

Bakersfield College

Program Review - Annual Update

I. Program Information:

Program Name:

Program Type: Instructional Non-Instructional

Program Mission Statement:

The primary mission of the chemistry program is to provide the rigorous science foundation necessary for students to acquire the skills, knowledge, intellectual curiosity and scientific literacy essential for a wide variety of careers in this rapidly changing world. The department primarily offers transfer-applicable courses designed to satisfy the needs of science, engineering, premed, architecture, and allied health majors, college general education requirements, and liberal studies teacher credential programs. Community outreach efforts comprise a smaller, yet still important, part of the work we do.

Program Description: Describe how the program supports the [Bakersfield College Mission](#).

“Bakersfield College provides opportunities for students from diverse economic, cultural, and educational backgrounds to attain degrees and certificates, workplace skills, and preparation for transfer. Our rigorous and supportive learning environment fosters students’ abilities to think critically, communicate effectively, and demonstrate competencies and skills in order to engage productively in their communities and the world.”

The chemistry program offers a complete two-year sequence of courses required for the career pathways of a wide variety of students. The core classes (Chem B1a/b, B30a/b, and B11) are prerequisites for the various STEM programs (e.g. physical and biological sciences, engineering, and allied health sciences). All transfer to four year institutions. Additionally, a number also serve as general education requirements and are a part of liberal studies majors’ requirements for education degrees (in particular, chem B2a and physical science B12).

Overall, a very large number of students pass through our doors as part of their journey at BC. Just within the declared STEM major crowd we are working with about 1500 students who need our courses--this does not include declared allied health majors or liberal arts/general education. Our methods involve multiple pedagogical approaches to learning styles to build students' critical thinking skills, and include a large amount of scientific writing, applied mathematics, research-styled laboratory engagement, group work, and exposure to modern research environments.

We are highly focused on student success and directly support the core values of the college. Our work in the STEM area as a whole is strongly tied to BC's current student success initiatives.

II. Program Assessment (focus on most recent year):

A. How did your outcomes assessment results inform your program planning?

- There was a significant shift in the presentation and student reports of various laboratory components in our later classes based on mixed results of their assessments made over the last two years. Longer term project-based lab experiences combined with real-world journal-styled reports have resulted in an improvement in the overall results. The bundling of student reports into journals has made a significant impact on students' perceptions of their work. (This is still in the early stages with a limited group being assessed so far, but the results have been clear within that group.)
- A number of other laboratory experiments are being examined for change to improve the efficacy of the desired student outcomes, and our own efficiency in grading.

B. How did your outcomes assessment results inform your resource requests?

- For a long time it has been clear that the department suffered heavily from a dearth of up-to-date equipment and complete lack of modern instrumentation. We leveraged use of the STEM grant to remedy this appalling situation, and have largely replaced outdated equipment. Instrumentation acquisition this last year was largely initiated during the 2014 summer and includes multiple microwave reactors, a potential computational science computer lab with 3D capability, and a Shimadzu GC-mass spectrometer with direct insertion probe. These complement the other modern instruments acquired just recently, also through the grant.
- A major renovation of SE-26 and 27 was initiated during the spring, and while still awaiting the final pieces to be placed, has already significantly improved teaching and student working conditions in those labs. The areas are far safer than before, and will have significant upgrades in AV technology which were completely absent before the upgrade.

C. Instructional Programs only: How do course level student learning outcomes align with program learning outcomes?

- See D, below

D. How do the program learning outcomes align with [Institutional Learning Outcomes](#)?

- While a detailed mapping of these is currently be worked upon, it is generally agreed by all faculty that our course SLOs align completely with the PLOs. A sample is presented on the next page.

