

INSTITUTIONAL ASSESSMENT REPORT

PHYSICS DEPARTMENT / 2014

Department's Relationship to the College Mission and Strategic Plan

In a paragraph or two, discuss how the department's work carries out the Mission and Strategic Plan.

The mission of the Physics and Engineering Department is guided by that of Jefferson College. Our student-centered classrooms serve the community by meeting the diverse needs of our students. Our faculty members maintain their expertise through ongoing professional development activities and by individual and collegial reflection on their practice. Our courses are rigorous, yet our classrooms foster a supportive learning environment promoting intellectual development, personal growth and enrichment within the broader society. We demonstrate our commitment to providing an accessible, quality college experience through our office hours, our classes scheduled at non-traditional times and our online course offerings. Other examples include Geology field trips and Astronomy observation nights for both our students and the larger Jefferson County community. These courses are designed to prepare students to succeed in their careers and prosper in the diverse world of the future.

Our comprehensive program includes courses that satisfy requirements for the Associate of Arts, Associate of Applied Science, Associate of Arts in Teaching and the Associate of Science degrees. These are as follows:

A.A., A.A.S. and A.A.T. degree programs:

- PHY101 Survey of Physical Science (with laboratory)
- PHY102 Topics in Physical Science
- PHY105 Physical Geology (with laboratory)
- PHY106 Introduction to Astronomy (with laboratory)
- PHY111 Elementary College Physics I (with laboratory)
- PHY223 General Physics I (with laboratory)

A.S. degree (with Engineering emphasis):

- PHY118 Introduction to Physics
- PHY223 General Physics I (with laboratory)
- PHY224 General Physics II (with laboratory)
- EGR101 Computer Aided Engineering Design
- EGR228 Engineering Mechanics: Statics
- EGR250 Engineering Mechanics: Dynamics
- EGR261 Circuit Analysis I

PHY223 also satisfies Jefferson College's computer literacy proficiency requirement for the A.S. program.

Summary of Departmental Activities, Assessment and Use of Results

Provide a brief overview of major accomplishments since the last review and how assessment results have been used to improve services/learning outcomes.

Summary of Department Activities

- A major focus of the physics department in the last five years has been to make all sections of PHY101 and PHY102 physical science classes consistent across sections, campuses, and learning environments. All sections have adopted the same textbook and lab manual, and the Arnold and Northwest campuses received updated lab materials to go with the new textbook.
- PHY106 Introduction to Astronomy Outdoor Observation Nights have attracted more students and community members over the last five years. This is a hands-on opportunity for students to observe the night sky, apply what they have learned in the classroom, and gain enthusiasm for astronomy and science in general. Initially, these nights were open to only astronomy students, but later, other physical science students were invited to attend, and shortly thereafter the nights were opened to the public. In 2014, the observing nights had about 30 students attending, with almost as many community members. This is a beneficial community outreach, and there are plans to expand this event even more.
- PHY105 Physical Geology has two field trips every semester to investigate the geological features of the surrounding areas, mandatory for all geology students. Jefferson County is of interest of the geological departments of nearby colleges and universities, because of its specific geology and many road cutouts, which show rock stratification more clearly than in other areas. These field trips allow the students to find and extract both fossils and minerals and to experience geology hands-on. These trips have enhanced the appreciation students have for geology and have increased enrollment in other physical science courses. Unfortunately, in the past two semesters, students have been limited to only one field trip due to budget constraints.
- The department is in charge of a growing collection of minerals, rocks, fossils, and archaeological finds, such as arrow points. Jefferson College received donations of artifacts from the community and many objects are on permanent display in ASI 2nd floor. These collections are appreciated by students of all disciplines and draw interest to the physical and archaeological sciences. Plans are to expand these displays on both the Arnold and Hillsboro campuses.
- Distance learning offerings of PHY102 and PHY106 have been expanded to summer sessions and intersessions, and a hybrid section of PHY101 has been developed for the One Night Plus program for working adults.
- In Fall 2014, a Science tutoring area was included in the new Academic Success Center, which builds on previously existing student support facilities on campus. This area is shared between Physics, Biology, Chemistry, Accounting, and Psychology. Physics and engineering faculty staff the science tutoring center approximately 4 hours per week in Fall 2014. In the first 4 weeks of the Fall 2014 semester, physics and engineering tutoring was 3.2% of the

overall use of the Academic Success Center, at least 48 students altogether (some students register in other rooms and are not counted). This is a promising start, considering that Science did not have any centralized tutoring facilities before this semester, and the results were drawn from the beginning of the semester, before the increased tutoring need during midterms.

- The department participates in the Adjunct Orientation Sessions. These sessions facilitate communication between the full time and part time faculty, giving support and guidance to part time faculty, which helps the department meet its goal of quality education across all sections and teaching environments.

Summary of Department Assessments

- In 2013, a multi-section assessment was created for PHY101 and PHY102 sections. This assessment has been used in multiple capacities. One goal from the assessment is to ensure, in addition to the adoption of a single textbook, that all sections on all campuses and all learning environments are receiving the same quality education. The initial results of these assessments have indicated that students in all sections have consistent comprehension of the curriculum, and the assessments will continue to be analyzed to determine course improvements.
- The multi-section assessment also evaluates the level of critical thinking skills demonstrated by the students in PHY101 & PHY102. The results of the assessment indicated that students who had interest in the physical sciences demonstrated higher level critical thinking skills than those students who did not exhibit the same level of interest. This indicates a need for some additional activities to stimulate students' interest in all of the topics covered by the curriculum, in order to raise the level of academic achievement in the physical sciences. Some potential ways to achieve increased enthusiasm are updating lab equipment and facilities; building an astronomy observatory used for student and public outreach, as well as potential undergraduate research opportunities; increasing the number of field trips available for students; and improving the display of geological and archaeological collections for student and community access.
- Data-driven decision making techniques are being used in the upper division physics and engineering courses, in order to revise course instruction methods and future assessments. After each summative assessment, the instructor records all of the scores on all questions from all students in a single spreadsheet. With these data, he can identify specific misconceptions or topics requiring further instruction. Based on an analysis of these data, he is proposing curriculum revisions to the Introduction to Physics course, which will take effect beginning with spring semester 2015. He expects these changes to result in students being better prepared for their subsequent coursework in Physics and Engineering.

Internal and External Data Collection and Analysis

Gather and analyze relevant internal and external data (link to data).

