

SEMINOLE STATE COLLEGE
ASSOCIATE IN SCIENCE IN COMPUTER SCIENCE (226)

Program Review Summary

October 1, 2013

Introduction

The mission of Seminole State College is to empower people for academic success, personal development, and lifelong learning. To that end, the College offers twenty-three degree/certificate programs, including the Associate in Science in Computer Science. In accordance with requirements set forth by the Oklahoma State Regents for Higher Education, the College conducts a thorough review of this degree program every five years. The Business & Information Systems Division presents here the results of its self-review of the Associate in Science in Computer Science.

Assessment of this transfer degree program employed a number of direct and indirect indicators. The focus of this process was to evaluate degree program productivity and the achievement of specific degree program and general education outcomes by students. Additionally, this review relates these findings to a number of relevant Higher Learning Commission Criteria and Components, the Seminole State College 2012-13 Academic Plan and the educational mission of the College. Based on the information presented here, the academic division makes recommendations regarding the degree program.

3.7.5 Process (Internal/External Review): Self-review by academic division

Previous Reviews and Actions from those reviews: In the previous review, recommendations addressed issues related to articulation agreements, underprepared students, and faculty advising. Faculty members utilized student support services to better prepare students, participated in a faculty-mentoring program, and prepared plans to improve articulation agreements.

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

Analysis and Assessment Abstract

Analysis of degree program productivity revealed that the degree program averaged about 25 declared majors and 6 graduates per year and generated 12,525 total credit hours per year over the five-year period under review. Other direct indicators used were course-embedded assessment and ACT Collegiate Assessment of Academic Proficiency (CAAP) Test. Principal indirect indicators used were the Community College Survey of Student Engagement (CCSSE), the ACT Faces of the Future Survey (biennial survey), and SSC Student Feedback on Classroom Instruction. Course-embedded assessment of degree program outcomes showed an increase from 3% to 73% when pre-test and post-test scores were compared. The CAAP Test scores reflect student learning outcomes in line with the national averages. The data reported on the CCSSE reflected the commuter campus atmosphere of Seminole State College. The ACT Faces of the Future Survey revealed that at least 50% of students reported a major life event such as losing or changing jobs.

Key findings from the most current evaluation of the Associate in Science in Computer Science

Faculty in the B & IS Division see a need to develop a plan to increase student and faculty awareness of articulation agreements among colleges and universities in the state system and, the advantage of receiving an associate degree before transferring to a state institution. Faculty found a need for increased efforts to encourage students to choose and follow a specific degree program rather than choosing General Studies.

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

SSC Mission Statement

Seminole State College empowers people for academic success, personal development, and lifelong learning.

The Associate in Science in Computer Science Degree Program:

Empowers people for academic success by preparing students for a range of careers in Business and at the same time improve their critical thinking skills necessary for success in all studies.

Empowers people for personal development by encouraging students to set and achieve educational goals by developing responsibility, organizational skills, and academic skills. The program places students in appropriate developmental or college level courses, allowing students the opportunity to progress through the curriculum to achieve success.

Empowers people for life-long learning by providing a variety of courses that will broaden a student's appreciation and desire for continued learning once they have completed their education.

Seminole State College prepares students to continue their education beyond the two-year level, trains students for careers and other educational opportunities, and makes available resources and services designed to benefit students and the community at large. Seminole State College also enhances the capabilities of individuals to achieve their goals for personal development by providing quality learning experiences and services that respond to diverse individual and community needs in a changing global society.

B. Vitality of the Program:

B.1. Program Objectives and Goals:

**Associate in Science in Computers Degree Program Outcomes
Outcomes for Transfer Degree Programs**

Outcome 1: Demonstrate successful articulation of Seminole State College transfer degree programs to state and professional institutions of higher learning granting professional and baccalaureate degrees in Oklahoma.

Outcome 2: Demonstrate successful academic achievement by Seminole State College transfer degree students at primary receiving state baccalaureate institutions of higher learning in Oklahoma. Successful academic achievement is defined as the

maintenance of satisfactory academic progress toward degree completion as determined by the receiving institution.

Outcomes Specific to Associate in Science in Computer Science (226)

Outcome 3: Demonstrate problem-solving skills related to the world of Information Systems.

Measurable Indicators

Assessment data demonstrating students' ability to:

- a. Analyze a problem or case,
- b. Identify steps necessary for problem solving,
- c. Apply the steps identified for solution,
- d. Validate the results,
- e. Report the results in an understandable and timely manner.