Course SLO	Program Learning Outcome	Institutional Learning Outcome
The student will relate an understanding of bonds and bonding theory to a molecule's structural features, energy and stabilization, reactivity, and measurable properties. Examples include shape, conformational flexibility, steric interactions, strain, polarity, intermolecular interactions, resonance, acidity and basicity, nucleophilicity and electrophilicity, leaving group propensity, the characteristics of reactive intermediates, and spectroscopic and physical characteristics.	Demonstrate a knowledge of and recognize the processes that explain natural phenomena	I. Think critically and evaluate sources and information for validity and usefulness. II Communicate clearly and effectively in both written and oral forms [<i>we focus on written form</i>] III. Demonstrate competency in a field of knowledge or with job-related skills.
The student shall classify the families of organic molecules on the basis of the functional groups present in a structural formula or other representation; and identify the chemical and physical properties that are characteristic of the members of each family. These families include the alkanes, alkenes, alkynes, halogenated substances, alcohols, phenols, ethers (including epoxides), and any sulfur analogs.	Apply the methodologies of science when approaching a problem	I. Think critically and evaluate sources and information for validity and usefulness. II Communicate clearly and effectively in both written and oral forms. III. Demonstrate competency in a field of knowledge or with job-related skills.
In both the laboratory and lecture, the student shall perform basic interpretations of common types of spectroscopy (IR, MS, UV-Vis, H- and C13- NMR) to characterize and identify organic compounds. The student shall identify the characteristic spectral signatures of various organic structural and functional groups and use them to verify knowns and identify	Apply logical quantitative and qualitative reasoning in solving problems or analyzing arguments	I. Think critically and evaluate sources and information for validity and usefulness. II Communicate clearly and effectively in both written and oral forms [<i>we focus on written form</i>] III. Demonstrate competency in a field of knowledge or with job-related skills.

unknowns in regular spectroscopy-based problems.		
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E. Describe *any significant changes* in your program's strengths since last year.

- The aforementioned changes and additions have considerably affected our department's self-image and external value (both within the school—for our transfers, and externally--what we can advertise).
- Demand for the organic course is rising, with initial enrollment by qualified students reaching 150% that of its first year. Articulation is moving forward well with the UC's (acceptance at Merced, UCLA, and the engineering school at Irvine are known examples with others pending). The B1b class offerings easily expanded from 3 to 4 sections (albeit at the cost of overloading that faculty), showing an unresolved pool of students awaiting the chance to progress forward.
- We are within reach of our AS-T degree despite problems getting C-ID approvals for general chemistry; the issues are entirely minor and are being fixed.
- Demands for the allied health stream have been met, but we are stretched to the max now with no possible room for expansion with current faculty. The adjunct pool has no one qualified to teach on it; this is a historical issue for the program.

F. Describe *any significant changes* in your program's weaknesses since last year.

- Our lack of instructors continues to be a significant problem--the demand for course sections has continued to be well beyond our ability to address.
- One of our few adjuncts has accepted a full-time position elsewhere. While still teaching here for this fall and (likely) this spring, it is well understood that this cannot continue. This is a chem B1a instructor. We have absolutely no wiggle room left with everyone stretched to/beyond their reasonable limits. All of engineering, main stream biology, and our own pool of chemistry majors will suffer when that person leaves. The demand for the majors pathway classes is climbing, but our human resources are on the verge of shrinking

G. If applicable, describe any unplanned events that affected your program.

- The external hiring of our chem B1a adjunct instructor is a serious threat to our ability to maintain a complete program pathway.
- Full time faculty are overstretched by responsibilities, with the result that involvement with important external initiatives/programs are being affected in addition to their efficacy in the classroom.

III. Resource Analysis:

A. Human Resources

If you are requesting any additional positions, explain briefly how the additional positions will contribute to increased student success.