Internal Data Collection

The values for Attrition Percent, Average Students, and Average GPA have not changed significantly from the last 5-year departmental report. By analyzing the Faculty Indicators for all instructors, we can address some outlier values in order to make future course improvements and staffing decisions. Student success results for one adjunct faculty member indicates an unusually high GPA and low attrition percentage in comparison with all the other sections. Faculty will investigate the anomaly and expand multi-section assessment to include all adjunct faculty sections. The full-time faculty plan to seek additional information to help explain the results and work toward more consistency in the Topics in the Physical Sciences course.

To build a more cohesive program, the full-time faculty meet regularly with the adjunct faculty during Adjunct Orientation. They have an opportunity to discuss teaching methodologies and ancillary materials with the adjunct faculty. Based on feedback from students and adjunct faculty, the department reviewed the textbooks selected for Survey of Physical Science and Topics in the Physical Sciences. Full-time faculty decided to change textbooks to provide better resources for students.

**Faculty Indicators for Physics/Engineering (PHY/EGR), School Years 2009-2014
School Terms 201001 Through 201403 (Summer 2009 through Spring 2014)**

Number of Course Sections Taught	Total Students	Attrition Number ("W" Grades)	Attrition Percent	Student Credit Hours Earned	Average Students	Average GPA	Annualized 5-Year Program FTE
208	4,528	296	6.5%	14,077	21.8	2.718	93.8

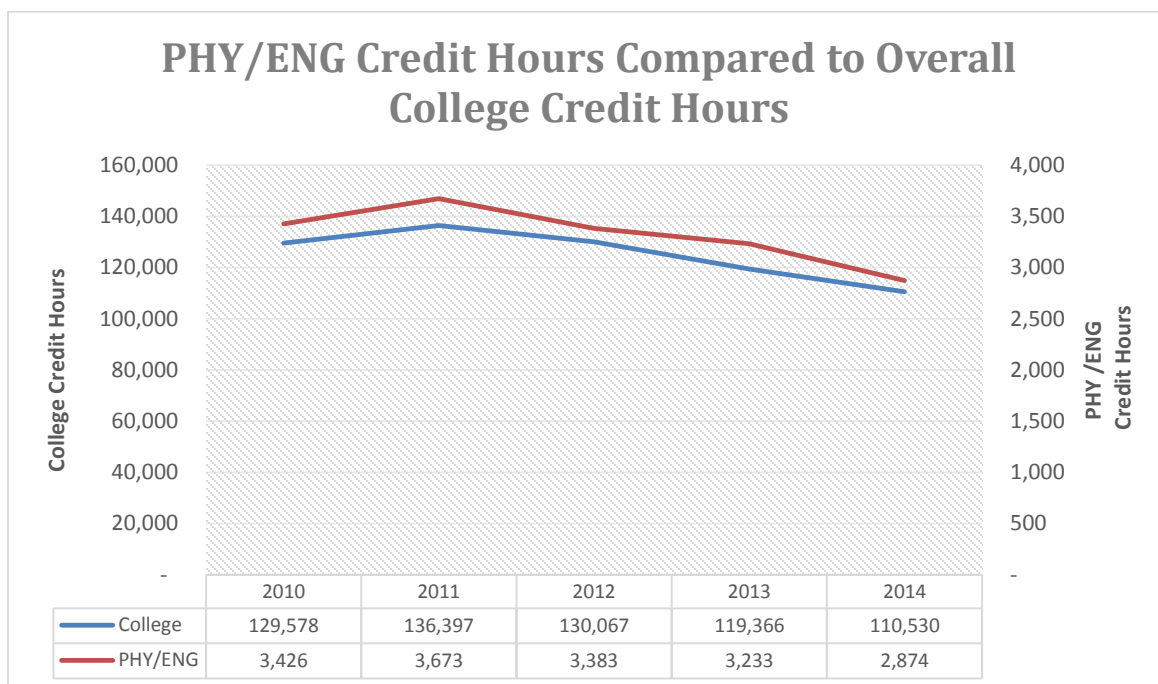
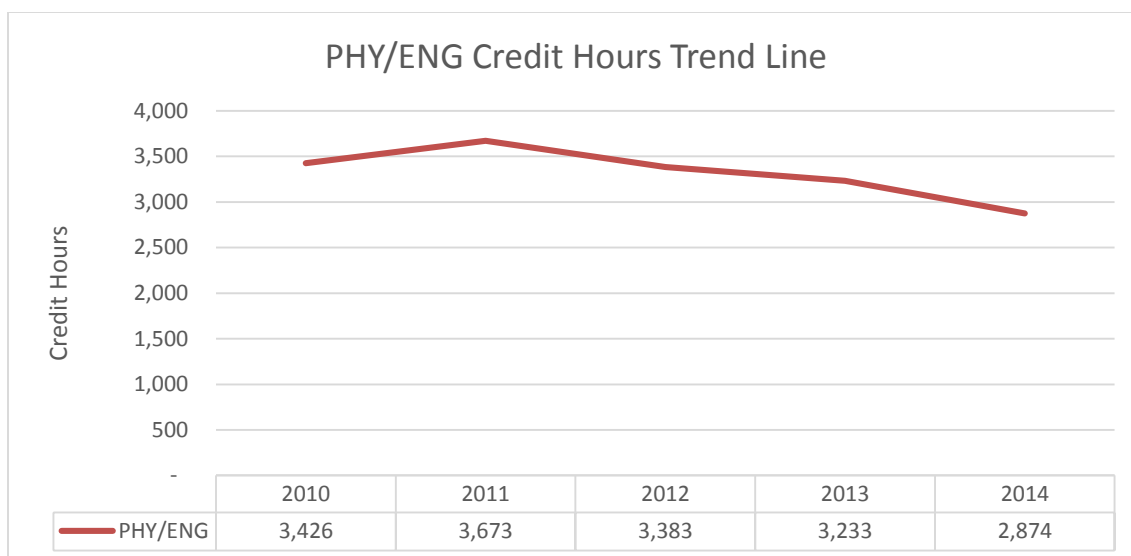
Attrition % represents the number of "W" grades conferred as a percentage of ALL students.

Annualized Program FTE is the number of graded credit hours divided by 150 (30 hrs/yr for 5 years).