Outcome 4: Demonstrate preparation for continued pursuit of courses leading to a baccalaureate degree in Information Systems.

Measurable Indicators

Assessment data demonstrating students' ability to:

- a. Interpret and manipulate data,
- b. Use appropriate technology to assist with problem-solving,
- c. Apply critical thinking to real-world scenarios.

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

The Computer Science Degree Program fulfills Higher Learning Commission Criteria by providing evidence of student learning, faculty engagement that encourages quality teaching, and effective assessment of the student learning process. Instructors in the Business & Information Systems division consistently review assessment tools and methods and revise those tools and methods, when necessary, to provide the most accurate assessment data possible. To measure the two outcomes specific to the Computer Science Degree Program course embedded assessment is the foremost method utilized. In the Business & Information Systems division, instructors used pre-tests and post-tests as tools to obtain assessment data. Faculty members regularly review and change pre-test and post-test questions as necessary. The division has changed several books in several classes and updated the assessment tools as needed during this review period. For example, during the past year Business & Information System faculty members have reviewed the pre-tests and post-tests in Financial Accounting, Introduction to Microcomputers, Macroeconomics, Business Statistics, Introduction to Programming, Operating Systems, Word, Excel, and Access. As a result, instructors have rewritten, replaced, or deleted some of the existing questions. This process illustrates that the Computer Science Degree Program fulfills academic priorities such as improving the assessment of student learning and striving for instructional quality as emphasized in the 2012-13 SSC Institutional Degree Completion and Academic Plan.

Instructors calculate student score improvements from pre-test to post-test for every class every semester. While pre-tests and post-tests only assess improvements in a sampling of course

objectives, the fact that all courses in the Business & Information System areas show improvement verifies that student learning is taking place and that outcomes specific to the business degree program are being met.

Faculty gathered course embedded assessment data from the fall 2012 and spring 2013 semesters as shown in the following table. Course-embedded assessment of general education outcomes 1-3 showed an averaged increase from 17% to 70% when pre-test and post-test scores were compared. An average increase of 53 percentage points. Course-embedded assessment of degree program outcomes 3-4 showed an average increase from 3% to 73% when pre-test and post-test scores were compared. An average increase of 70 percentage points. These dramatic increases demonstrate that student learning is taking place and that outcomes specific to the business degree program are being met.

Table 1. Combined Course Embedded Assessment Results For Fall 2012 through Spring 2013 for Major Field Courses in Degree Program

General Education Outcomes	Pre-Test % Correct	Post-Test % Correct	Difference
General Education Outcome 1	12%	71%	59%
General Education Outcome 2	21%	68%	47%
General Education Outcome 3	18%	71%	53%
General Education Outcome 4	-	-	-
Specific Outcomes for Computers	Pre-Test % Correct	Post-Test % Correct	Difference
Degree Program Outcome 3	4%	73%	69%
Degree Program Outcome 4	2%	73%	71%

B.3. Minimum Productivity Indicators:

The following table provides data for the Computer Science Degree Program. Report Date May, 2012

Table 2. Computer Science Declared Majors and Graduates

Academic Year	Semester	Declared Majors	Graduates
2008 - 2009	Fall 2008	29	
	Spring 2009	20	8
2009 - 2010	Fall 2009	29	
	Spring 2010	25	5
2010 - 2011	Fall 2010	26	
	Spring 2011	29	7
2011 - 2012	Fall 2011	27	
	Spring 2012	21	6
2012 - 2013	Fall 2012	21	
	Spring 2013	20	3

In Table 2, the results show an approximate an annual average of 25 students selecting the program each year and about 6 graduates from the program annually. This degree program has a low to moderate demand level. Analysis partially attributed the low graduation rate to the concept that many of the students who declare Computer Science as their major, succumb to the rigor of the courses and do not complete their degree or decide to change majors. This number could be higher, but a significant number of students transfer before completing an associate

degree at Seminole State College. Low enrollment in Computer Science courses was a topic discussed at the of Course Equivalency Project (CEP) meetings. The delegates felt that this was a national trend and part of a cyclical trend that has occurred several times in the past. This data shows that the Computer Sciences Degree Program meets the minimum standards of productivity for majors enrolled but does not for degrees conferred.

