a better idea of what they want to do for a career and receive a better look at the world of work while still in high school.

Associate Commissioner for Higher Education Jason Bearce said the proposal was created by the Core 40 Subcommittee, which consulted with various institutions like the Indiana State Department of Education, local schools and universities, employers and members of the workforce. Public comments were also taken.

Bearce said the new requirements reflect three main areas: They'll increase academic rigor, they'll provide more explicit expectations for students and they'll be more intentional about giving students a structured and meaningful course load.

Right now students can choose between four diplomas: general, which requires 40 total credits; Core 40, which also requires 40 total credits but calls for increased science, social studies and mathematics credits; Core 40 with academic honors, which requires 47 credits, a higher GPA and one of six requirements such as earning AP or IB credits, or reaching a certain SAT or ACT score; and Core 40 with technical honors, which shares many of the academic honors track, but requires certain scores on career placement tests and credits in the College & Career Pathway.

With the changes, high school students will have three diploma options: the College & Career Ready diploma, the Workforce Ready diploma and the College & Career Ready diploma with honors. All diplomas will require four years of math, a graduation capstone experience and a personal financial literacy course, according to CHE.

Wilson said she thinks the new math requirement is one of the most important alterations. Most state colleges “won’t accept kids who don’t have that four years of math,” she said.

Bearce said he thinks the new financial literacy course will also be beneficial for students. He said the requirement received “universal praise” by those who approved the changes — some students even requested it.

Emilie Rose Holtz, a senior at Bloomington High School South, said she wishes she would have been able to take the financial literacy course. She said it is offered as an elective at her school, but she didn’t have room for it in her schedule.

“The things that are necessary to know in everyday life, like paying taxes and student loans, most kids don’t know about that at all,” she said. “It’s something that’s a necessary skill you need to know.”

In the future, all students will be required to take the financial literacy course.

Bearce said the next step will be to send the proposed changes to the State Board of Education. Once approved, those changes will go into legislation, and schools will work to create new courses and revamp old ones. The new diplomas will be in place for the class of 2022.

“It’ll put students at a much better position once they get to college,” Bearce said. “It lets employers and colleges know what students are capable of.”

The Dubois County Herald
High Schools Take More Individualized Approach
Leann Burke
August 21, 2015

There’s more to college preparation than Advanced Placement classes and financial aid applications.

High school guidance counselors have an eclectic job. In one day, they might help a junior plan a series of college visits, teach a senior to fill out dual credit and aid applications and chat with an underclassman with no interest in traditional college about vocational classes and technical colleges.

“It becomes a bit of an individualized program,” said Kathy Wilmes, a guidance counselor at Heritage Hills. “You have to look at what each student needs.”

Even with variety of classes, high school doesn’t cover everything students need for college. Basic living skills like cooking, sewing buttons, finding an apartment and writing checks aren’t universally taught.

“There are a lot of life skills you don’t really learn,” said William McElhaney, a 2014 graduate of Heritage Hills. “The biggest complaint I have is not learning how to do that financial stuff in high school.”

Some electives, such as home economics and certain business or economics classes, teach such skills. But not every student takes them. McElhanev did take a home economics class, and “that’s probably the one that prepared me the most (for life outside the classroom),” he said.

New diploma requirements might help teach some of the skills McElhanev wishes he’d learned. The Indiana Commission for Higher Education approved changes to high school diploma requirements last week that would require all students to take a personal finance class. The proposed changes now move to the state board of education for approval this fall and to the Indiana Legislature for the 2016 session.

Preparing students for college’s social scene, however, can’t be done in a classroom.

“It can be vastly different for each student,” said Sean Jochum, guidance director at Jasper High School.

Hannah Hilgediek, a 2015 Jasper graduate, said teachers at JHS try to tell students how social life will be, but that’s it. The school doesn’t have a program to help prepare students for the rush of freedom. At Heritage Hills, a panel of the previous year’s graduates speaks to seniors to help prepare them for college life.

“What happens outside the classroom is probably the biggest adjustment,” Wilmes said. “The graduates talk to the students about what it’s like to be away from home.”

High school’s primary focus is still preparing students academically for education after high school, whether it’s the traditional four-year school, a tech school, the military or the workforce. At Heritage Hills, the guidance counselors start working with students in eighth grade to help them understand what college can be.

