

CI-STEP Advisory Board Group

Minutes

December 1, 2010

12:00 pm - 3:30 pm

Dr. MARRS – Introductions

Present:

Susan Johnson
Cindy Munerol
Terri Talbert-Hatch
Victor Roeske
Pratibha Varma-Nelson
Mary Ostrye
Andy Gavrin
Rick Markoff
Nancy Lamm
Charles Feldhaus
Stephen Hundley
Howard Mzumara
Lisa Ncube
Gayle Williams
Kathleen MARRS
Michael DeBourbon
Jeffrey Watt
Cary Marston
Brooke Huntington

Overview of NSF STEP Grant – Jeff Watt (PowerPoint)

- The goal of NSF STEP- adapting and implementing best practices that will lead to an increase in the number of students obtaining STEM degrees. The goal to increase graduation numbers of such students at the institute (IUPUI)

Priority of Indiana University

- “But numbers are not enough – even of the best students- if they do not graduate”
McRobbie, for ALL IU campuses

Expansion Program Goals

- Goals #1-4
 - Pursue STEM academic and career pathways
 - Participate in STEM research, industry internships, and honors activities
 - Graduate with an undergraduate degree in STEM fields
 - Transition into industry, graduate and professional programs
- Do we see students transitioning well into the communities and professional areas?
- NSF – goal for program increase number of stem grads

Target for STEM graduation numbers

- By year 5 we should be graduating 782 students in each department.

STEM by DEPARTMENTS

- (denotes by * in the PowerPoint) Sub goal it to get more minorities over all, in each department would involve different ways to count the minority. *Note in science females are not a minority however technology & engineering would include females.

KATHY MARRS:

Challenges facing the STEM talent gap

- Student typically at IUPUI work while trying to get their degrees. Comparison of schools/IUPUI to Bloomington the biggest rate to watch; is the 6 year graduation rate IUPUI vs. IU 32% vs. 73%. This is where the work will be needed.
- IUPUI is one of the 13 schools, 12 others are similar to IUPUI
- Review of the large freshman classes, most of IUPUI freshman will be taking one or one or more. Statistics are how many who have successfully passed the class. In most cases the DFW will lead to circumstances in their lives and the others will be those whom just struggle academically.

ANDY GAVRIN:

- Alphabet Soup 101: review of acronyms of NSF suggested STEP program activities.
- NSF suggested activities in the proposal (can be found in the packet) already at IUPUI, (these programs dramatically benefits students)
- Just-in Time teaching – using a rapid communication system to improve educational systems

- Peer Led Team – small group meetings led by a peer (student who has already successfully passed the course) rather than a professor
- Themed learning communities- freshman enroll as a group in the same courses, structures around career or other interests.
- Summer bridge academy – serves incoming freshman BEFORE the start of their first semester
- Honors college – focused on top notch students, smaller more challenging classes with a focus on research, as well as a HONORS HOUSE (on campus living)
- Inter-campus programs – NEXT MEETING WILL REVIEW CONNECTION WITH OTHER INSTITUTES

JEFF WATT- highlight of PI meetings

- Starting second year must start reporting
- If all the money is not spent it will go back to CONGRESS not NSF.
- NSF will allow for monetary support to changes or shift to other programs; however participant costs cannot be included in the shift.
- Possible to do things with Senior high school or Ivy Tech/Vincennes students because they will allow for the 4 year transition.
- Must support programs that the students will attend IUPUI

CI Step activities & participants

- Project SEED is not funded because the students are already excelling by making a commitment to the program but it is not a guarantee the students will actually attend IUPUI; these students are spread throughout the country.
- Approved budget \$1,991,855

Kathy Marrs - Role of External Board

- Expected to meet within the first 3 months and then annually.
- Representatives were chosen by the roles already with a STEM talent development across central Indiana
- GOAL: undergraduate degree attainment (what factors are involved, how can we improve our numbers, and make the transition smoother for students)
- Graduates- what kind of attributes are you looking for in these students as they graduate and are hired into these companies?
- Dissemination- how can we get the word out!?
- Chair- will need to select a Chair, written by the external board committee report on the 3rd year.

DISCUSSION QUESTIONS

Part I. Competencies, Strategies, and Recommendations to Support CI-Step

1. What are the 5-7 *competencies* (knowledge, skills, abilities, etc.) STEM students should possess at the time of graduation in order to be effective early – career professionals?