B.4. Other Quantitative Measures:

- a. Number of courses taught for the major program for each of the last five years and the size of classes:

Table 3. Number of Sections Taught and Enrollment for Each Course in Major Field of Degree Program

Prefix	Number	Major Field Course Title	Number of Sections	Total Students	Ave. Class Size	Credit Hours
CS	1103	Introduction to Microcomputers	118	1848	16	5544
CS	1113	Introduction to Programming	8	50	6	150
BA	1123	Introduction to Business	42	842	20	2526
CS	1143	Computer Competence	13	187	14	561
CS	1173	Hardware Systems Support	4	30	8	90
CS	1183	Principles Of Information Security	6	40	7	120
CS	2003	Web Page Design Using HTML	12	137	11	411
CS	2013	C ++	4	17	4	51
ACCT	2033	Financial Accounting	20	357	18	1071
CS	2103	Word	10	75	8	225
BA	2113	Macroeconomics	19	291	15	873
CS	2173	Operating Systems	5	36	7	108
BA	2253	Business Statistics	14	211	15	633
CS	2603	Access	8	37	5	111
CS	2643	Excel	3	17	6	51

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

Table 4. Credit Hours Generated in Major Field Courses By Level

Academic Year	1000 Level Credit Hours Generated	2000 Level Credit Hours Generated
2012-13	1455	645
2011-12	1788	771
2010-11	2022	813
2009-10	2010	768
2008-09	1671	675
Totals	8991	3534

Note: Table 4 shows the credit hours generated by all the major courses of the degree program for the given academic years. The hours do not represent the number of student credit hours generated only by those students declaring Computer Science as their major.

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

Instructional Costs:

No direct data was available that could be used to determine the exact amount of the instructional costs for individual Business & Information System degree programs. The annual SSC budget report provided the total expenditures for the Business & Information System Division as shown in Table 5. The annual B & IS budget contains the instructional costs for three B & IS degree programs.

Table 5. Instructional Costs

Academic Year	2008-09	2009-10	2010-11	2011-12	2012-13
Instructional Cost	\$425,134.72	\$414,973.31	\$414,473.31	\$444,795.71	\$439,203.22

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

Courses offered in the Business & Information System areas support the general education philosophy of Seminole State College. The Business & Information Systems instructors make every effort to provide experiences that will equip students with the necessary skills to make informed decisions and encourage life-long learning. In an effort to take the students experience beyond the classroom walls, the concepts of service learning and global studies will be incorporated into the curriculum through the SSC global studies program and Phi Beta Lambda.

Please see Table 3 for a list of student credit hours generated in the major courses.

Table 6. Credit Hours Generated by Courses in Major Field of Degree Program That Are Part of General Education Requirements in Other Degree Programs

Major Field Course Information			
Prefix	Number	Title	Credit Hours Generated
n/a	n/a	n/a	n/a

All college level courses in the Business & Information System area at Seminole State College support one or more of the General Education Outcomes. As students successfully progress through the course offerings in the Computer Science Degree Program, they will eventually achieve all four General Education Outcomes. To illustrate this support of the General Education Outcomes Table 7 shows the Major Field courses for the Associate in Science in Computer Science Degree Program and the General Education Outcomes each course addresses.

Table 7. All General Education Outcomes addressed by a specific course are marked with the letter "X."

Major Field Course Information			General Education Outcome			
Prefix	Number	Title	1	2	3	4

2012-13 Degree Program Review - AS in Computer Science

CS	1103	Introduction to Microcomputers	X	X	X	
CS	1113	Intro To Programming	X	X	X	
BA	1123	Introduction to Business	X	X	X	
CS	1143	Computer Competence	X	X	X	
CS	1173	Hardware Systems Support	X	X	X	
CS	1183	Principles Of Information Security	X	X	X	
CS	2003	Web Page Design Using HTML	X	X	X	
CS	2013	C ++	X	X	X	
ACCT	2033	Financial Accounting	X	X	X	
CS	2103	Word	X	X	X	
BA	2113	Macroeconomics	X	X	X	
CS	2173	Operating Systems	X	X	X	
BA	2253	Business Statistics	X	X	X	
CS	2603	Access	X	X	X	
CS	2643	Excel	X	X	X	

