Program Assessment

2019-2020

Engineering, Physical Science & Process Technology

Math & Physical Science - Chemistry/Physics Option	
Date	Click or tap to enter a date.
Competency # and Description	1. Use and apply physical data to solve problems
Course	CHEM 1414 – General Chemistry II PHYS 2014 – Engineering Physics I MATH 2145 – Calculus I MATH 2155 – Calculus II
Activity	CHEM 1414 – Laboratory Final PHYS 2014 - Quizzes, exams MATH 2145 – Word problems involving derivations MATH 2155 – Word problems involving vectors.
Measurement (attached copy of instrument with point distribution)	CHEM 1414 – Laboratory Final PHYS 2014 – Quizzes, exams MATH 2145 - Common questions assessed on a quiz MATH 2155 - Common questions assessed on a quiz
Evaluation Criteria	70% pass rate on exam
2015-2016 Results	CHEM 1414 31 out of 44 – 70.5% PHYS 2014 14 out of 20 – 70.0% MATH 2145 not collected MATH 2155 not collected
2016-2017 Results	CHEM 1414 39 out of 51 – 76.5% PHYS 2014 25 out of 25 – 100% MATH 2145 – 7/7 (100%) of students met competency MATH 2155 – 31/35 (88.57%) of students met competency MATH 2145 – 26/35 (74.28%) of students met competency MATH 2155 – 4/7 (57.14%) of students met competency
2017-2018 Results	CHEM 1414 41 out of 53 – 77.4% PHYS 2014 19 out of 21 – 90.5% MATH 2145 9/12 (75%) of students met competency MATH 2155 6/13 (46.15%) of students met competency
2018-2019 Results	CHEM 1414 26 out of 26 – 100% PHYS 2014 15 out 16 – 93 % MATH 2145 – 8/16 (50%) of students met competency MATH 2155– 14/16 (87.5%) of students met competency MATH 2145 – 18/27 (66.67%) of students met competency MATH 2155 – 4/6 (66.67%) of students met competency

2019-2020 Results	
Summary of changes for 2018-2019	Changed the method of evaluation – laboratory grade and laboratory final.
Recommendation for changes for 2019-2020	CHEM - Adding a general chemistry I in the evening for non-traditional students. MATH – Data to be assessed in Fall with faculty.
Recommendation for changes for 2020-2021	
Timeline for Review	Fall/spring data will be collected and reviewed in the spring and instructors from all campuses will determine needed adjustments.
Date	Click or tap to enter a date.
Competency # and Description	2. Use logical reasoning to solve problems
Course	CHEM 1414 – General Chemistry II PHYS 2014 – Engineering Physics I MATH 2145 – Calculus I MATH 2155 – Calculus II
Activity	CHEM 1414 – Quizzes, exams PHYS 2014 - Quizzes, exams MATH 2145 – Word problems involving derivations MATH 2155 – Word problems involving vectors.
Measurement (attached copy of instrument with point distribution)	CHEM 1414 – Laboratory Final PHYS 2014 - Quizzes, exams MATH 2145 - Common questions assessed on a quiz MATH 2155 - Common questions assessed on a quiz
Evaluation Criteria	70% pass rate on exam
2015-2016 Results	CHEM 1414 28 out of 45 – 62.2% PHYS 2014 14 out of 20 – 70.0% MATH 2145 103 out of 134 – 77% MATH 2155 36 out of 39 – 92%
2016-2017 Results	CHEM 1414 38 out of 55 – 69.1% PHYS 2014 25 out of 25 – 100% MATH 2145 – 7/7 (100%) of students met competency MATH 2155 – 31/35 (88.57%) of students met competency MATH 2145 – 26/35 (74.28%) of students met competency MATH 2155 – 4/7 (57.14%) of students met competency
2017-2018 Results	CHEM 1414 41 out of 53 – 77.4% PHYS 2014 19 out of 21 – 90.5% MATH 2145 – 9/12 (75%) of students met competency MATH 2155 – 6/13 (46.15%) of students met competency
2018-2019 Results	CHEM 1414 26 out of 26 – 100% PHYS 2014 15 out 16 – 93 % MATH 2145 – 8/16 (50%) of students met competency MATH 2155 – 14/16 (87.5%) of students met competency MATH 2145 – 18/27 (66.67%) of students met competency