- Absolutely the program is requesting additional positions. For a number of years this has been the case, only now we have essentially reached the bursting point. As alluded to above in Part II, we are totally stretched to our limits, and overstretched for some. Coverage of lab sections for the daytime sections of 1a is needed as well, as the people doing that now are doing so as overload, and are overburdened. They are beginning to falter.
- The students in lab sections staffed by overburdened faculty are losing the obvious benefit of someone fully tuned into the needs of the students and having the time to properly do the work required for those students.
- It is very clear the chem 1a demand is high (waitlists are highly populated day and night), with the night section constantly sporting at least one additional section's worth (which we cannot cover). We also know from our experience through offering additional chem 1b sections that a backed-up pool is there as well. These courses are serious bottlenecks for the STEM disciplines.
- The chemistry AS-T degree has been on hold state-wide as final details about the implementation of SciGETC are worked out. When this is finalized, the program and pathway in CurricuNet will be complete and in place. This will validate the program for the CSUs, and the pipeline of students will expand even more. A constant source of issues for a number of potential STEM majors can be linked to this issue, as the historical (and political?) refusal of that system to articulate community college organic chemistry courses still exists. Our enrollment in that class has expanded despite this because of the number of transfers moving beyond the local CSU—the UCs are beginning to require this pathway before transfer.
- We need to expand our offerings and our support in Delano. To this end we want to add more classes in chem 1a, keep (and possibly expand) additional sections of 1b, and open sections of 1a in Delano. This will happen only if we can pull in additional faculty.
- The adjunct pool continues to be very poor. When our 1a instructor leaves there will be NO ONE to replace her. Our sections of chem 1a will contract at that point.

1. Professional Development ([Professional Development form](#))

- a. Describe briefly the effectiveness of the professional development your program has been engaged with (either providing or attending) during the last cycle, focusing on how it contributed to student success.
- Nearly all our instructors have attended sessions of the Great Teachers Seminars (local and/or regional) and 60% traveled to the Biennial Conference on Chemical

Education in Michigan. These conferences and the like are the opportunities which honestly pull our heads up to gather in what's on the landscape of education in our discipline. All have come back with new perceptions, ideas, and renewed energy for excelling further in our classroom work. Chemical education has developed significantly during the past couple of decades, leading to our work to develop, build up, and expand the materials we work with both in the classroom and laboratory.

b. Provide rationale for future professional development opportunities and contributions that your program can make.

- An internal goal of the program is to be one of the best community college chemistry departments in the state. This necessarily requires that we be in tune with our profession's best practices. As we build specific areas of any course, or the program as a whole, these professional development opportunities become a serious, discrete informational and training component in that work.

B. Facilities (M&O requests can be submitted by completing the [M&O request form.](#))

Has your area received any facilities maintenance, repair or updating in this cycle?

1. If yes, how has the outcome contributed to student success?

- As mentioned in section II-B, SE-26 and 27 have undergone major renovations which are partially still in progress. The effects has been fairly dramatic in the work flow one observes in the laboratories—more open space (less crowding) and changes in accessibility of tools/ instruments have created a much more comfortable and safer environment.

2. If no, how will your facilities request contribute to student success?

C. Technology (Technology requests can be made by filling out the [ISIT Request form.](#))

1. Has your program received new or repurposed technology in this cycle?

a. If yes, how has this technology contributed to student success?

- This is a yes and no answer. We are awaiting the installation of new AV equipment which was scheduled last year as part of the renovation project. Additionally, other labs were slated to have new AV equipment also installed, but that has not yet happened.

b. If no, how will your new or repurposed technology request contribute to student success?

2. Do you need new or repurposed classroom technology to support student success and/or new office technology to support faculty/staff success? Justify your request.

- Virtually all of our needs have been managed through our STEM grant. New requests are defined and carefully justified for all of those purchases. The active ones we have at this time involve instrumentation and computational resources which modernize and significantly enhance our environment. These are opening up learning opportunities for our students, including new capstone experiences.

D. Budget (Changes to the budget allocation can be requested using the [Budget Change Request Form](#)).

If you are requesting any additional funding, explain briefly how it will contribute to increased student success.

- With our classes brimming to the top, and looking to expand our offerings as well as add new experiences for our students, the stockroom budget cannot decrease, and would ideally increase by at least 15%. One of our persistent problems comes from being so careful during the year with materials that we find ourselves scraping the bottom of the barrel late in the season, and a mad rush is then made to attempt restocking items. We are constantly worried about unforeseen expenses, then scrambling to cover things.
- Another serious issue recently brought about through safety assessments has led to the expectation by the district that we manage and pay for annual fume hood testing and maintenance. It is our view that this is a district-based cost, but naturally have heard nothing but the opposite from downtown. The several thousand dollars required for this has to be recognized and accounted for in the district funds we receive. In no way can it come from our current budget. The biology program shares the same problem, as they have a series of fume hoods as well.