“We tell them it’s for any education after high school because kids are at different levels and have different interests,” Wilmes said.

When students enter their junior and senior years, they can take more classes geared toward career goals. Clint Buechler, a 2011 Heritage Hills graduate, wanted to work either in engineering or business, so he took science and business classes in high school to help him narrow his interests.

“I had a good, wide range of curriculum to choose from, and that helped me narrow down my interests,” Buechler said.

He chose business and graduated from Purdue University with a degree in business management. Now he works for Formstack in Indianapolis, a company that offers online programs for businesses.

For students who shy away from more academic classes, vocational programs offer hands-on experience and can be dual credit, counting for both college and high school credits. Schools in Dubois, Spencer and Pike counties formed the Patoka Valley Vocational Cooperative. Schools within the cooperative host one or two classes, and students travel among the schools to take classes. Classes include automotive technology, early childhood education, criminal justice and radio/TV.

“It’s more cost-effective to house one program in one building instead of the same program in multiple buildings,” said Sean Jochum, a guidance counselor at Jasper High School.

Vocational training may also become a required part of high school. If the diploma changes approved by the Indiana Commission for High Education pass the remaining stages, a vocational class, internship or early college credits will become a graduation requirement for Indiana students.

Students can already receive early college credit through dual-credit classes at community colleges such as Ivy Tech, and some advanced placement classes will count for college credit if students pass the AP tests at the end of the year. Thanks to her AP and dual-credit classes, Hilgediek will be able to graduate college a year early. She will attend Trine University and study psychology, a subject she discovered in high school.

Although high school graduates still have learning to do, Dubois County students are well prepared for college. According to the most recent Indiana College Readiness Report, which tracks the 2013 graduating high school class, 402 of the county's 542 graduates (74 percent) enrolled in either a two- or four-year college program. Of the 326 who enrolled in public schools colleges and universities, 68 students (21 percent) required remediation. Remediation data from private schools is not included.

"We do get students who come back and visit the school from time to time, and ... they seem to be very well-prepared," Jochum said. "Most of the time it's the social aspect. That freedom is a big adjustment."

Kokomo Tribune
Editorial: Raise the Bar in Education
August 19, 2015

Indiana spends about \$7 billion a year on K-12 schools and claims to be a pioneer in education reform. Yet thousands of its high school students are graduating without the basic math, reading and writing skills needed to succeed in college.

That's what a series of reports from the Indiana Commission for Higher Education have shown since the state started tracking data on the college-readiness of its students eight years ago. And that's why the commission voted last week to approve proposed changes to Indiana's high school diploma requirements.

The state commission released 2013 data in March. Though there was statewide improvement of 5 percentage points in the number of students who graduated from public high schools and entered college without needing remediation, 33 percent who graduated with the state's required "college preparatory" diploma, known as Core 40, had to take at least one remedial course after enrolling at one of Indiana's state-supported colleges.

Fewer than 50 percent of students enrolled in remedial courses complete them. Those who do find their path to graduation delayed or derailed. Two-thirds of students in four-year colleges needing remediation fail to earn their degrees within six years. Fewer than 8 percent of students in two-year colleges earn their degrees within four years.

A new College & Career Ready Diploma would replace the Core 40 Diploma and increase the credit mandates from 40 to 44, under the proposal approved by the Commission for Higher Education. The

plan also calls for four years of math instruction as a requirement for high school graduation; today only the Honors Diploma requires four years of math.

Gov. Mike Pence made college readiness one of his top priorities when taking office in 2013. “The need to remediate our high school graduates is a failure for our students,” he said.

And the Indiana College Readiness Report from March suggests Pence’s call for stiffer high school standards could increase college graduations. The State Board of Education and our General Assembly must act.

They can raise graduation requirements by approving Indiana’s new high school diplomas during the 2016 legislative session.

StateImpact Indiana
Searching for Solutions to Indiana’s Teacher Shortage Problem
Rachel Morello
August 19, 2015

By now, you’ve likely heard this headline: Indiana – like many other states all over the country – is facing a teacher shortage.

As we’ve reported, the number of first-year educators granted a Hoosier State license dropped pretty dramatically last year. Across the nation, fewer people are becoming teachers than in past years, too. Enrollment in teacher preparation programs in the U.S. fell by about 30 percent between 2010 and 2014.