e. A roster of faculty members, faculty credentials and faculty credential

Table 8. Current Business & Information System Division Faculty			
Full-Time Faculty			
Name	Teaching Area	Highest Degree	Institution
Fred Bunyan	Accounting/Business/Information	MS Business Education	Oklahoma State University
Dawn Hamm	Accounting/Business	MBA Management	Oklahoma City University
Brad Schatzel	Business/Information Systems	MBA Management	University of Central Oklahoma
Alayna Grady ½ B & IS ½ LAH	Information Systems	Educational Instructional Psychology Technology	University of Oklahoma
Current Full-Time Faculty From Other Divisions Teaching B & IS Classes			
Donna Chambers	Medical Terminology	MS Nursing	University of Oklahoma
Dewayne Forrester	Business	MA Leadership	Mid-America Christian University
Michael Schnell	Information Systems	Information Technology	Florida Institute of Technology
Current Adjunct Faculty			
Chun Fu Cheng	Information Systems	MBA Management Completion 5/2014	Oklahoma City University
David Dickens	Business	MS Management	Southern Nazarene University
Bettye Finch	Business	MPA Public Administration	Norwich University
Heather Kreeger	Business/Information Systems	MBA Management Completion 12/2013	Western Kentucky University
Don Pilgrim	Business Communication	MA Speech	Oklahoma State University
Karen Smith	Business	BS Computer Science 31 years industry experience	University of Central Oklahoma

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

No data

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

Transfer Reports from Four-Year Institutions:

Seminole State College routinely seeks transfer data from the primary transfer baccalaureate institutions. Transfer reports received from East Central University, the University of Central Oklahoma, and Oklahoma State University provided GPAs of students who had transferred from Seminole State College. Data in those reports cited in the 2009 Seminole State College HLC Self-Study Report, indicated, "Students' GPAs typically only decrease 0.25 on the 4.0 scale upon transferring from SSC. This decrease is considered not as a reflection of SSC's curriculum, but the fact that at the university, students take more advanced, junior, and senior level courses in their majors." The data in those reports confirmed our expectation that SSC students maintain similar GPAs upon transfer as those attained at SSC and verified the competence of SSC students in their academic preparation.

B.5. Duplication and Demand:

B.5. Duplication and Demand Issues:

Review of Duplicated Programs

Seminole State College provides easy access to students in our five county service area wishing to pursue a degree in a computer field. The only duplication (in our five county area) are two private colleges that are cost prohibitive for many students.

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

The Computer Science Degree is a low to moderate demand level. The rates of declared majors and graduates exceed OSRHE productivity levels for most years. Approximately 25 students selected the Associate in Science in Computer Science Degree Program each year over the review period. Twenty-five students in 08-09, twenty-seven students in 09-10, twenty-eight in 10-11, twenty-four students in 11-12 and in 12-13 twenty-one declared Computer Science as their major. The students in the Computer Science degree program are predominately under the age of 24. There exists in the program a relatively high percentage of under-prepared students as indicated by ACT scores.

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:

Graduates in Computer Science normally matriculate to a four-year program. The options available to these students include fields such as education, programming, software development, software engineer, systems administrator and web developer.

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 to SSC.

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

Although many of the faculty members commute, they also volunteer in community organizations such as Salvation Army, Lion's Club, Boy's Ranch, churches, libraries, and the local Chambers of Commerce. Faculty members and students actively participate in the communities served by SSC in our five-county area.

B.5.e. The process of program review should address meeting demands for the program through alternative forms of delivery.

With the advances in technology, faculty members have the opportunity to expand to several different forms of delivery. Although still experimenting with new methods, faculty members have found that hybrid or blended courses and IETV prove to be successful delivery methods. SSC also addresses the community need for a variety in course scheduling by offering night courses, weekend courses, 8-week courses, and courses at correctional facilities.

B.6. Effective Use of Resources:

Staff Support

The Business & Information Systems Division has a half-time secretary who primarily supports the Division Chair, and secondarily supports the other functions of the division including purchasing, maintaining budgets and various records, and facilitating the various needs of the B & IS faculty members. There are currently four lab assistants employed by the B & IS Division. They support the CAT Lab and Introduction to Microcomputer Classes by tutoring and assisting instructors.

Educational Technology Support

The infusion of technology into academic programs and processes currently receives priority implementation and funding at Seminole State College. Through this focus, the College creates a technologically enhanced academic environment focused on student learning. As a result, technology has never been a limiting factor in classroom instruction. Primary funding sources are E&G funds, federal grants, dedicated student fees, and private donations.

Seminole State College installed a wireless network with two control centers providing Internet and Seminole State College Intranet connectivity to campus academic and residential buildings. In addition to wireless connectivity, all classrooms are hard-wired for Internet and Seminole State College Intranet access. Students have access to personal email accounts, online enrollment, student records, and can obtain copies of their transcripts online. Students may use computers in 16 different labs stationed across campus to access these sites.