IV. Trend Data Analysis:

Highlight *any significant changes* in the following metrics and discuss what such changes mean to your program.

A. Changes in student demographics (gender, age and ethnicity).

- N/A - we basically match the greater population.

B. Changes in enrollment (headcount, sections, course enrollment and productivity).

- Our sections offered are essentially unchanged, and are reflected in the enrollments. We have no flexibility despite wanting to expand offerings. Waitlist measures continue to indicate a high demand for our courses. Productivity trends mirror other STEM areas as well.

C. Success and retention for face-to-face, as well as online/distance courses.

- Chemistry is not on the Favorites list of most students. While our retention rates for this beloved subject range about 81%, our success rates float in the low 60's. We parallel the chemistry departments at other similar community colleges (this data has been presented several times over the last 5 or so years). Four of our five FT chemistry faculty average nearly 0.25 overload every semester, so are taxed to do well with students.

D. Other program-specific data that reflects significant changes (*please specify or attach*).

- While anecdotal in nature, there is a distinct increase in the number of chemistry majors seen in the major pathway. Last year we had around 13 people qualifying for the current AS degree, yet by year's end only 2 had taken advantage of it. There has been discussion about automatically awarding degrees to students; while we need to advertise the value of having it, automatic awards appear to be viable as well. It wouldn't surprise anyone if students simply said they didn't think about it...
- The AS-T degree is waiting in the wings...

V. Progress on Program Goals:

A. List the program's current goals. For each goal (minimum of 2 goals), discuss progress and changes. If the program is addressing more than two (2) goals, please duplicate this section.

Program Goal	Which institutional goals from the Bakersfield College Strategic Plan will be advanced upon completion of this goal? (select all that apply)	Progress on goal achievement (choose one)	Comments (if applicable)
1. Discipline promotion.	<input checked="" type="checkbox"/> 1: Student Success <input checked="" type="checkbox"/> 2: Communication <input type="checkbox"/> 3: Facilities & Infrastructure <input type="checkbox"/> 4: Oversight & Accountability <input type="checkbox"/> 5: Integration <input type="checkbox"/> 6: Professional Development	<input type="checkbox"/> Completed: _____ (Date) <input type="checkbox"/> Revised: _____ (Date) <input checked="" type="checkbox"/> Ongoing: year-long (Date)	<p>We are strongly pushing our classes within the BC STEM population, and have generated interest with many students. The value of our pathway is slowly being seen by them.</p> <p>External ties have been limited—an attempt to meet with BHS folks was stymied by their</p>

			administration! This area needs to be pursued.
2. Improve professional development through training in areas specific to STEM and pedagogy.	<input checked="" type="checkbox"/> 1: Student Success <input type="checkbox"/> 2: Communication <input type="checkbox"/> 3: Facilities & Infrastructure <input type="checkbox"/> 4: Oversight & Accountability <input type="checkbox"/> 5: Integration <input checked="" type="checkbox"/> 6: Professional Development	<input type="checkbox"/> Completed: _____ (Date) <input type="checkbox"/> Revised: _____ year-long (Date) <input checked="" type="checkbox"/> Ongoing: _____ (Date)	As mentioned elsewhere we have attended a number of conferences. These have served to strengthen and reinvigorate the staff.
3. Generate two new courses which will help attract GE-seeking students into the STEM area, and finalize our offerings for transfer degrees.	<input checked="" type="checkbox"/> 1: Student Success <input type="checkbox"/> 2: Communication <input type="checkbox"/> 3: Facilities & Infrastructure <input type="checkbox"/> 4: Oversight & Accountability <input type="checkbox"/> 5: Integration <input type="checkbox"/> 6: Professional Development	<input type="checkbox"/> Completed: _____ (Date) <input type="checkbox"/> Revised: _____ (Date) <input checked="" type="checkbox"/> Ongoing: _____ (Date)	This goal has not been achieved due in large part to other responsibilities assumed by the faculty members interested in this. The interest is still there, and we hope to move forward this year. If possible, getting some in the pipeline before November is desirable.