For the most part, people agree this drop could represent a troubling trend. Where they tend to disagree is in what’s causing it, and what the appropriate response should be.

Everyone, even the national media, has an opinion. Long story short: officials mulling over what to do about Indiana’s situation usually lie in one of two camps.

CAMP NO. 1: PROVIDE INCENTIVE

On one side, there are those who see the shortage as a problem that can be addressed most effectively on the front end, when teachers first enter school as students. They see it as a matter of what teaching trainees pay for their education versus the return on that investment once they get a job.

Indiana State Board of Education member Gordon Hendry sits on this side of the issue. He says he thinks he has a solution that will get more of the state’s best and brightest into Hoosier classrooms: do something about their low salaries.

“There’s been a substantial rise in the cost of getting a higher education in our state. When you weigh that against the teacher salaries, I think the formula is a little out of whack,” Hendry says.

Hendry’s Next Generation Hoosier Educator Scholarship program would afford top Indiana high school students the opportunity to earn a full ride to any accredited in-state school of education.

The catch? Afterward, they’d have to spend at least four years teaching in an Indiana classroom. Hendry calls it “four years for four years,” and says he thinks it’s a fair tradeoff.

“I don’t view this as indentured servitude,” Hendry explains. “My proposal encourages them to stay in the classroom for four years, and by then, hopefully, they’ve gotten their classroom ‘sea legs’ and are in a better position to decide to stay in the profession for a few more years, or maybe even their entire career.”

Indiana political commentator Abdul Hakim-Shabazz writes in the Indianapolis Star that the methods by which college students can become teachers nowadays might also be contributing to the problem – and some solutions for that symptom already exist:

In the old days you got an education degree with a minor in a subject area such as science or history. Now, for secondary education, you get the degree in the subject area with a minor in education. But once students earn degrees in their areas of major, many of them stay in that field rather than pursuing a career in education [...]

Luckily, ideas have emerged on how to address this problem. The state already has a program, although it’s not taken advantage of often enough, that allows individuals in other professions to transfer into teaching if they meet certain criteria. Programs such as Teach for America recruit highly talented graduates in other fields to devote a few years to teaching. The Mind Trust also is working to develop new teaching talent.

CAMP NO. 2: FIX WHAT’S BROKEN

In the other camp, there are those who see the teacher shortage as a problem on the back end: what teachers experience once they enter a classroom of their own.

Keith Barton, associate dean for teacher education at Indiana University’s School of Education, is on this side. He says the teacher shortage stems from policies that are making it harder for teachers to do and enjoy their jobs.

“I think policymakers are going to have to really understand what it is that’s keeping teachers out of the field,” Barton says. “Turning back the factors that have driven teachers away is the only way to increase the supply again.”

Like many others who take this side, Barton cites an increase in the amount of testing that students are subjected to, in addition to a bigger emphasis on accountability measures for teachers.

“The job of teaching is going to have to become better.”

—Keith Barton, Associate Dean for Teacher Education, IU School of Education

“I think that many teachers feel like instead of really being professional decision-makers they have just become people who prepare students for tests,” Barton explains.

A lot of the people who take this stance are teachers. They’ve seen their numbers slowly dwindling, seen fewer and fewer members added to their ranks as time passes, and may have even considered leaving the profession themselves. And, like Barton, they say something has to change about the conditions under which teachers work.

“The job of teaching is going to have to become better,” Barton says. “People are not going to be so easily fooled that just the offer of some incentive is going to convince them to spend four years studying for a career that’s not going to be a good one.”

IT’S COMPLICATED

This issue is not so simple as black and white. What makes it so complicated is that each side tends to see the other’s point.

Hendry says he’s aware his proposal is not the silver bullet, and that he recognizes there’s a need for a larger discussion about teacher retention.

“Although it’s something that some folks play up a little bit more than I think it deserves, there are concerns that have been expressed by teachers in our state about the respect they’ve been given,” Hendry says. “I know that we’re in somewhat of a period of change in Indiana’s education system, and I think most of that is good, but there are some things that we need to continue to improve.

Barton says he recognizes that it’s the combination of lower salaries and increasing control over teachers’ work that has made it a much less attractive job. And he adds no matter who’s right, the message both sides are sending to potential teacher candidates is the same.

