

Mathematics, Physical Science, & Pre-Engineering Program Review 2017

Program Review Summary Template 3.7 Academic Program Review (optional)

Based on the thorough internal or external program review addressing all criteria in policy, a comprehensive report should be possible within ten or fewer pages. This program review template is provided to assist institutions in compiling the program review information, which is to be presented to the institutional governing board prior to submission to the State Regents. Executive Summaries should be possible within two pages using the provided template (Program Review Executive Summary Template).

Description of the program's connection to the institutional mission and goals:

Carl Albert State College is dedicated to being an institution that fosters excellence, prepares students to meet the challenges of society, and strives to instill in students the resolve to be their best.

CASC faculty (and staff) provide an exemplary learning community by creating excellent educational opportunities that enable students to achieve their aspiration and develop into successful participants in the ever-changing world.

The Mathematics, Physical Science, and Pre-Engineering program prepares students to transfer and continue their education at a four-year college/university. Academic advisors of the program consult students on course sequencing and transfer college opportunities. Through rigorous academic coursework, CASC science and math faculty provide an outstanding pre-baccalaureate experience for students of the program

3.7.5 Process (Internal/External Review):

Previous Reviews and Actions from those reviews:

Analysis and Assessment (including quantitative and qualitative measures) noting key findings from internal or external reviews and including developments since the last review:

The division currently has three full-time instructors who teach the *required and elective courses in the major*.

The construction of a new science/math facility on the Poteau campus has increased the number of classrooms and laboratories available for instruction. All classroom and labs are multimedia equipped at both Poteau and Sallisaw campuses.

CASC is committed to continuing to develop an assessment process focused on generating course level assessment data as well as program assessment data.

Mathematics, Physical Science, & Pre-Engineering (AS) 2016-2017 Course-Embedded Assessment of Student Learning Objectives	
Met	106 (73%)
Not Met	39 (27%)
Total Measured	145

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During the 2016-2017 academic year, this program surpassed the 70% threshold that is typically considered passing in letter grade assessments by meeting the targets of the course-embedded student learning outcomes (SLOs) for the required major field courses in this degree. The CASC Division for Math and Science is an active participant in the OSRHE Course Equivalency Project that is currently working to set the standard for student learning outcomes for math and science courses offered at academic institutions in Oklahoma. This involvement has required an invasive review of the student learning outcomes for program courses with changes anticipated within the next academic year.

Student Feedback on Instruction: CASC utilizes the *SmartEvals* system to collect student feedback on academic instruction. Each survey question is assessed on a 5 point rating scale. For the 2016 fall semester, math and science faculty had a mean score of 4.0 based upon seven questions on the following criteria: overall teaching ability, learned in course, instructor effectiveness, timely feedback, response to students' questions, feedback to improve work, and student recommendation. Concerning the 2017 spring semester, faculty had a mean score of 4.1 based upon five questions on the following criteria: overall teaching ability, learned in course, instructor effectiveness, timely feedback, and student recommendation.

A. Centrality of the Program to the Institution's Mission:

This program requires 37 hours of general education. These courses combined with the 24-26 hours of major coursework satisfy the maximum number of transferable credit hours to a four-year college/university. The mission statement of CASC is "to provide affordable, accessible, and exceptional education that fosters student success". The attainment of this associate degree helps reduce the students' initial financial burden and provide an exceptional educational background upon transfer to a higher cost 4-year institution.

B. Vitality of the Program:

B.1. Program Objectives and Goals:

The specific objectives of the Mathematics, Physical Science, and Pre-Engineering degree program are:

- To offer both a quality program and courses that will lead to successful transfer to four year science degrees;
- To prepare students to meet their academic goals
- To guide the students' knowledge and skills needed to earn an associate of science degree.

B.2 Quality Indicators (including Higher Learning Commission issues):

Students transfer to four-year institutions. We are in need of better assessment and tracking data after students graduate.