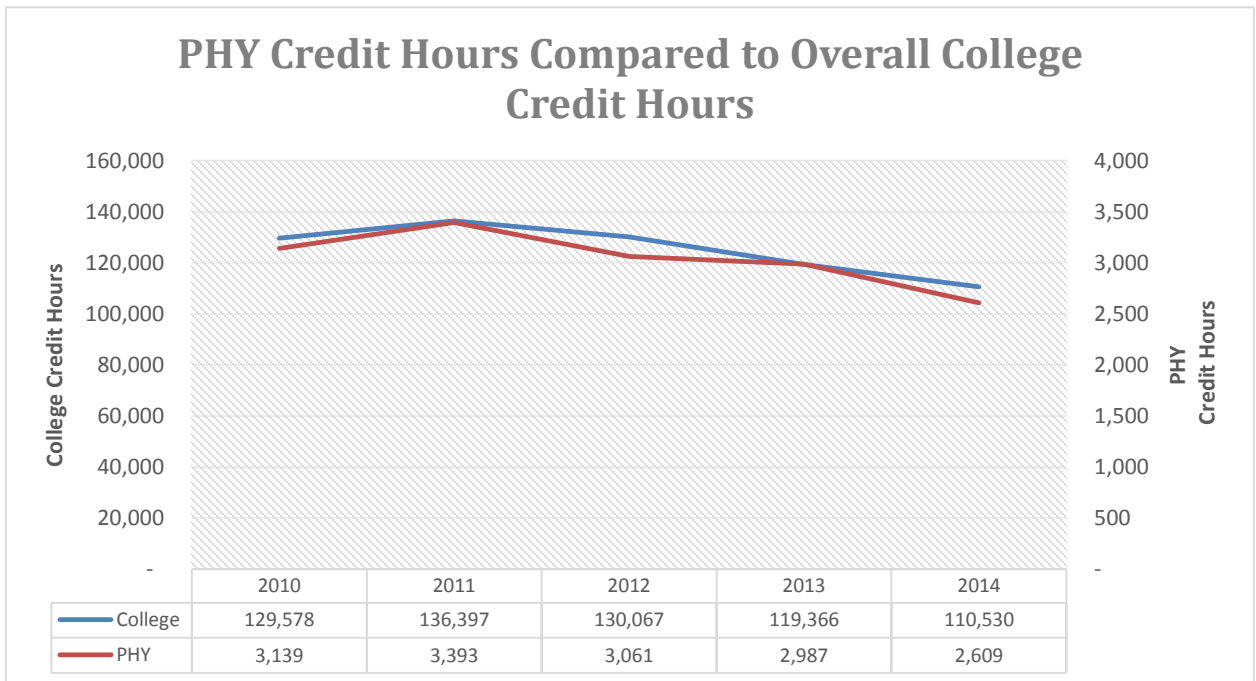
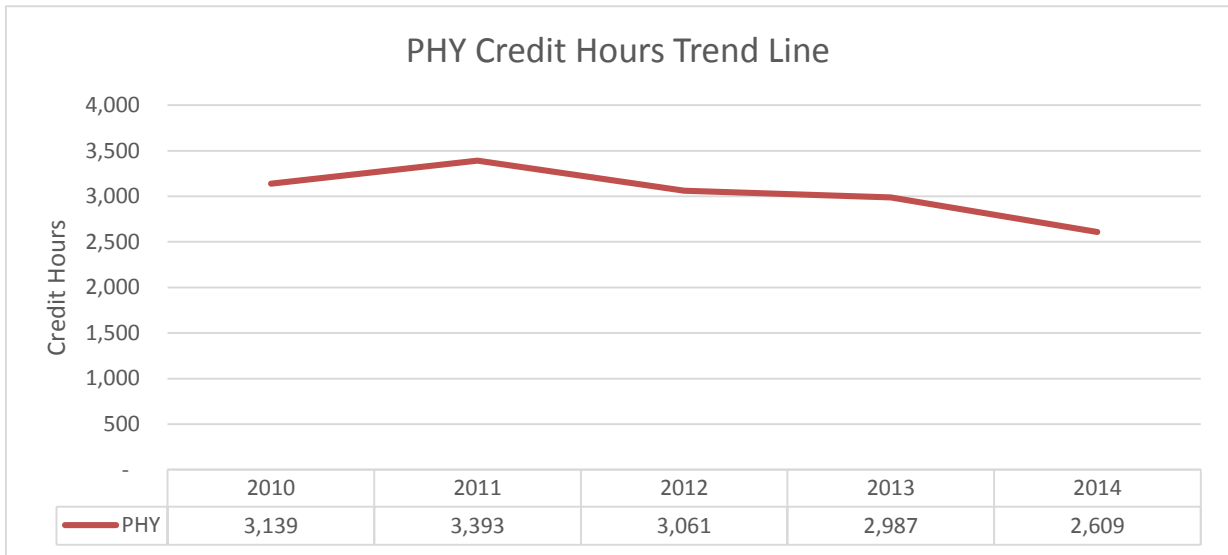
Analysis of Credit Hour Trends for Physics and Engineering Programs

Recent enrollments for Engineering and Pre-Engineering courses have experienced more growth than the college as a whole, while Physical Science (Physical Science, Astronomy, and Geology) enrollments are in line with how enrollment numbers are changing throughout the college. The increased enrollment in the Pre-Engineering major may be attributed to a regional and national emphasis on STEM (Science, Technology, Engineering, and Math) occupational growth.