“On the one hand, you get people saying that teachers are the problem and they have to be held more accountable – on the other side you have people saying teachers are wonderful but now their jobs are terrible,” Barton summarizes. “Regardless of what people’s perspective are, young people are really getting exposed to this message of teaching is no longer a good job.”

National experts see the duality of the issue, too. Here's Chad Aldeman, an associate partner with Bellwether Education Partners and former policy advisor at the U.S. Department of Education, on a recent episode of The Diane Rehm Show:

Aldeman: A big part of it is cyclical and there's a big study out recently looking at the college major choices of 20-year-olds and what they choose...And they estimated that teachers and education was one of the most cyclical majors and that for every one percentage point increase in the unemployment rate...about 6 percent fewer college 20-year-olds, sophomores, were likely to go into education [...]

Rehm: Now, does that have anything to do with, say, Common Core or teacher evaluations or teacher's not being treated well or, indeed, salaries?

Aldeman: I think there's something to do with all those things, but it's hard to pin down what exactly those are. I think a much more simple explanation is that the economy is driving a lot of this.

WHAT CAN BE DONE?

Where do the policymakers come down on this?

In general, they're not sure yet. Most say they need more information.

Indiana Commissioner for Higher Education Teresa Lubbers says she wants to learn more about exactly which subsets of classrooms the shortages are affecting and why people aren't going into those areas.

"If you have a science, technology, engineering or math degree, think of all the opportunities you have in the workforce," Lubbers gives as an example. "What would [motivate] you to go into, and then stay in education?"

"Is it a subject matter issue? Is it a pay issue? I think all of those we're going to have to consider before we jump to conclusions about policies," Lubbers says.

Rep. Bob Behning, R-Indianapolis, heads a legislative study committee that will dive deeper into the shortage this fall. He says he hears a lot about school reforms being part of the problem – but he's more inclined to look at trends, like Commissioner Lubbers suggests.

"Having some accountability measures and standardized testing cannot be the only problem," Behning says. "I think we need to be looking at ways to encourage potential educators going into areas of need, as opposed to going into areas where they may find it more difficult to find employment."

Behning says realistically, he could see the legislature approving some sort of incentive-based program, similar to the kind Hendry is proposing. But, he says he wants to look at all potential solutions.

He'll have his first chance to do that when the interim study committee on education meets to discuss teacher shortage data on Sept. 19.

StateImpact Indiana
New College Admission Trends? Indiana Says Not So Fast
Rachel Morello
August 25, 2015

As time and technology progress, admissions policies and practices at both public and private universities are evolving to keep up with the trends.

But in general, it seems like Indiana shies away – or at least takes its time – before entering that kind of new territory.

Fewer schools rely as heavily as they did in the past on standardized test scores, namely the SAT and ACT, and some schools aren't requiring it at all. The news that George Washington University in D.C. joined that growing group earlier this summer made national headlines.

The same is true at more than 800 accredited, bachelor-degree granting schools out of nearly 3,000 total in the United States.

"The test-optional surge recognizes that no test...is needed for high-quality admissions," said Bob Schaeffer, public education director at the National Center for Fair & Open Testing, following the GWU announcement in July. The mission of FairTest, as it's called, is to "end the misuses and flaws of standardized testing." The group has spoken out against testing practices in Indiana and around the country.

"Many independent studies and practical experiences have shown that test-optional admission enhances both academic excellence and diversity," Schaeffer added in his statement.

It seems this trend is not really taking hold in Indiana. All but five Hoosier colleges and universities require either a student's ACT or SAT test score to be considered for admission as a freshman right out of high school, according to data compiled by the state.

Only Ancilla College, Vincennes University and WGU Indiana do not ask for scores as part of the application package. Submitting scores is optional at Earlham College in Richmond, as well as at Ivy Tech Community College campuses, which accept SAT or ACT scores in lieu of high school GPA, Accuplacer scores or previous college credits to determine students' placement in appropriate classes.

Indiana Commissioner for Higher Education Teresa Lubbers says she's not surprised to see only a few schools opting out of SAT and ACT score requirements. In fact, she says if anything she's seen a slight uptick in the number of students taking the tests.

"We've seen more students taking both the SAT and ACT, because some students think they do better with one test or the other," Lubbers explains.

In response to the argument that using scores from a one-day test is not the best indicator of student success in college, Lubbers says people need not worry.