Technologically equipped classrooms have computer systems with current instructional and multimedia software, CD/DVD/VCR players, digital multimedia projectors and a Smart Board. Classrooms equipped for IETV have full-motion video/audio interactive television technology interfaced with fiber optic transmission equipment and a computerized multimedia projection system for OneNet course sharing. Faculty members use the internet for instructional activities and information research in courses throughout the curriculum.

Technological services provided by the Testing Center include computerized Advanced Placement testing, class placement testing, ACT residual testing, telecourse testing, and

technologically-aided ADA appropriate testing for students with special needs.

Instructional Technology Support Services

Maintaining all forms of technology used in instruction requires a qualified support team. Seminole State College has such a team made up of the MIS director and two technical personnel. They are responsible for maintaining all campus technology such as computers, Smart Boards, IETV equipment, and keeping the campus Intranet and Internet operable in all offices and classrooms.

Web-based Support Services

Campus Cruiser, the Learning Management System (LMS) used at SSC for all class formats, serves as the main communication channel in classes through email, announcements and message boards. Through Campus Connect, instructors report student grades and attendance electronically.

Institutional Program Recommendations:

Table 9

Recommendation	Implementation Plan	Target Date
Increase student and faculty awareness of the articulation agreements between colleges and universities in the state system and the advantage of receiving an associate degree before transferring to a four-year institution.	B & IS faculty plan to increase student and faculty awareness of the articulation agreements between colleges and universities in the state system and alert them to the advantage of receiving an associate degree before transferring to a four-year institution. Increased contact between faculty in the major area and students enrolled in the degree program will result from a faculty mentor program now in progress.	On-going
Encourage students to enroll in specific degree programs rather than choosing General Studies.	Faculty, along with student support services, will continue the efforts to inform students of the advantages of enrolling in a specific B & IS degree program by implementing a degree enrollment plan.	On-going

Summary of Recommendations:

	Department	School/College	Institutional
Possible Recommendations:			
Expand program	<p>Improve graduation rates by 12.5% or at least one student per year. (see next page for details)</p> <p>Increase the number of Computer Science majors by 25% or about 5 students for the next evaluation period. (see next page for details)</p>		
Maintain program at current level			
Reduce program in size or scope			
Reorganize program			
Suspend program			
Delete program			

Division Chair *Dave Horn*
 (Signature)

Date 12-4-13

VPAA *Melanie Casey*
 (Signature)

Date 12-4-13

5. Recommendations and Other Relevant Items

SSC's receiving intuitions and 2 +2 agreements mandate degree requirements. The Oklahoma State Regents Course Equivalency Project and matrix dictate course content.

The B & IS division recommend the following:

Improve graduation rates by 12.5% or at least one student per year.

Increase the number of Computer Science majors by 25% or 5 students for the next evaluation period.

The B & IS division hopes to accomplish these recommendations by doing the following:

Encourage students to choose a B & IS Division Major in lieu of General Studies by providing degree major forms and encouragement in our B & IS classes.

The VPAA's office and the B & IS Division worked together to develop updated degree plans. The new degree plans are available for use by B & IS students and available in Personal and Academic Success Strategies (PASS) and Freshman Seminar courses. This is a campus-wide initiative and these degree plans are available for all degree options at SSC.

Assistant Professor Brad Schatzel is organizing a student trip to New York City. In order to grow our relevant and dynamic program, we are offering hands on, real world experience to our students. The inaugural New York Business Experience trip is scheduled for March 17-21 of 2014, Spring Break. Highlights will include a tour of the financial district, the Federal Reserve Bank, and Macy's Backstage tour that includes an exclusive marketing seminar.

A chapter of Phi Beta Lambda (PBL) business club is being organized to accomplish three things. First, the club will get students and sponsors involved with the local community through service projects like cleaning up downtown Seminole and volunteering at the Christmas Festival at the nearby Reynolds Wellness Center. Second, the club will create prestige for our business division degree majors. Exposure of business majors doing exciting things should attract more students to our division. Finally, PBL helps students grow into business leaders. Educational projects along with regional and national conferences offer students a chance to highlight their skills as well as meet PBL members from other chapters.

Our exchange relationship with the Silkeborg Business School in Denmark continues its remarkable growth. In fall of 2013, SSC hosted 20 Danish students for eight weeks. These exchange students enrolled in business division classes alongside our traditional SSC students. It is a great opportunity for all involved to learn about a different culture, make international friends, and generate goodwill. Additionally, assistant professor Brad Schatzel traveled to Denmark in October to discuss short and long-term goals for the Silkeborg/Seminole State exchange.