B. New or revised goals (if applicable)

New/Replacement Program Goal	Which institutional goals from the Bakersfield College Strategic Plan will be advanced upon completion of this goal? (select all that apply)	Anticipated Results
Develop understanding on how to use data analytics to improve student success	<input checked="" type="checkbox"/> 1: Student Success <input type="checkbox"/> 2: Communication <input type="checkbox"/> 3: Facilities & Infrastructure <input checked="" type="checkbox"/> 4: Oversight & Accountability <input type="checkbox"/> 5: Integration <input type="checkbox"/> 6: Professional Development	Better understanding of how to use ATD data to target specific groups of students needing additional or different type of instructional intervention.

VI. Curricular Review (Instructional Programs only):

A. Review of Course Information:

- Column A list all of the courses associated with the degree.
- Column B list the Fall term the review process will be started for ongoing compliance.
- Column C list the compliance due date.
- Column D list any changes to courses with regard to distance education.
- Column E list corresponding C-ID descriptors if available. <http://www.c-id.net/>

****Dates listed should reflect a five year cycle allowing for one year of review to maintain ongoing compliance.****

A. Course	B. Fall Term Review will be Submitted	C. Compliance Due Date	D. Distance Education Changes	E. C-ID Descriptors Available
PHSC B12	F 2017	S 2018		In revision
CHEM B2a	F 2014	S 2018		In revision
CHEM B11	F 2014	F 2017		In revision
CHEM B1a	F 2015	S 2018		In revision
CHEM B1b	F 2015	S 2017		In revision
CHEM B18	F 2016	F 2019		NA
CHEM B30a	F 2016	S 2020		submitted

CHEM B30b	F 2017	S 2020		submitted
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B. Review of Program Information:

Is the program information housed in CurricUNET accurate? (Considerations: changes in course(s) names and/or suffixes as well as additions/deletions of courses). If not, then a program modification needs to be started in CurricUNET to reflect the necessary changes. Explain the requested changes below.

There are older content review forms in the current classes which are being changed. We are addressing problems which cropped up with C-ID acceptance, all of which involved old labels for math courses (e.g. math Ba instead of B60).

Is the program and course listing information in the current catalog accurate? If not, list the requested changes below. Catalog information should reflect what is in CurricUNET.

The AS-T degree is pending, awaiting a clear release of SciGETC. We are considering a change in the current degree to reflect the new offering of organic for majors, as well as drop an unneeded CS class.

C. Student Education Plan (SEP) Pathway(s) uploaded to "Attached Files" in CurricUNET.

If applicable, SEP Pathway with CSU Breadth indicated? Yes or No

If applicable, SEP Pathway with IGETC indicated? Yes or No

If applicable, SEP Pathway with BC General Education indicated? Yes or No

****Please ensure that the information housed in CurricUNET and the current catalog match. ****

D. If applicable, provide a description of the program's future adoption of C-ID descriptors and Associate Degree for Transfer (ADT) or Model Curricula.

All courses have been submitted for C-ID approval. Once the discovered issues have been corrected and new content reviews completed, things should move forward. This is expected to be completed very shortly.

VII. Conclusions and Findings:

The chemistry program at BC is quite alive, in high demand, yet struggling to keep up with that demand. We hope to end that struggling with some important hires this year.

Our primary mission is to serve students seeking CSU/UC transfer into any of the various STEM disciplines and related areas, to satisfy core science requirements toward an AA/AS degree, and to give students the opportunity to gain invaluable training in the scientific process and way of thinking. Our program provides students a clear pathway to baccalaureate STEM degrees at almost any external institution while transferring with junior standing.

The program has built and continues to build up its infrastructure quite well, bringing the facilities into the 21st century out of the mid-1970's level of materials. We are active both in improving our own work, and the work of MESA, the Kern Science Foundation, local elementary schools, and professional organizations germane to our passion. Our classes are in demand, and we see a serious need for expansion as more students realize the value of coming to BC for their education, both in and outside of STEM. Supporting their educational planning and goals should be the highest goal of both the department and the school; we only need the manpower to accomplish this.