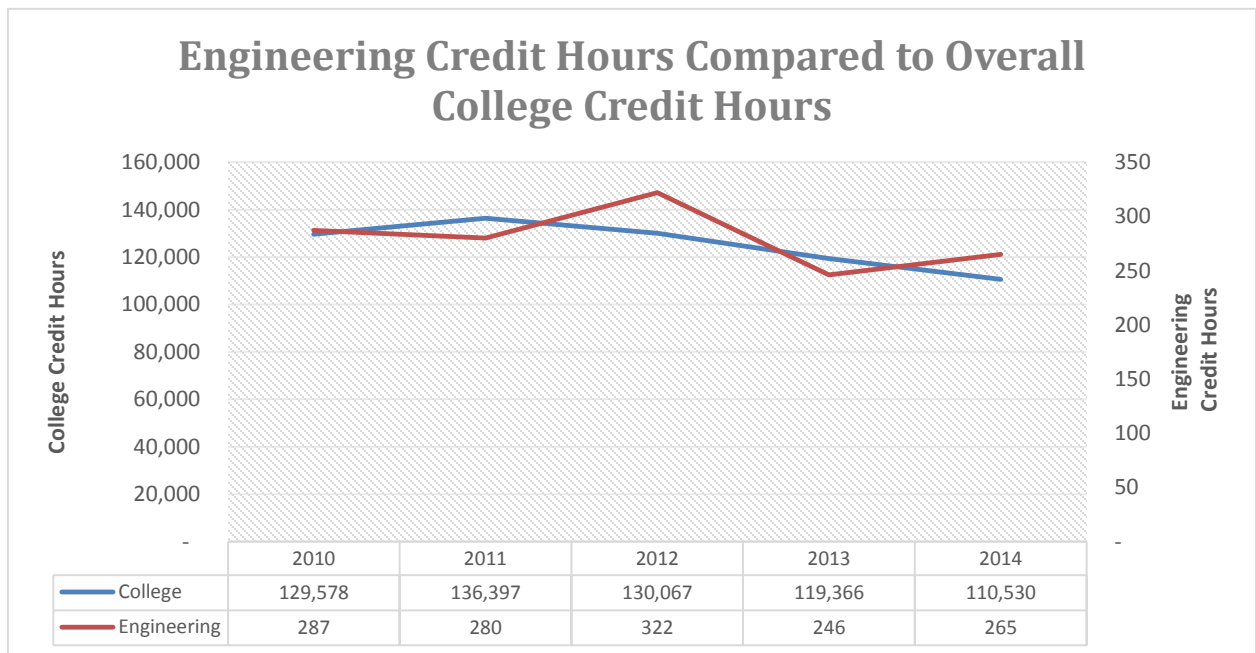
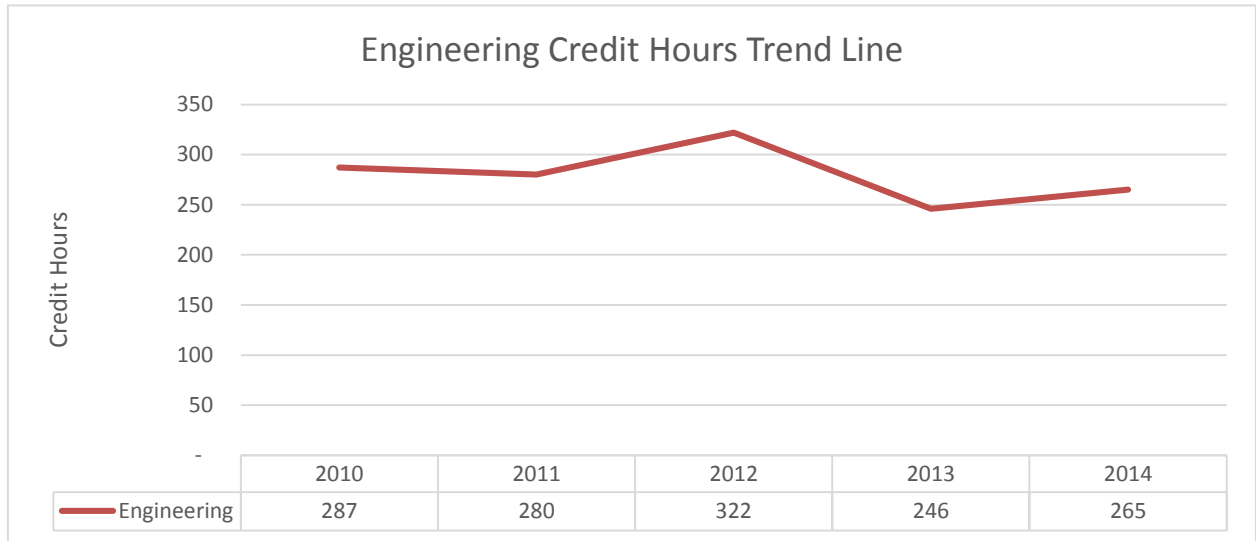
Physics & Engineering Credit Hours						
Years	2010	2011	2012	2013	2014	% Change
PHY/ENG	3,426	3,673	3,383	3,233	2,874	-16%
College	129,578	136,397	130,067	119,366	110,530	-15%



Physics Credit Hours						
Years	2010	2011	2012	2013	2014	% Change
PHY	3,139	3,393	3,061	2,987	2,609	-17%
College	129,578	136,397	130,067	119,366	110,530	-15%



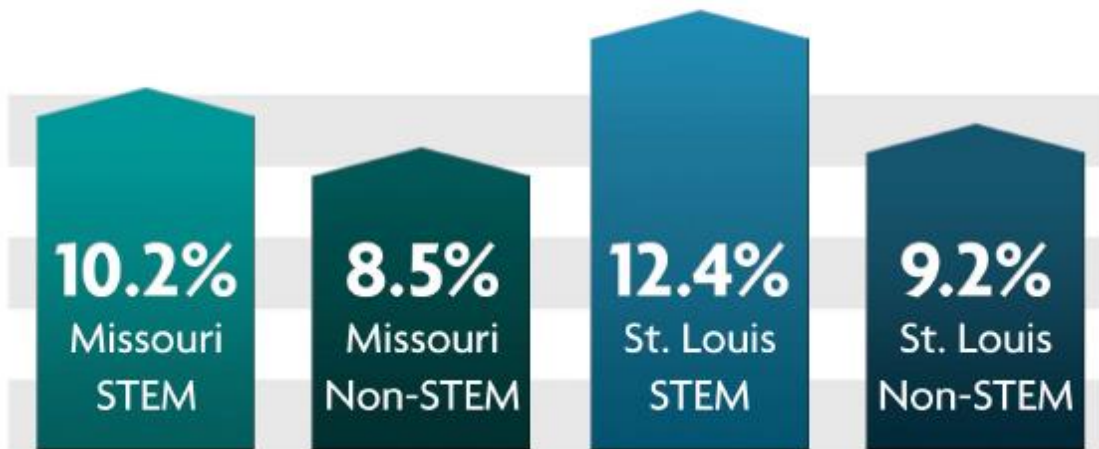
Engineering Credit Hours						
Years	2010	2011	2012	2013	2014	% Change
Engineering	287	280	322	246	265	-8%
College	129,578	136,397	130,067	119,366	110,530	-15%



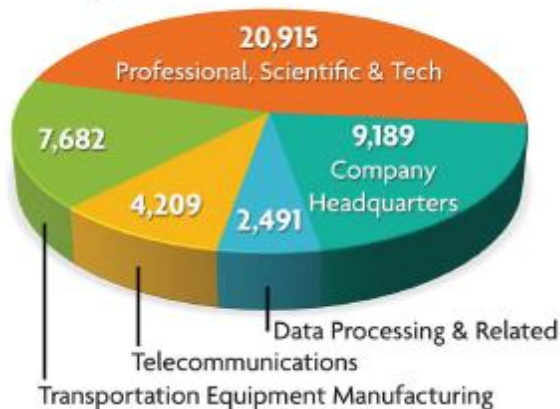
External Data Collection

According to the State of the St. Louis Workforce report, produced by the St. Louis Community College Workforce Solutions Group, attracting qualified workers for STEM fields is a primary focus of regional business and economic developers, as these fields are predicted to have large growth in the next decade. It is vital that Jefferson College science and engineering departments have the necessary programs and facilities to provide for this upcoming need in the workforce.

