SCIENCE PROGRAM REVIEW

Cankdeska Cikana Community College





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I. Program description and relationship to the Cankdeska Cikana Community College mission. (See also Appendix A)

The Science Program is designed to provide the students with hands on learning experience in a laboratory setting and to develop critical thinking skills in order to graduate with a well-rounded background in the subjects of biology and chemistry. The Science Program includes 35 credits of general education classes covering topics in cellular biology, molecular biology, genetics, biochemistry, organic chemistry, and general chemistry. Many of the courses offered in this degree program are required for other degrees such as Pre-Nursing and Liberal Arts. The Science Program allows for the development of future health care providers and research scientists. This community has demonstrated a need for workforce development in those areas. The credit hours and courses taught by each faculty can be found in appendix A.

Strengths

- Program provides courses important to other programs of study.
- Focus on critical thinking and research skills correlates to CCCC's mission statement.
- There is a community need for persons with these degrees.

Concerns

- Program lacks enrolled students.

II. Program background information, enrollment and breadth (See also Appendix B)

- Brent Voels, PhD was hired as the Science Instructor at CCCC in August of 2014 and has held that position continuously to the present time (May 2018). Ivan Torres, PhD was initially hired at the inception of the Science Program, but resigned in May of 2014.
- General Biology 150/151 and General Chemistry 121/122 with labs are considered the programs core courses. Program electives include: Human Anatomy and Physiology, Introduction to Microbiology, Elementary Statistics, Physical Geology, and Intro to Geographical Information Systems. (See Appendix A) Faculty teach a 12 credit load per semester comprising 3 courses with labs.
- The course work in the Science Program aligns with information covered at other Universities. Transfer agreements are in place with larger 4-year degree granting institutions in the region, and those agreements are based on the review of the material we cover in the courses
- The Science Program is still becoming established, hence why the program has had no enrollment or graduates since its inception

Strengths

- Transfer agreements. Reasonable faculty course load allowing for more focus to go into each course.

Concerns

- No enrollment.

III. Program Quality and Assessment (Also see attached assessment template(s) and example in Appendix C)

- Faculty of the Science Program evaluate textbooks as needed. Selected texts are chosen based on up to date content and student resources that are included. The appropriate textbooks are generally chosen from the Cengage and Pearson Learning websites with a strong regard to the depth of information.
- The projection systems used for the classrooms are in the form of smart board projectors. The required core curriculum classes are generally the classes that are offered in both evening and daytime formats. Laboratory classes are held for two hours with the goal of conferring a hands on learning environment relevant to the course. No online classes are being taught at the present time
- Student learning outcomes data is collected each semester a course is taught. Students are evaluated on both direct and indirect measures. These include self-evaluation surveys and assignments given out during the semester. Data is recorded in the assessment report, and stored for later review.
- The Science Program has a close relationship with the University of North Dakota School of Health and Medical Sciences. Instruction and laboratory assignments are designed to help students transition and complete a 4-year Science degree with the extended goal of attending professional school.

Strengths

- Relationship with the University of North Dakota.
- State of the art laboratory equipment for instructional and research use.
- There are adequate facilities and equipment available to the program.

Concerns

- N/A

IV. Program cost effectiveness and ability to meet occupational needs (See also Appendix D)

- The Science Program has just been recently implemented and to date has had no students enrolled in the program.
- Courses offered through the program have students enrolled in them since they are utilized to meet the needs of other degrees.
- The program itself is fully funded from two different grants and has allowed a third grant that provides summer research opportunities to students. The research grants cover all the costs of faculty salaries and fringe, and also bring indirect funds to CCCC that are utilized for the general fund. Grants include: Instructional Capacity Excellence in TCUP Institutions (ICE-TI), North Dakota IDeA Network of Biomedical Research Excellence (INBRE), and Native American Research Centers for Health (NARCH).

Strengths

- Program is fully funded through grant programs and provides a net gain in revenue for CCCC.
- Projected outlook for jobs in the area is also strong.

Concerns

- No enrollment.

V. Ability to positively impact CCCC's relationships, partnerships, and alliances

- CCCC possesses excellent relationships with area colleges in both the form of transfer agreements and collaborative research efforts.
- The student services department provides tutoring, writing and math labs, and advising.
- The Science Program faculty instructs two chemistry courses CHEM 115 and 116 that are not part of the program, but rather the nursing program. The BIOL 150 and CHEM 121 courses also function as electives, general studies, and core courses for other programs (Engineering, and Pre-Nursing).