VIII. Attachments (place a checkmark beside the forms listed below that are attached):

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Faculty Request Form | <input type="checkbox"/> Classified Request Form | <input type="checkbox"/> Budget Change Request Form |
| <input type="checkbox"/> Professional Development | <input checked="" type="checkbox"/> ISIT Form | <input checked="" type="checkbox"/> M & O Form |
| <input checked="" type="checkbox"/> Best Practices Form (Required) | | <input type="checkbox"/> Other: _____ |

IX. Certificates of Achievement:

Programs with stackable certificates fill out the following form.

Stand alone certificates fill out the entire Annual Update.

Certificate Form

Annual Update 2014-15

Name of Program: _____

Please discuss the following questions regarding all area Certificates of Achievement (CA):

Chemistry

Student Demographic Information

Unduplicated Headcount ¹	2009-10		2010-11		2011-12		2012-13		2013-14		Trendline	
	#	% Change - Prior Yr	#	% Change - Prior Yr	#	% Change - Prior Yr	#	% Change - Prior Yr	#	% Change - Prior Yr		
Chemistry	799	--	794	-1%	719	-9%	753	5%	791	5%		
% of Collegewide Headcount	2.8%		2.8%		2.8%		3.1%		3.1%			
										Subject	Collegewide	
										2013-14	2013-14	
										#	%	
Gender ²	#	%	#	%	#	%	#	%	#	%	#	%
Female	491	61%	486	61%	440	61%	459	61%	474	60%	13,932	55%
Male	308	39%	307	39%	278	39%	294	39%	315	40%	11,460	45%
Age ²	#	%	#	%	#	%	#	%	#	%	#	%
19 & Younger	235	29%	201	25%	184	26%	176	23%	179	23%	6,494	25%
20-29	436	55%	484	61%	407	57%	465	62%	502	63%	13,191	52%
30-39	94	12%	73	9%	94	13%	83	11%	82	10%	3,315	13%
40 & Older	34	4%	36	5%	34	5%	29	4%	28	4%	2,528	10%
Ethnicity	#	%	#	%	#	%	#	%	#	%	#	%
African American	36	5%	28	4%	18	3%	25	3%	26	3%	1,288	5%
American Indian	5	1%	3	0%	2	0%	1	0%	0	0%	109	0%
Asian/Filipino/Pac. Islander	103	13%	94	12%	83	12%	90	12%	87	11%	1,078	4%
Hispanic/Latino	355	44%	370	47%	368	51%	403	54%	459	58%	15,750	62%
White	274	34%	267	34%	219	30%	203	27%	183	23%	6,101	24%
Two or more races	20	3%	32	4%	29	4%	31	4%	35	4%	841	3%
Unknown	6	1%	0	0%	0	0%	0	0%	1	0%	364	1%
Matriculation	#	%	#	%	#	%	#	%	#	%	#	%
Completed Student Ed Plan	548	69%	611	77%	597	83%	683	91%	737	93%	16,326	64%
Fully Matriculated ³	525	66%	590	74%	589	82%	675	90%	735	93%	15,933	62%

Subject Majors ⁴	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	5-Year Avg
Chemistry	68	67	70	90	103	80
Total Majors	68	67	70	90	103	80