B.3. Minimum Productivity Indicators:

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Time Frame Academic Year	Head Count	Graduates
2012-13	61	6
2013-14	50	7
2014-15	41	4
2015-16	39	6
2016-17	36	7

B.4. Other Quantitative Measures:

a. Number of courses taught exclusively for the major program for each of the last five years and the size of classes: (courses/size of class)

	2012-13	2013-14	2014-15	2015-16	2016-17
Required Course in Major – 13 hours					
MATH 1613 Plane Trigonometry	4/58	5/71	4/70	4/69	4/50
MATH 2265 Analytical Geometry & Calculus I	1/15	1/17	1/15	1/14	1/21
MATH 2275 Analytical Geometry & Calculus II	1/13	1/9	1/5	1/7	1/9
Elective Course in Major – 11-13 hours					
CHEM 1215 General Chemistry II	3/51	4/50	3/37	3/32	3/34
PHYS 1114 General Physic I	1/24	1/24	1/13	1/16	1/20
<i>Or</i>					
PHYS 2014 Engineering Physics I	1/13	1/9	1/11	1/10	1/14
PHYS 1214 General Physics II	1/8	1/10	1/4	1/7	1/12
<i>Or</i>					
PHYS 2114 Engineering Physics II	1/11	1/6	1/5	1/6	1/9

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b. Student credit hours by level generated in all major courses that make up the degree program for five years:

	2012-13	2013-14	2014-15	2015-16	2016-17
Required Course in Major – 13 hours					
MATH 1613 Plane Trigonometry	174	213	210	207	150
MATH 2265 Analytical Geometry & Calculus I	75	85	75	70	105
MATH 2275 Analytical Geometry & Calculus II	65	45	25	35	45
Elective Course in Major – 11-13 hours					
CHEM 1215 General Chemistry II	255	250	185	160	170
PHYS 1114 General Physic I	96	96	52	64	80
<i>Or</i>					
PHYS 1214 Engineering Physics I	52	36	44	40	56
PHYS 1214 General Physics II	32	40	16	28	48
<i>Or</i>					
PHYS 2114 Engineering Physics II	44	24	20	24	36

c. Direct instructional costs for the program for the review period:

Inclusive of teaching salaries, fringe benefits and supplies:	
2012-13	\$874,730.29
2013-14	\$869,335.03
2014-15	\$900,967.26
2015-16	\$879,898.61
2016-17	\$847,737.54

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d. The number of credits and credit hours generated in the program that support the general education component and other major programs including certificates:

	2012-13	2013-14	2014-15	2015-16	2016-17
CHEM 1115 General Chemistry I	1800	1690	1475	1525	860
MATH 1513 College Algebra	2664	2694	2334	2382	2424

e. A roster of faculty members, faculty credentials and faculty credential institution(s). Also include the number of full time equivalent faculty in the specialized courses within the curriculum:

Faculty	Credential	Institution that granted degree	Courses taught in major (required and/or elective)
Bryan Warner ¹	M.Ed.	East Central University (Oklahoma)	General Chem II
Steve Hughes ¹	M.S.	Northeastern Oklahoma State University	General Chem II
Robert Wylie ²	M.S.	Oklahoma State University	Plane Trigonometry, all Physics courses, all Calculus courses
Jerry Holton ³	M.Ed.	Northeastern Oklahoma State University	Plane Trigonometry

¹ 100% salary paid from Natural Science

² 50% salary paid from Natural Science & 50% salary paid from Mathematics

³ 100% salary paid from Mathematics

f. If available, information about employment or advanced studies of graduates of the program over the past five years:

CASC is creating the process to better track transfer rates and employment rates.

g. If available, information about the success of students from this program who have transferred to another institution:

Not available at this time.

B.5. Duplication and Demand:

In cases where program titles imply duplication, programs should be carefully compared to determine the extent of the duplication and the extent to which that duplication is unnecessary. An assessment of the demand for a program takes into account the aspirations and expectations of students, faculty, administration, and the various publics served by the program. Demand reflects the desire of people for what the program has to offer and the needs of individuals and society to be served by the program.

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B.5. Duplication and Demand Issues:

Address Duplication:

The program is a general transfer degree.

Address Demand:

The program is a general transfer degree.

B.5.a. Detail demand from students, taking into account the profiles of applicants, enrollment, completion data, and occupational data:

Students are required to declare a major upon admission to CASC. As reflected from the number of students majoring in the Mathematics, Physical Science, and Pre-Engineering program and actual graduates, many students may realize they are not prepared to enter a field which requires an intensive amount of analytical ability related to both math and science.