"With very rare exceptions, schools don't use just the one-day test [to make admissions decisions]," Lubbers says. "They use GPA, they use courses in high school, they use a full range of factors, of which a test like SAT or ACT would be one of those."

At the same time, many schools are increasingly looking at less traditional indicators of personality and ability – like student profiles on social media networks – to help make admissions decisions.

In a deep-dive for The Hechinger Report, Emmanuel Felton describes how schools are looking more closely at how many friends kids have and photos they post, in order to help predict their level of success and potential for graduation:

The point is simple: to increase graduation rates by using big data to identify the kinds of students who experience has proven are most likely to stick around. [...]

"The question is, how do you recruit a set of students that will be successful at your school?" said Katharine Frase, vice president and chief technology officer for IBM's unit focused on working with the public sector, which produced the data analysis program used at Ithaca.

"When a student doesn't complete a degree, it is disruptive for everybody," Frase said. "The student has incurred debt and the school is left with a hole in that class."

A number of Indiana institutions use social media to engage with students during the application process. For example, Indiana University-Bloomington launched a Twitter campaign in 2013 encouraging students to tweet using the hashtag "#IUsaidYes" when they receive acceptance materials in the mail.

However, once again, many Indiana schools appear to be bucking the trend, saying they don't use social media to make admissions decisions. That's what reporter Jerry Davich found out when he called a handful of northern Indiana universities for a story that appeared in the Chicago Tribune earlier this spring:

“The Office of Admissions at Saint Joseph’s College does NOT check social media accounts before, during, nor after the admission application evaluation process,” Michael Ramian, director of admissions at Saint Joseph’s College in Rensselaer replied via email.

Nicole Niemi, spokeswoman for Valparaiso University, said none of the school’s departments conducts such screenings, including its law school, graduate school and undergrad office.

Applicants are evaluated based on application materials only, such as an application, school transcripts, test scores, essays and letters of recommendation, she said.

Purdue University Calumet also does not have a policy or practice of reviewing social media sites during the admission process, according to PUC spokesman Wes Lukoshus.

“Neither is the review of social media sites part of our review process for awarding scholarships,” he added.

Krista Timney, senior associate director for marketing and communications with IU-Bloomington’s Office of Admissions, says IU doesn’t use social media for any part of its admissions process, either. But, she says, that doesn’t mean students still shouldn’t be wary of what they do online.

“It’s not part of the admission process here, but they still should know that we keep an eye on social media and we certainly could see the things that they put out there,” Timney says. “We don’t look for things, but if something is out there and we see it, that doesn’t mean we won’t take a closer look. I think that’s everybody.”

Lafayette Journal & Courier
Purdue Loses Bid to Stop IU Foray Into Engineering
Dave Bangert
August 13, 2015

HAMMOND – If Purdue University has a signature brand, an academic pride and joy, it would have to be engineering.

So when Indiana University decided it was time to offer a degree in engineering — even a fairly limited taste of the discipline in Bloomington — Purdue went into rivalry mode to protect a franchise that the West Lafayette campus has all but owned since opening in 1869.

On Thursday, the Indiana Commission for Higher Education essentially told Purdue to chill out, voting unanimously to allow IU to start offering bachelor’s and Ph.D. degrees in what is being called intelligent systems engineering.

“We felt from the very beginning there would be serious reservations on the part of Purdue,” Teresa Lubbers, Indiana’s commissioner for higher education, said after the vote held at Purdue’s Calumet

campus. “This is not a school of engineering we’re talking about. The commission is still committed to ‘mission differentiation’ at the universities. ... But the commission feels IU made its case and this is good for the state of Indiana.”

No one from Purdue spoke at Thursday’s meeting. But since 2014, when IU first proposed creating an engineering degree in Bloomington, the debate has heightened, in some way, the rivalry between the schools — along with fresh questions about whether duplication of programs makes sense.

Did it qualify as an all-out fight?

“Well, ‘fight’ is such an ugly word,” John Applegate, executive vice president for academic affairs at IU, said after Thursday’s vote. “We work with Purdue all the time. They had questions about it. They had some concerns. They expressed them — very directly expressed them. And we answered them.”