Chemistry

Course Enrollments

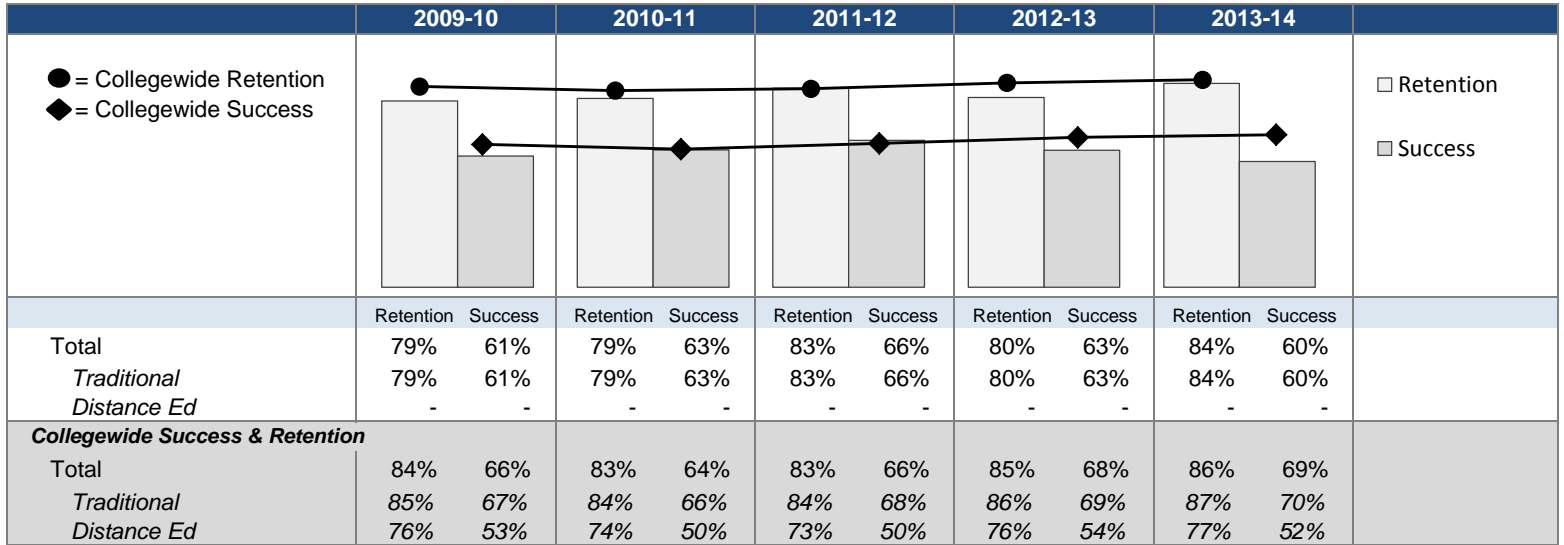
	2009-10	2010-11	2011-12	2012-13	2013-14	Trendlines
Sections						
Total	34	33	32	33	37	
Traditional	34	33	32	33	37	
Distance Ed	-	-	-	-	-	
Enrollment⁵						
First Day						
Total First Day	868	895	824	887	910	
Traditional	868	895	824	887	910	
Distance Ed	-	-	-	-	-	
Census Day						
Total Census Day	877	860	804	835	916	
Traditional	877	860	804	835	916	
Distance Ed	-	-	-	-	-	
Students/Section⁶						
Total	26	26	25	25	25	
Traditional	26	26	25	25	25	
Distance Ed	-	-	-	-	-	
Collegewide Students/Section						
Total	31	32	32	31	33	
Traditional	31	32	32	30	32	
Distance Ed	36	38	36	42	46	
First Day Waitlist⁷						
Total	276	404	357	327	348	
Traditional	276	404	357	327	348	
Distance Ed	-	-	-	-	-	

FTES - FTEF - Productivity

	2009-10	2010-11	2011-12	2012-13	2013-14	Trendlines
FTES⁸						
Total	240.3	236.1	225.4	217.9	249.7	
Traditional	240.3	236.1	225.4	217.9	249.7	
Distance Ed	-	-	-	-	-	
FTEF⁸						
Total	15.4	14.7	14.6	13.9	16.7	
Traditional	15.4	14.7	14.6	13.9	16.7	
Distance Ed	-	-	-	-	-	
Total FTEF by Contract Type	# %	# %	# %	# %	# %	
Full-Time	8.8 57%	9.9 68%	9.7 66%	8.6 62%	8.5 51%	
Overload	1.4 9%	1.2 8%	1.2 8%	1.3 9%	2.9 18%	
Adjunct	3.3 22%	2.3 16%	2.5 17%	2.5 18%	3.6 22%	
Summer	1.8 12%	1.2 8%	1.2 8%	1.5 11%	1.6 10%	
Productivity (FTES/FTEF)⁹						
Total	15.6	16.1	15.4	15.6	15.0	
Traditional	15.6	16.1	15.4	15.6	15.0	
Distance Ed	-	-	-	-	-	
Collegewide Productivity						
Total	18.2	17.2	16.9	17.9	17.5	
Traditional	18.0	17.2	16.6	17.5	17.1	
Distance Ed	20.0	17.9	19.6	24.1	23.6	