Projected Growth of STEM & Non-STEM Occupations



Number of STEM Workers in Top STEM Industries in St. Louis



Average Wages

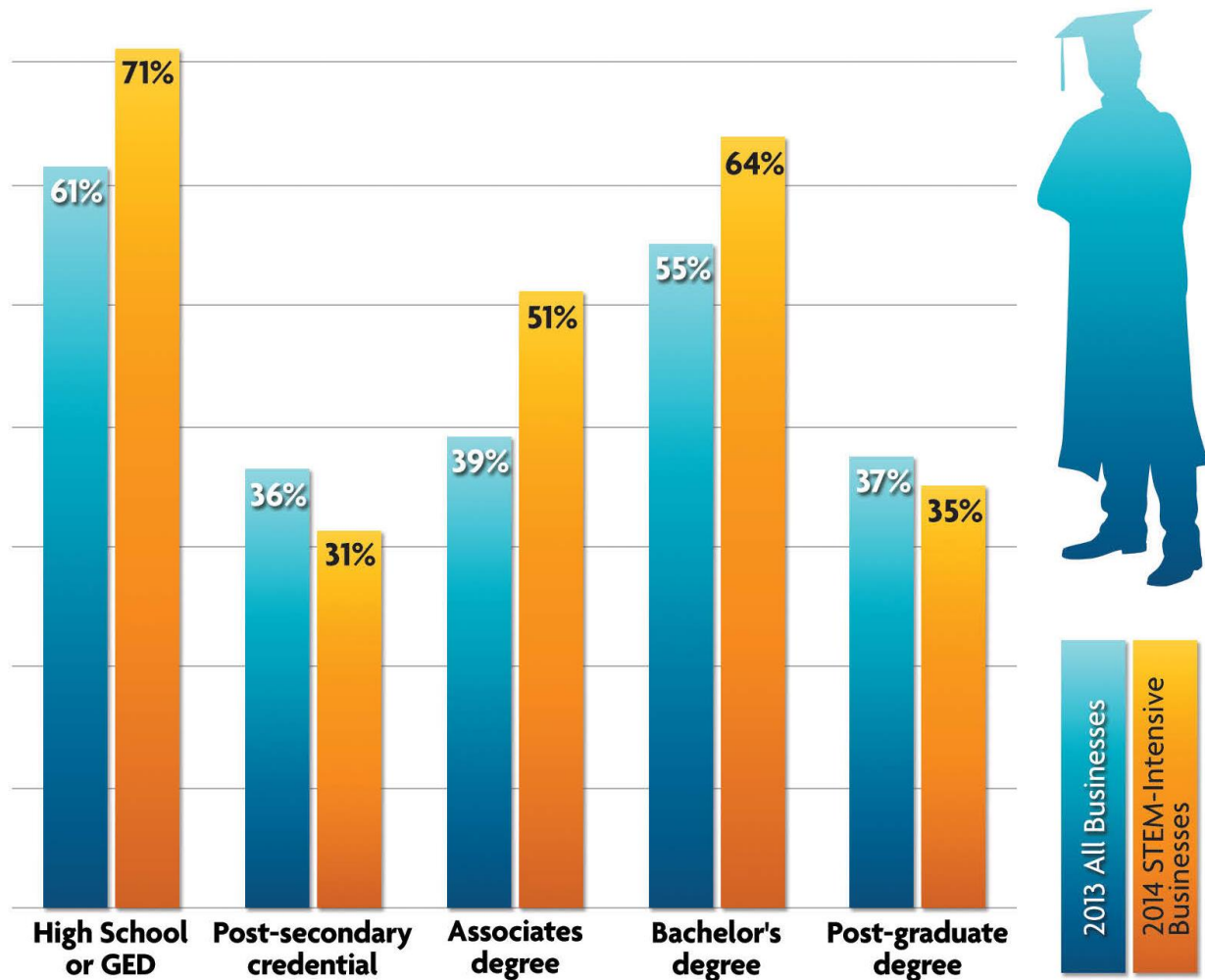


All "St. Louis" data is St. Louis MSA (MO-IL)

Source: St. Louis Community College Workforce Solutions Group
<http://www.stlcc.edu/Workforce-Solutions/St-Louis-Workforce/Reports/2014-Report-to-the-Region.pdf>

Of the STEM-Intensive occupations, an Associate's or Bachelor's degree is required to hold many of these upcoming job opportunities. The Physics and Engineering departments of Jefferson College are poised to be an integral part of meeting the needs of the St. Louis regional workforce by providing quality physics and engineering coursework and helping students transfer to get 4 year STEM degrees.

Education Levels Required



Source: St. Louis Community College Workforce Solutions Group
<http://www.stlcc.edu/Workforce-Solutions/St-Louis-Workforce/Reports/2014-Report-to-the-Region.pdf>

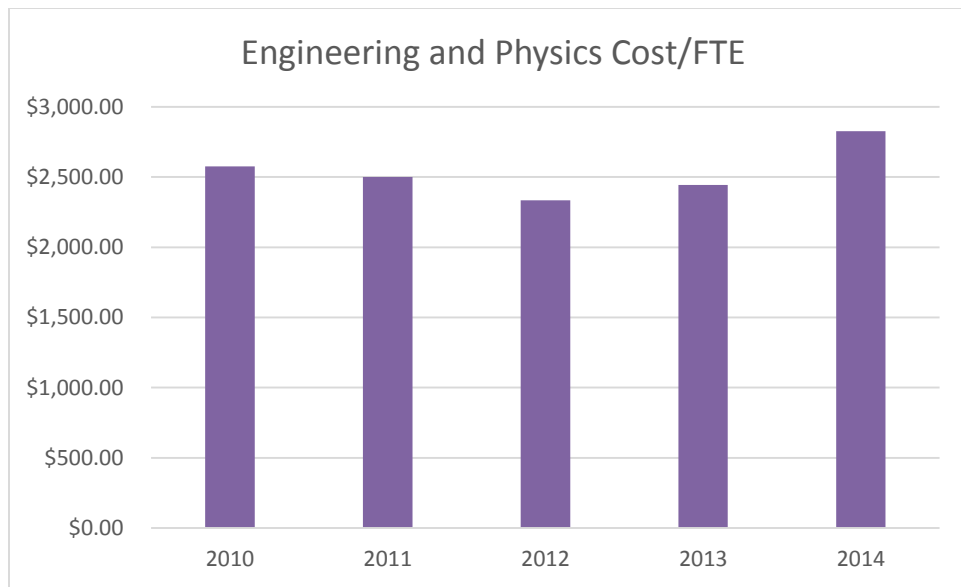
Annual Cost per FTE and Trend Analyses

Provide cost per FTE and analyze for the period being evaluated.