Purdue President Mitch Daniels hasn’t been coy about his intentions for the university’s engineering programs. He sees them growing, with goals to boost undergraduate enrollment by 10 percent and graduate enrollment by 30 percent. Since arriving on campus, Daniels launched an effort to hire 100-plus additional engineering faculty. It’s a process that had Engineering Dean Leah Jamieson joking last spring with Purdue trustees that she was taking so many professor candidates to restaurants in downtown Lafayette that someone might have a market with a good restaurant in any of the engineering halls.

For Daniels, it was a question of playing to Purdue’s strength.

Until 2003 — when the University of Southern Indiana was given permission to start a general engineering program — Purdue was the only game around among public universities in Indiana.

“Purdue is not blindly opposed to the idea, and we are willing to look for a way to agree,” Jamieson told the commission in June.

Asked to expand on that thought, correspondence with the Indiana Commission for Higher Education made it clear that Purdue officials weren’t happy about the idea of IU cutting into the franchise again, no matter how small IU’s share might be.

Purdue’s idea: Let us collaborate and put a Purdue presence on the Bloomington campus.

But IU explained to the commission that duplication, in this case, made sense.

“This will be a small, focused program,” Applegate told commission members. “We’re not talking about a comprehensive program.”

In an April 15 proposal, IU officials said the university was the only one of 60 members of the Association of American Universities without an engineering program. And a 2014 Lilly Endowment-

funded study that showed that major employers in southern Indiana —including Crane Naval Surface Warfare Center, Cummins and Cook Group — were asking for more regional supply of graduates with engineering skills. The study recommended that IU develop an engineering program, in part, for economic development reasons.

IU also claimed that the lack of an engineering program hurt the Bloomington campus' ability to do basic research across health sciences, computer science and other fields.

Besides, IU argued, duplication of programs between West Lafayette and Purdue wasn't necessarily novel, even with the universities' traditional strengths and assumed turf.

Look at the liberal arts. Look at two thriving, competing business schools. And look at Purdue's moves toward a more intense focus on health and life sciences — typically seen as one of IU's strengths, with its medical school.

IU's proposal will create a bachelor's and Ph.D. program in intelligent systems engineering, housed in the Bloomington campus' School of Informatics and Computing. IU changed the name to intelligent systems engineering — a "highly focused program," the commission called it — in part to deal with complaints from Purdue about what a generic and broad engineering label might imply.

During the vetting period, the commission called in Paul Peercy, a retired dean of engineering at the University of Wisconsin, to be a neutral party to assess the proposal. Peercy gave the nod to IU, concluding that as times change, universities need to offer a more complete set of skills. A university built from scratch now, he said, would include some engineering.

In written responses to the commission, Purdue officials still didn't think IU's concession on the name of the degree did enough to narrow the focus.

According to commission documents, Purdue floated the idea of establishing a presence on the Bloomington campus to offer engineering degrees. IU wasn't keen to that, saying it would create logistical problems. Officials in Bloomington continued to push for its own brand and its own control.

IU's plan calls for starting in fall 2016 and slowly ramping up enrollment so it includes between 50 and 100 students in the next four years.

By comparison, Purdue's College of Engineering had an undergraduate enrollment of 7,589, with another 3,109 graduate students, in 2014, according to Purdue Data Digest. That means more than a quarter of Purdue's students are majoring in engineering.

IU also stopped short of creating a standalone College of Engineering — something the Indiana Commission for Higher Education staff put among its "key understandings and expectations" in recommending the plan.

“We’ve read those expectations,” Applegate said. “And we’re comfortable with them.”

In a letter sent in May to Daniels and IU President Michael McRobbie, Lubbers called on them to do more than come to peace on the engineering proposal. She told them: “We need to find new ways to leverage the respective strengths of our two premier public university research campuses.” She pressed them to work on that and to offer a progress report by May 2016.

Daniels and Jamieson were not immediately available for comment after Thursday’s vote. But Provost Deba Dutta said Purdue was pleased to be invited to ask questions ahead of approval of IU’s engineering goals.

“It has been and continues to be our stated goal to cooperate and collaborate and not to compete so that the state’s resources are used in the best way possible,” Dutta said. “Purdue will continue to work toward our initiative to grow our internationally recognized engineering programs to meet the critical needs and grand challenges of the future.”

Applegate said that if collaboration is what the commission wants, IU is ready. He said he’d already met with Dutta and that they were working on ways to work together.

“We’re all about collaboration,” Applegate said. “We’re actually very good at collaboration now, even if it seems as if we had to come together on this one.”