Group 1:

- Numeracy- understanding numbers is very important
- Ability to delete- being able to figure out what is NOT important,
- Communication with multiple audiences- to be able to speak in terms of understanding to one another
- Ability to understand and apply data
- Collaboration – being able to professionally work with other people, first impressions are important
- Integrity – send out students out with integrity

Group 2:

- Technical skills
- Problem solving – critical thinking, being able to question the process
- Work ethic
- Team work – working with other even other cultures
- Service learning

Group 3:

- Communicating professional ideas effectively
- Thinking critically, analytically, creatively, and globally
- Foundation knowledge in primary discipline- basic knowledge
- Ability to work in teams with diverse groups of people
- Ability to grow and adapt to changing conditions both personally and professionally

2. What are 5-7 *strategies* for helping STEM students in the acquisition, application, and advancement of these competencies?

Group 1:

- Early undergraduate research
- Internships and co-ops
- Put student in leadership roles (peer mentoring)
- Service learning, doing something for the community while you are learning,
- International experience
- Capstone experiences – “pulling it all together” pulling together the content of the learning in the final years. High impact practices.

Group 2:

- Experiential learning
- Mentoring internal and external
- Timely real world projects
- Chance to develop independence- Students need to take responsibility for their own learning and leadership
- Finding their own answers but also being able to work in teams
- Summary- creating world live experiences

Group 3:

- Case studies, problem based learning, simulations
- Internships and other experiential learning
- Co-curricular activities which provide leadership and teamwork opportunities
- Bringing real world into classroom
- Research opportunities
- Helping student identify and apply their learning styles
- Summary- students learn in different ways, our job is to pick those different learning styles and teach in that way.

3. What are 5-7 *recommendations* for attracting, retaining, and persisting STEM students to timely degree completion?

Group 1:

- Providing resources to student from where they are
- Themed housing/engaging in outreach (recruiting to others for the students)
- Representative population for teachers
- – “important to have a teacher look like you” in terms of diverse teachers Ensure there are diverse teachers of excellence
- Get the word out

Group 2:

- Math – identifying goals/improvements before college
- Demystifying STEM- Projects that are related to STEM but not necessarily labeling them math, science, etc.
- Case model/ study – having outside professionals come in to teach world life disciplines and apply the learning
- Theme learning
- Relevance of college back to the industry.

Group 3:

- How can we build learning as if the student was in a professional setting EVERYDAY, allowing for the student to build real life experiences from the classroom.
- Mentors built in while he/she goes to school
- Early warning and grade reports – how to get a handle when a student needs your help early on
- Small classrooms with proactive advising
- Career services from matriculation through academic career. From day one and beyond.
- Work opportunities on campus
- Implementation of pedagogies that lead to student success (going back to the basics and making sure the students understand the basics)

SWOT ANALYSIS

1. What are the collective 5-7 internal strengths to leverage and external opportunities to pursue for CI-STEP?

Group 1:

- Current programs in place that we can go ahead and expand and not necessarily create
- Location of IUPUI
- Proximity to Ivy Tech
- Leverage – this is a prestigious grant
- Leverage local corporations, asking local teams to be a spokesperson, Other industries that IUPUI has
- Distance learning- how can we most effectively reach our commuter students

Group 2:

- Personal develop plan, help plot what they are going to do with their collegiate experiences
- A lot of support programs that already exist
- Opportunity to do more courses in the summer essentially helping students graduate in four years
- Students have a good work ethic, bringing maturity
- Continual education of faculty.
- Opportunity for the business community to RISE the business recognition.
- Opportunity to engage parents in the process
- Opportunity to bring their work experiences into campus, work experience could be or should be related to their study and can tie into their education
- Strength: Retention initiatives

Group 3:

- Strong foundation at IUPUI in successful pedagogy (honors college, theme learning
- Room for growth in college attainment in Indiana
- Focused strong campus leadership
- Strong ties with business and industry community, opportunity to expand
- Great Collaboration between science and engineering/technology
- Pipeline from local high school and community college because of the location in the heart of the city
- Biomedical emphasis in Indiana, growing in Indianapolis, governor has emphasized in the state leaving a great potential

2. What are the collective 5-7 internal weaknesses to overcome and external threats to acknowledge for CI-STEP?

Group 1:

- Illnumerate students – how to do we meet their needs
- New ness of community college, how do we work with the state in
- Not a residential campus
- Students work requirements- dealing with the students real life challenges and being successful in the STEM course
- Years to graduation

Group 2:

- Not a centralized office where the community can call and find out about IUPUI tend to be located throughout the school
- Student participation is low
- Need to have high tech experience with students who are struggling, they need someone to talk to them
- The risk for lack of success factors
- Resources are ALWAYS limited
- Student financial issues are always a problem and managing their current finances

Group 3:

- Economic issues for students
- Lack of culture of education in state of Indiana

- Lack of high profile STEM related industry in Indiana – students are attracted to glamour
- Poor math competency of Indiana k-12 students – i.e. ivy tech have a significantly high enrollment in remedial math
- Mismatch of students expectations of college and reality of success.
- Some faculty that are resistant to change