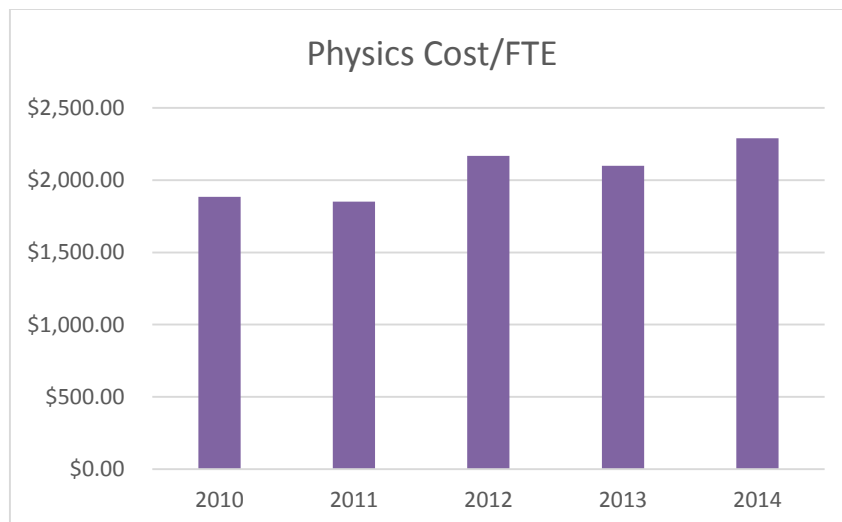
The average cost per FTE for all Physics and Engineering courses combined is \$2,536.23 for the 2010–2014 period. This is comparable to other science departments in Arts and Sciences.

In this analysis of the annual cost per FTE for the Physics and Engineering departments, it is useful to look at the combined numbers, instead of looking at the departments separately, as faculty members who are budgeted in one department may teach courses in another. For example, the full time engineering faculty's full salary is paid out of the engineering budget, but his load is approximately $\frac{1}{2}$ engineering courses, $\frac{1}{2}$ physics courses. This skews the engineering cost per FTE, and is not a valid indicator for budgeting purposes. During the 2012 and 2013 academic years, one full-time faculty member chose a part-time option and continued to teach half time until retiring at the end of 2013. Additional adjunct faculty were hired at a reduced cost to the college. During the 2014 academic year, a new full-time faculty member was hired to coordinate the Associate of Science program. Variable costs have declined with reduced enrollments, but the fixed costs remain steady. Therefore, the costs per FTE have increased during this period of retraction. Both combined Physics/Engineering departmental data and individual departmental data have been included in this report.

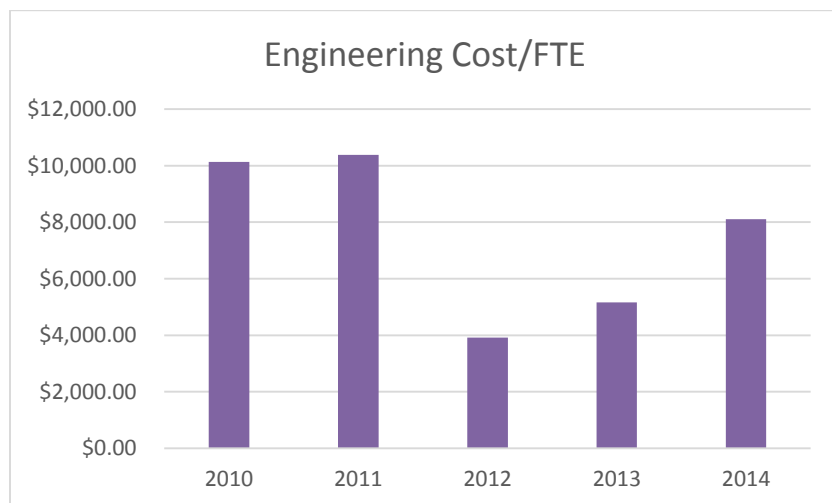
Engineering and Physics Annual Cost per FTE and Trend Analyses					
Academic Year	2010	2011	2012	2013	2014
Credit Hours	3,426	3,673	3,383	3,233	2,874
FTE	114.20	122.43	112.77	107.77	95.80
Program Cost	\$294,139	\$306,181	\$263,258	\$263,258	\$270,856
Cost/FTE	\$2,575.65	\$2,500.80	\$2,334.54	\$2,442.85	\$2,827.30



Physics Annual Cost per FTE and Trend Analyses					
Academic Year	2010	2011	2012	2013	2014
Credit Hours	3,139	3,393	3,061	2,987	2,609
FTE	104.63	113.1	102.03	99.56	86.96
Program Cost	\$197,323	\$209,348	\$221,261	\$209,133	\$199,252
Cost/FTE	\$1,885.91	\$1,851.00	\$2,168.59	\$2,100.57	\$2,291.31



Engineering Annual Cost per FTE and Trend Analyses					
Academic Year	2010	2011	2012	2013	2014
Credit Hours	287	280	322	246	265
FTE	9.56	9.33	10.73	8.2	8.83
Program Cost	\$96,817	\$96,833	\$41,997	\$42,307	\$71,603
Cost/FTE	\$10,127.25	\$10,378.68	\$3,914.00	\$5,159.43	\$8,109.10



SWOT Analysis

Using the data collected and analyzed, complete a SWOT analysis. Reference and link data for each.

Internal Strengths 1. Enrollment in the A.S. (Engineering) program is increasing. 2. Good student retention rates (less than 6% attrition overall). 3. Most students are taught by full-time instructors. 4. Good coordination of curriculum and instruction with adjuncts. 5. Mostly-consistent GPAs throughout Engineering and Physical Sciences. 6. Flexible course delivery formats. 7. Good curricular coordination with math courses. 8. Good overall student satisfaction. 9. Public outreach with the Astronomy Observation Nights. 10. Student and Public interest in our collections 11. Geology Field Trips	Internal Weaknesses 1. Lab equipment and facilities (room 216) are outdated and insufficient for upper level Physics and Engineering courses. 2. The Physics and Engineering curriculum lacks coherence and does not adequately prepare students for advance coursework, or for 21st century careers. 3. No computers in the lab at JCA. 4. Elementary Physics course enrollments below the minimum to be offered. 5. A&S no longer oversees curriculum for CTE students requiring physics. 6. Multi-section assessment in PHY102 reveals some remaining inconsistencies among adjunct instructors. 7. Astronomy Observation Nights limited by location in a valley. 8. Public outreach to high schools is non-existent. 9. Lack of display space for arrow head and rock collections 10. Budget reducing the number of field trips
External Opportunities 1. There is an increased focus on STEM in the U.S.; includes increased possibilities for grant funding. 2. Potential donation of a 12-inch telescope from an individual. 3. Community donations of fossils, rock samples, arrowheads, and minerals. 4. Ideas for recruitment programs for middle or high school students. 5. Providing better astronomy and geology opportunities to the public. 6. Improving the collection displays for public and student viewing.	External Threats 1. Decreases in funding. 2. A+ funding is declining. 3. Jefferson College enrollment is declining, potentially affecting Physical Science. 4. High school enrollments are declining in Jefferson County. 5. Declining preparedness of incoming students.