Strengths

- Collaborative research efforts.
- Faculty teaches courses related to many other areas of study.

Concerns

- None in regards to this area.

VI. Program Analysis and Reflection Narrative

Narrative:

There is currently no indication that changes within the student population, community, or needs of the discipline will change drastically in the next five years. The current federal administration is proving to be contentious towards all academic institutions. There is some concern that future changes in funding at the federal level may occur that ultimately effects both faculty and students at institutions of higher learning.

Strengths

- Program is grant funded and supports CCCC in other areas.

Concerns

- Lack of enrollment.

Appendix A

Sample 2 – Year	r Completion				
Fall Term 1					
ENGL 100	Student Success	1 credit hours			
ENG 110	Composition I	3 credit hours			
MATH 103	College Algebra	3 credit hours			
BIOL 150	General Biology I	4 credit hours			
CSCI 101	Introduction to Computers	3 credit hours			
		14 credit hours			
Spring Term 2		and the second			
ENGL120	Composition II	3 credit hours			
ENGL 161	Dakota Language I	3 credit hours			
BIOL 151	General Biology II	4 credit hours			
BIOL 124	Environmental Science	4 credit hours			
HPER 101-104	PER 101-104 Physical Education Activity				
		15 credit hours			
Fall Term 3					
CHEM 121	General Chemistry I	4 credit hours			
COMM 110	Fundamentals of Public Speaking	3 credits hours			
ART 124B	Beading	3 credit hour			
BIOL 220	Anatomy and Physiology I	4 credit hours			
PSYC 111	Introduction to Psychology	3 credit hours			
		17 credit hours			
Spring Term 4					
CHEM 122	General Chemistry II	4 credit hours			
HPER 217	Personal and Community Health	2 credit hours			
DS 110	Dakota Thought, Philosophy, and Culture	3 credit hours			
PSYC 250	Developmental Psychology	3 credits hours			
BIOL 221	Anatomy and Physiology II	4 credit hours			
		16 credit hours			
	TOTAL DEGREE REQUIREMENTS	62 credits			

Appendix B – Program Background Information, Enrollment, and Breadth

Name Title/Position		FT/PT/ TEMP	Credit Load/ Semester
Brent Voels Ph.D.	Science Instructor	FT	12-18 credits

Faculty Program Staff and Credit Hour Loads

Enrollment and Graduation Data

	Science	Program Enr	ollment		
2012-2013 2013-2014 2014-2015 2015-2016 2016-2017					
N/A N/A 2 1 0					
Percent of Science Program Students to Total CCCC Student Enrollment					
0	0	0.60%	0.30%	0	

Science Program Graduates						
2012-2013 2013-2014 2014-2015 2015-2016 2016-201						
0 0 0 0						
Ratio of CCCC Science Program Graduates to CCCC Graduates in Other Majors						
0	0 0 0 0 0					

Appendix C - Program Quality and Assessment

Assessment Plan Fall Semester 2017 (Program)

Program Statement: The Associates Degree in Science will provide students with an introduction to the fundamentals of general biology and chemistry in preparation for seeking a four year degree in biology and/or chemistry.

BIOL 150/150L Outcomes

- 1. Students will demonstrate an understanding of the fundamentals of general biology.
- 2. Students will demonstrate basic scientific skills.
- 3. Students will communicate scientific information effectively with others.
- 4. Students will use the scientific method in hypothesis testing.
- 5. Students will apply knowledge in problem solving scenarios.

Program Outcomes

- 1. The students will be able to use knowledge to solve complex problems.
- 2. The students will be able to effectively communicate scientific information.
- 3. The students will be able to use technology to conduct research.
- 4. The students will understand what it means to be an ethical scientist.