B.5.b. Detail demand for students produced by the program, taking into account employer demands, demands for skills of graduates, and job placement data:

Students who successfully complete the program are highly motivated and many times have already set their sights on a transfer institution. The academic advising provided by faculty assist the student in transitioning to a four-year institution.

B.5.c. Detail demand for services or intellectual property of the program, including demands in the form of grants, contracts, or consulting:

Not applicable.

B.5.d. Detail indirect demands in the form of faculty and student contributions to the cultural life and well-being of the community:

All natural science faculty contribute to the CASC Development Foundation which provides scholarships to students.

Students participating in the Scholars program are required to perform community service. As a group, the students host an annual carnival for special needs children. Students also provide service individually in the form of donations and personal time. (i.e. Women's Crisis Center, Boys and Girls Club, Chamber of Commerce Banquet, community wide Trash-Off day, etc.)

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B.5.e. The process of program review should address meeting demands for the program through alternative forms of delivery. Detail how the program has met these demands:

This degree program has a 16-week traditional format and some courses are taught in an 8-week format during the Summer session.

B.6. Effective Use of Resources:

Resources include financial support, (state funds, grants and contracts, private funds, student financial aid); library collections; facilities including laboratory and computer equipment; support services, appropriate use of technology in the instructional design and delivery processes, and the human resources of faculty and staff.

Library:

The libraries of Carl Albert State College are committed to providing access to excellent resources and services that support the teaching, learning, and research of the students and faculty of Carl Albert State College. A variety of resources are available, and input is solicited from the faculty and student body as to their needs. Library staff provides training and assistance to students in learning to access library resources through scheduled orientations, as well as individual assistance as needed.

The libraries have a total of 33 computers available for students to search the library catalog, the electronic databases, and the Internet. An audio-visual area is available in the Joe E. White Library for students to view film/DVD.

The library collections contain over 1180 titles in print and audio-visual formats pertaining to the academic discipline of English. The libraries subscribe to more than 34 electronic databases that contain thousands of full-text articles and bibliographic citations. The electronic databases include over 150 journals with full-text articles pertaining to this academic discipline, including College English, PMLA: Publications of the Modern Language Association, Assessing Writing, Journal of Technical Writing and Communication, Reading and Writing Quarterly, Writer's Chronicle, Writer, and English Journal. The databases can be accessed in each library, through any campus-networked computer, or through any computer with an Internet connection. Other electronic resources available include: Freegal Music, Freading eBooks, Films On Demand, Quick References (Web Sites), Research Help, Joe E. White Library Tour, MAGNA COMMONS: Faculty & Staff Professional Development, and Annenberg Media (videos).

Interlibrary loan is available for faculty and students when materials are needed that are not contained in the library collection.

Computer Labs:

There are computer labs available to students in the Joe E. White Library, the Learning Resource Center, and in the Holton Business Center.

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Learning Resource Center:

Our Learning resource center offers tutoring in many subjects as well as Placement testing.

Student Support Services:

Student Support Services is a federally funded program designed to assist eligible college students, who meet income guidelines, in completing their course of study. Services include free tutorial assistance; personal, academic, and career counseling; cultural enrichment and transfer assistance to four-year colleges. Special assistance to the disabled student is also provided. The services are free to eligible students.

Foundation:

Scholarships are available annually for many students who require financial assistance to attend college and have demonstrated above average academic ability. Funds are provided by the Oklahoma State Regents and the CASC Development Foundation, which solicits and accepts contributions from individual and organizational donors. Most scholarships are awarded on the basis of financial need; others are awarded for academic achievement or other significant contributions to the College. A Scholarship Committee is responsible for the selection of students to receive scholarships. All funds are processed through the Business Office.

Institutional Program Recommendations: (describe detailed recommendations for the program as a result of this thorough review and how these recommendations will be implemented, as well as the timeline for key elements)

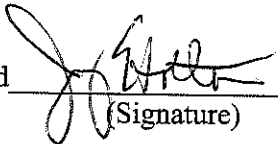
Recommendations	Implementation Plan	Target Date

Summary of Recommendations:

	Department	School/College	Institutional
Possible Recommendations:			
Expand program (# of students)			
Maintain program at current level			
Reduce program in			

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size or scope			
Reorganize program			
Suspend program			
Delete program			

Department/
Program Head 
(Signature)

Date 11/13/17

Dean 
(Signature)

Date 11-16-17