Chemistry

Success & Retention Rates¹⁰



Total Success & Retention Rates Disaggregated

Total success and retention rates were disaggregated by demographics. Because of small numbers, the five years represented in this report were combined. In the results below, the bars represent the subject's rates, while the circles (●) and diamonds (◆) represent the collegewide rates.

5-years Combined (2009-10 through 2013-14)		Retention		Success				
Overall 5-Year Rates	College	Subject	College	Subject	College	Subject		
Overall (Combined)	84%	81%		●	67%	63%		◆
Gender	College	Subject	College	Subject	College	Subject		
Female	83%	80%		●	66%	62%		◆
Male	85%	82%		●	67%	64%		◆
Age	College	Subject	College	Subject	College	Subject		
19 & Younger	86%	87%		●	64%	67%		◆
20-29	83%	81%		●	66%	62%		◆
30-39	84%	74%		●	72%	62%		◆
40 & Older	84%	61%		●	73%	47%		◆
Ethnicity	College	Subject	College	Subject	College	Subject		
African American	74%	79%		●	48%	55%		◆
American Indian	81%	*		●	62%	*		◆
Asian/ Filipino/ Pac Isl.	88%	88%		●	75%	77%		◆
Hispanic/Latino	84%	79%		●	65%	56%		◆
White	86%	82%		●	73%	68%		◆
Matriculation	College	Subject	College	Subject	College	Subject		
Completed Ed Plan	86%	79%		●	72%	61%		◆
Fully Matriculated	85%	79%		●	69%	61%		◆

Note: Percentages shown in grey italics are from groups of less than 30 where overall results are more influenced by individual results. An asterisk indicates data were suppressed due to small numbers (less than 10 students were 'Retained' or 'Successful').

Chemistry

Awards

	2009-10	2010-11	2011-12	2012-13	2013-14	5-Year Total
Associate of Science						
Chemistry	-	2	1	-	2	5
Total AS Awards	-	2	1	-	2	5
Total Awards	-	2	1	-	2	5

Notes

Source: ODS Reports (July, 2014)

¹ **Student Headcount, Unduplicated:** Number of students enrolled on census day, where each student is counted one time.

² The "unknown" category for Gender and Age were not reported.

³ **Fully Matriculated:** A student is fully matriculated if they have completed (or are exempt from) all of the matriculation components (Assessment, Orientation, Counseling, and Ed Plan).

⁴ When the same major is offered at another KCCD college, the student count includes students who may have selected their major at the other college but who attended this college.

⁵ **Enrollment:** Enrollments are reported on both First Day and Census Day. Each course a student is enrolled in is counted as one enrollment.

⁶ **Students/Section:** Student enrollments per section on census day. Cross-listed sections are not combined.

⁷ Waitlisted Enrollments are recorded as of the official term start date. Data are not available for Summer 2009 and therefore the 2009-10 annual figure is not complete.

⁸ Acronyms **FTES** and **FTEF** represent full-time equivalent students and full-time equivalent faculty, respectively.

⁹ **FTES/FTEF:** A measurement of productivity where the generally accepted target is 17.5.

¹⁰ **Success rate numerator:** Number of course enrollments with a successful passing grade (A,B,C,P).

Retention rate numerator: Number of course enrollments retained through the semester (grade = A,B,C,P,D,F,NP,I).

Success and Retention rate denominator: Number of enrollments retained (A,B,C,P,D,F,NP,I), dropped after Census Day (DR), and withdrawn (W).