	MATH 2155 – 4/6 (66.67%) of students met competency
2019-2020 Results	
Summary of changes for 2018-2019	Changed the method of evaluation – laboratory grade and laboratory final.
Recommendation for changes for 2019-2020	CHEM/PHYS - No changes MATH – Data to be assessed in Fall with faculty.
Recommendation for changes for 2020-2021	
Timeline for Review	Fall/spring data will be collected and reviewed in the spring and instructors from all campuses will determine needed adjustments.
Date	Click or tap to enter a date.
Competency # and Description	3. Communicate scientific ideas through technical writing
Course	CHEM 1414 – General Chemistry II PHYS 2014 – Engineering Physics I
Activity	CHEM 1414 - Labs PHYS 2014 - Labs
Measurement (attached copy of instrument with point distribution)	CHEM 1414 - Labs PHYS 2014 - Labs
Evaluation Criteria	Pass rate of 70% on each activity
2015-2016 Results	CHEM 1414 39 out of 40 – 97.5% PHYS 2014 17 out of 20 – 85.0%
2016-2017 Results	CHEM 1414 44 out of 53 – 83.0% PHYS 2014 26 out of 28 – 92.8%
2017-2018 Results	CHEM 1414 50 out of 53 – 94.3% PHYS 2014 18 out of 21 – 85.7%
2018-2019 Results	CHEM 1414 26 out of 26 – 100% PHYS 2014 12 out 17 – 70.5 %
2019-2020 Results	
Summary of changes for 2018-2019	Changed the method of evaluation – laboratory grade and laboratory final.
Recommendation for changes for 2019-2020	No Changes
Recommendation for changes for 2020-2021	
Timeline for Review	Fall/spring data will be collected and reviewed in the spring and instructors from all campuses will determine needed adjustments.

Date	Click or tap to enter a date.
Competency # and Description	4. Solve problems related to thermodynamics
Course	CHEM 1414 – General Chemistry II
Activity	CHEM 1414 – Laboratory Final
Measurement (attached copy of instrument with point distribution)	CHEM 1414 – Laboratory Final
Evaluation Criteria	Pass rate of 70% on each activity
2015-2016 Results	CHEM 1414 34 out of 45 – 76%
2016-2017 Results	CHEM 1414 46 out of 53 - 86.8%
2017-2018 Results	CHEM 1414 44 out of 53 - 83.0%
2018-2019 Results	CHEM 1414 26 out 26 – 100%
2019-2020 Results	
Summary of changes for 2018-2019	Changed the method of evaluation – laboratory grade and laboratory final.
Recommendation for changes for 2019-2020	No Changes
Recommendation for changes for 2020-2021	
Timeline for Review	Fall/spring data will be collected and reviewed in the spring and instructors from all campuses will determine needed adjustments.
Biology/Zoo – Pre-Vet Option, Pre-Med	
Date	Click or tap to enter a date.
Competency # and Description	5. Explain concepts of equilibrium, homeostasis, and energy transfer as it relates to mammalian body systems.
Course	CHEM 1414 – General Chemistry II PHYS 1114 – General Physics I PHYS 1214 – General Physics II
Activity	CHEM 1414 – Quiz, lab PHYS 1114 – Quiz, homework PHYS 1214 – Quiz, lab
Measurement (attached copy of instrument with point distribution)	CHEM 1414 – Quiz, lab PHYS 1114 – Quiz, homework PHYS 1214 – Quiz, lab