Internal Strengths

The Physics and Engineering departments are experiencing both growth and stability. Enrollment in the Pre-Engineering program has experienced a growth rate 7% greater than the college as a whole, which also supports Math and Chemistry enrollments. During the 2014 fall semester, Pre-Engineering enrollments have increased by 34%. Physics and Engineering works closely with Math and Chemistry, in order to support a quality pre-engineering program. Physics and Engineering courses have a low 6% attrition rate, which is an indication of quality instruction. Approximately 60% of students are taught by full-time Jefferson College instructors, and communication between full-time and adjunct instructors is improving through increased participation in adjunct orientation. The success of our Physics and Engineering students can be seen in the average GPA data. Over the last 5 years, there has been an increase in the type of format offerings, giving students more course options, including online PHY106 during the summer, 3 week Intersession courses of PHY102 in the winter and summer terms, and starting in fall 2014 an 8-week hybrid One Night Plus offering of PHY101. Student feedback has been positive for courses in these departments. There are increased opportunities for students and the public to become involved with science through astronomy observation nights, geology field trips, and the rock and fossil collections.

Internal Weaknesses

Laboratory-based science courses at Jefferson College should be designed to prepare students for more advanced course work and for their eventual careers. Specifically, this includes the use of modern equipment and inquiry-based curriculum. Although the Jefferson College physics courses for non-majors have a reasonably complete set of equipment (with the exception of computers in the lab at the Arnold campus), the same cannot be said for the upper level Physics and Engineering courses. The hands-on laboratory equipment for these courses is typically several decades out of date. Relatedly, the main laboratory room for PHY223-224 (General Physics, which is the flagship course for our engineering program) is not set up to host a high-quality inquiry-based course. We plan to procure funding to renovate this laboratory space (A&S I room 216) through a capital improvement request. We also plan to explore inquiry-based curriculum, such as the Rutgers University ISLE program, to adapt to our needs. Finally, we will seek out professional development opportunities for our faculty, to gain expertise with the new equipment and inquiry-based approach.

In order to build and maintain a coherent program, our proposed equipment and curricular changes must not happen in isolation. They will have an impact on both the preparatory and subsequent courses. We will make the following specific recommendations for the preparatory courses EGR101 and PHY118: We propose to base the curriculum of EGR101 on that of the “IDE-20” course at the Missouri University of Science and Technology (MST). The updated lab room 216 should be able to accommodate the revised course with the additional purchase of one or more 3-D printers. This assumes that the room update will include 20 new computers with an appropriate suite of software tools. We propose that the revised course will also include programming of Arduino microprocessors, which will be used and augmented by engineering students throughout their coursework at Jefferson College. The PHY118 course is currently required as a pre-requisite for General Physics. Unfortunately, it does not prepare students for advanced work, since its curriculum focuses almost entirely on the history of physics. We will propose significant changes to the curriculum of this course, and propose a specific set of

conditions to allow well-prepared students to bypass this course and begin with General Physics. We expect the revised course to be ready in time for spring semester 2015.

The proposed changes to the General Physics course and laboratory will likewise have a positive impact on our advanced Engineering courses: EGR 228 (Statics), EGR250 (Dynamics) and EGR261 (Circuit Analysis I). Currently, the EGR261 course is fundamentally out of alignment with the analogous course at MST; specifically, there is no lab component. We propose to study this issue in greater depth; however, we believe that the equipment updates for the General Physics course will also accommodate the development of a lab component to EGR261 (e.g. the Arduino microprocessors, hands-on circuits for PHY 224, PSpice software, etc.).

PHY111-112 is the algebra-based complement to the General Physics course, and at many U.S. colleges and universities it serves a similar “flagship” role for majors outside the hard sciences and engineering, including many healthcare-related fields. This is clearly not the case at Jefferson College, as enrollments for this course have declined to the point where it has not run for the past two school years (not since 2012-13). We stand ready to modify the PHY111-112 sequence to make it more aligned with the needs of various healthcare subfields. “Physics for the Biological Sciences” is a rising specialty within the Physics Education community; therefore, we believe the expertise and materials exist which will allow us to modularize the Elementary Physics course to meet the needs of the various CTE programs which require a physics course.

The multi-section assessment has enhanced the coherence among different sections of the PHY101 and PHY102 courses. It has identified inconsistencies among the various adjunct instructors of the course, and these have been addressed in various ways (for example, our full-time faculty participate in the adjunct orientation seminar in August). However, our assessment and retention data reveal that there is ongoing work to be done, and our full-time faculty are exploring ways to build and maintain consistency among all adjunct instructors. For example, we propose having a professional development session to share assessment strategies, curriculum activities and pedagogic methods with our adjunct colleagues. As these courses become more consistent among instructors, we must also ensure parity of equipment across all of our campuses. Currently, the Arnold campus science lab has no computers, but many of our PHY101 labs are computer-based. Therefore it is crucial for our program that we have computers available for the course. We are currently studying the best way to do this, given the limitations of space.

As mentioned above, the introductory courses for non-science majors tend to have sufficient instructional materials. However, in order to promote student research opportunities and enhance public viewing, we are proposing the purchase of a 20 inch research grade telescope and accessories. Along with this we would need to construct a modest observatory to house the scope, and ideally we would need to locate this in a nearby location with a high elevation (we currently run observation nights in a valley location).

The current mineral, rock, fossil, and archaeological collections have generated enough interest among individuals that we have received additional private collections for display and may receive others in the future. As a result, we propose to obtain additional display cases and to share parts of the collections with the library. It is also possible that the Arnold campus may have space for new displays.

The geology field trips are thoroughly enjoyed by the students and help to focus their interest. Similar field trips for the physical science students might serve to develop interest in geology. This would either require an increase in the departmental budget or additional funding.