Essential Studies Outcomes

- 1. Critical Thinking
- 2. Communication
- 3. Technological Literacy
- 4. Personal Attributes

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D-Direct I-Indirect List activity(ies) used to measure student success	Goal	Findings - Results (N = # students met/# total) (Avg. = average grade) Range = lowest to highest grade recorded)	Analysis (Contributing factors - Internal and External -resulting in not meeting goal)	Recommendations	Identify Course Outcome(s) being demonstrated	Identify Program Outcome(s) being demonstrated	Identify Essential Studies Outcome(s) being demonstrated
BIOL150- General Biology D – Cumulative Final Exam I – Student Self Evaluation	>7 0	N = 1 Avg. = 82% Range = 82-82	Only one student completed the course. Surveys were positive about learning environment.	N/A	1-5	1,2	1,2
BIOL150L- General Biology Lab D – Essay Assignment I – Student Self Evaluation	>7 0	N =1 Avg. = 100% Range = 100- 100	Only one student completed the course. Surveys were positive about learning environment.	N/A	1-3	1-3	1-3
D – I –	>	N = Avg. = Range =					

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Appendix D - Cost Effectiveness and Ability to Meet Occupational Needs

Occupational Needs

National Employment Projections, 2014 - 2024					
Bureau of Labor Statis	tics				
Occupational Category	Projected Increase				
Biological Science Teachers (Postsecondary)	16.2%				
Biological Technicians	5.2%				
Forestry	7.0%				
Medical and Cliinical Laboratory Technologists	14.0%				
Healthcare Industry	22.0%				

Source: U.S. Bureau of Labor. (2016). Occupational projections and worker characteristics. Employment Projections, 9-10. Retrieved from https://bls.gov/emp/ep_table_107.htm

Annual Revenue and Expenditures

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	Funding So	urces Include: IC	E-TI, INBRE, and I	VARCH	
	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Total Revenue:	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Salaries	\$40,000.00	\$40,000.00	\$40,000.00	\$40,000.00	\$40,000.00
Fringe Benefits	\$14,000.00	\$14,000.00	\$14,000.00	\$14,000.00	\$14,000.00
Supplies	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00
Equipment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Internships	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Travel	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other (Specify)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Indirect	\$39,321.00	\$39,321.00	\$39,321.00	\$39,321.00	\$39,321.00
Total Expenditures:	\$55,000.00	\$55,000.00	\$55,000.00	\$55,000.00	\$55,000.00
Net Gain/Loss:	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Available Grant Salar	\$95,000.00	\$96,500.00	\$98,000.00	\$100,940.00	\$103,968.00

Program Evaluation and Review

Criteria	Program Exceeds	Program Meets	Program Needs	Program Does Not Meet
	Expectations	Expectations	Improvement	Expectations
Sec II Enrollment	Increasing	Steady	Decreasing	Unsustainably Low
Sec III Quality of the Program as Determined from Assessment Information	The program's quality is substantial and notable.	The program's quality is substantial but could be strengthened through curricular and/or program enhancements, e.g. providing additional resources, adding or deleting courses	The program's quality could be strengthened through reconfiguration, e.g. substantial modification of the curriculum and the reorganization of faculty.	The program's quality and/or contribution to the institution is not substantial enough to justify its continuance
Sec IV Cost	Net Gain	Break Even	Net Loss	Unsustainable Losses
Sec IV Projected Occupational Need (Regional and State Level)	Large Need and Growth in This Area	Moderate Need	Minor or Low Need	No Clear Need for This Degree
Sec V Ability to positively impact CCCC's relationships, partnerships & alliances	Relationships are strong – benefits the overall mission of the college	Relationships, partnerships, and/or alliances could be developed to strengthen the program	Relationships, partnerships, and/or alliances need to be reconfigured in order to positively impact the college	Relationships, partnerships, and/or alliances are not positively impacting the college. The program's reduction or phase out would not adversely impact other programs.

The Curriculum Committee makes the following recommendation:

The committee recommend that the Associate of Science degree in Science be furloughed due to low enrollment. During the last 5 years, the program has had only 3 students for one semester each.

Follow up actions and timeline:

• The program will be furloughed effective May 9, 2018.



PO Box 269, Fort Totten, ND 58335 701.766.4415 ph 888.783.1463 toll free 701-766-4077 fax www.littlehoop.edu

Completed Program Reviews Verification	
Name of Program Reviewed: Science program	
manne	5-9-2018
Director or Faculty of Record	Date of Review
Chrall	5-9-18
Curriculum Committee Chair	Date of Review
Paren Saari	11/7/18
Academic/Dean	Date of Review
Cinething for Ogenet	11-20-17
President (as appropriate)	Date of Review
Collebul	11/20/18
Chair CCCC Board of Regents (as appropriate)	Date of Review

<u>11-20-19</u> of Review

11/20/18

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