Finally, although the Associate of Science – Engineering program is one of the few areas of Jefferson College with growing enrollment, this situation will not necessarily persist in perpetuity. Also, we note the significant caveat that female students are overwhelmingly *underrepresented* in our population. We believe that outreach to high schools will be necessary to continue to attract students from our county (especially female students). We propose to study this issue over the coming five years and expect to propose specific outreach programs during this timeframe. It is likely that grant funding can be found to supplement these efforts, since this is nationally recognized as a problem in need of a solution.

External Opportunities

The focus of education in the United States at this time points to increasing access to STEM fields, from K-12 and onward. This gives the Physics and Engineering departments more opportunity for potential grant funding. The Jefferson County public have very generously made donations to the rock and fossil collections, as well as science equipment, and have given positive feedback to public events offered by the department. This increased contact with the community could boost the College's and the departments' exposure and prestige.

Some strategies to increase enthusiasm in the sciences are developing outreach programs to K-12 students including a STEM summer camp and science-themed presentations in the high schools. Other possibilities include building an astronomy observatory for students and the community as well as improving the display of geological and archaeological collections for student and community access.

External Threats

There are always threats to the College's budgets due to governmental policies. A decrease in funding to the College could negatively affect the Physics and Engineering budgets and plans for the future. Due to a continual financial struggle, the state of Missouri is reducing the amount of A+ funding students can receive. This will potentially prevent individuals from enrolling at Jefferson College and pursuing a degree. According to the Fall 2013 Factbook, there has been a 6% decrease in graduating seniors from Jefferson County public high schools. This could be a major factor in the decrease in enrollment seen over the last few years. A decrease in overall enrollment potentially will affect future Physics and Engineering enrollments. The average ACT scores from incoming students is lower than the national average, which can be seen by a lower level of preparedness to succeed in college level coursework.

External Accreditation (if applicable)
Link to accreditation report.

Not applicable to the Physics or Engineering departments.

INSTITUTIONAL ACTION PLANS for *Physics & Engineering Departments / 2014*

Instl or Deptl	Org Code	Aim	Obj	Instl Strategy	Action Plan Description	Indicators	Addl Res ?	Amount	Type	Onetime Expense	Annual Expense	Funding Source	FY Compl	Status	Responsible Party	Submitted by
Instl	55307	1 and 2	1.1, 1.3, 2.1		To build a research grade observatory that will provide Astronomy and Physical Science students with an opportunity to do research prior to attending a four-year institution. It would also serve to enhance the interest of physical science students in astronomy. Finally, it would provide the public with better viewing opportunities than are currently available.	Student satisfaction, performance after transfer, Value added to community	Construct Observatory, purchase research grade telescope and accessories	\$90,000					2016		Physical Science faculty	Linda Abernathy
Instl	55307	2	2.1		Obtain seven display cabinets for the arrowhead, rock and mineral collections. The collections will be displayed in AS I and the Arnold and Hillsboro libraries.	Value added to the community		\$4,500					2015		Physical Science faculty	Linda Abernathy
Instl	55302, 55303, 55305, 55306, 55307	1	1.1, 1.3, 2.1		Pursue National Science Foundation grant opportunities to support STEM initiatives including research; outreach to K-12 and community; and professional development at Jefferson College.	Performance after transfer, fall to fall persistence rates, student satisfaction, Value added to community		\$600,000					2015		Science and math faculty	Linda Abernathy

DEPARTMENTAL ACTION PLANS for *Physics & Engineering Departments / 2014*

Instl or Deptl	Org Code	Aim	Obj	Instl Strategy	Action Plan Description	Indicators	Addl Res ?	Amount	Type	Onetime Expense	Annual Expense	Funding Source	FY Compl	Status	Responsible Party	Submitted by
Deptl	55307	1	1.1		Expand field trips to include Physical Science students thus enhancing student interest in geology	Subsequent Course Success Rates, Multi-section assessments	Increase department funding	\$900/ year					Ongoing		Physical Science faculty	Linda Abernathy
Deptl	55305, 55307 -	1	1.3		Update the laboratory facility and equipment to include computers and 3-D printer for ASI 216. The engineering program currently uses equipment which is severely out of date. In order to properly prepare students for high-tech engineering and other technical positions of the future, we need to train them with industry-standard technology. This plan will support improvements in Phy118, Phy223 & 224 as well as all of our engineering courses.	Transfer rates, performance after transfer		\$81,044 And \$1,600/ year					2015		Engineering faculty	Linda Abernathy
Deptl	55305 55307	1	1.3		Curriculum revision for PHY118, EGR101 and EGR261	Transfer rates, performance after transfer		N/A					2015		Engineering faculty	Linda Abernathy
Deptl	55307	1 and 2	1.2, 2.1		To attract more students into the sciences, faculty propose developing outreach initiatives such as multi-discipline presentations on topics of interest to high schools around the county.	Performance after transfer, fall to fall persistence rates, student satisfaction		Stipend					Ongoing		STEM faculty	Linda Abernathy
Deptl	55307	1	1.2		Provide flexibility in Elementary College Physics to include recitation sessions designed for specific fields of study and improve advising to students requiring the algebra-based physics courses. Possibly offer an online or hybrid format of Elementary College Algebra to meet students' needs.	Performance after transfer, fall to fall persistence rates, student satisfaction							2015		Physical Science faculty	Linda Abernathy
Deptl	55307 55303	1	1.2		Purchase 20 student laptop computers and a charging cart, and install additional wireless access point in JCA 204 Chemistry and Physics lab. This will give the physical science students easier access to computer software needed for PHY 101 lab, and these laptops may also be used by other classes at Arnold, providing an additional source for classroom computers.	Multi-section assessments		\$20,000					2016		Physical Science faculty	Linda Abernathy
Deptl	55307	1	1.1		Expand multi-section assessments to include all adjunct faculty and analyze results to determine changes needed to improve student success and consistency.	Multi-section assessments							2015		Physical Science faculty	Linda Abernathy

Evaluation

- ☒ Meets Expectations
Comments:
- ☐ Requires Attention and Submission of a Follow-Up Report
Comments:
- ☐ Does Not Meet Expectations and Requires Submission of a Follow-Up Report
Comments:

Follow-up report required by: _____
Comments: (Date)

Approvals

Genda K. Alternathy

October 29, 2014

Division Chair/Director
Comments:

Date

Shirley Davenport

Dean

Comments:

October 31, 2014

Date

M.K. Selson

Vice President/President
Comments:

February 25, 2015

Date