Evaluation Criteria	Pass rate of 70% on each activity
2016-2017 Results	CHEM 1414 48 out of 51 – 94.1% PHYS 1114 57 out of 62 – 91.9% PHYS 1214 32 out of 38 – 84.2%
2017-2018 Results	CHEM 1414 45 out of 53 – 84.9% PHYS 1114 16 out of 19 – 84.2% PHYS 1214 12 out of 15 – 80.0%
2018-2019 Results	CHEM 1414 26 out of 26 -100% PHYS 1114 38 out of 51 – 74.5% PHYS 1214 18 out of 23 – 78.3%
2019-2020 Results	
Summary of changes for 2018-2019	No changes.
Recommendation for changes for 2019-2020	No Changes
Recommendation for changes for 2020-2021	
Timeline for Review	Fall/spring data will be collected and reviewed in the spring and instructors from all campuses will determine needed adjustments.
	Biology/Zoo – Pre-Vet Option
Date	Click or tap to enter a date.
Competency # and Description	6. Demonstrate effective oral and written expression.
Course	CHEM 1414 – General Chemistry II
Activity	CHEM 1414 – Lab
Measurement (attached copy of instrument with point distribution)	CHEM 1414 –Lab
Evaluation Criteria	70% pass rate on activity
2017-2018 Results	CHEM 1414 14/18 – 77.8%
2018-2019 Results	CHEM 1414 26/26 – 100%
2019-2020 Results	
Summary of changes for 2018-2019	Changed the method of evaluation – laboratory grade and laboratory final.
Recommendation for changes for 2019-2020	No changes

Recommendation for changes for 2020-2021	
Timeline for Review	Fall/spring data will be collected and reviewed in the spring and instructors from all campuses will determine needed adjustments.
	Biology/Zoo – Pre-Med Option
Date	Click or tap to enter a date.
Competency # and Description	7. Demonstrate effective implementation of the scientific method and written and oral expression of scientific concepts and analysis of data.
Course	CHEM 1414 – General Chemistry II PHYS 1114 – General Physics I PHYS 1214 – General Physics II
Activity	CHEM 1414 - lab PHYS 1114 – Quiz, lab PHYS 1214 – Quiz and lab
Measurement (attached copy of instrument with point distribution)	CHEM 1414 - lab PHYS 1114 – Quiz, lab PHYS 1214 – Quiz and lab
Evaluation Criteria	70% pass rate on activity
2015-2016 Results	CHEM 1414 46 out of 46 – 100% PHYS 1114 63 out of 72 – 87.5% PHYS 1214 21 out of 23 – 91.3%
2016-2017 Results	CHEM 1414 46 out of 55 – 83.6% PHYS 1114 57 out of 63 – 90.5% PHYS 1214 27 out of 31 – 97.1%
2017-2018 Results	CHEM 1414 50 out of 53 – 94.3% PHYS 1114 25 out of 28 – 89.3% PHYS 1214 15 out of 15 – 100.0%
2018-2019 Results	CHEM 1414 26 out of 26 – 100.0% PHYS 1114 38 out of 51 – 74.5% PHYS 1214 18 out of 23 – 78.3%
2019-2020 Results	
Summary of changes for 2018-2019	Changed the method of evaluation – laboratory grade and laboratory final..
Recommendation for changes for 2019-2020	No changes.
Recommendation for changes for 2020-2021	
Timeline for Review	Fall/spring data will be collected in the spring and reviewed at the beginning of the fall semester. Instructors from all campuses will determine needed adjustments.
	Biology/Zoo – Pre-Pharm Option
Date	Click or tap to enter a date.
Competency # and Description	8. Demonstrate the concepts of equilibrium and energy transfer.
Course	CHEM 1414 – General Chemistry II

	PHYS 1114 – General Physics I
Activity	PHYS 1114 – Quiz, exam
Measurement (attached copy of instrument with point distribution)	CHEM 1414 – Laboratory Final PHYS 1114 – Quiz, exam
Evaluation Criteria	70% pass rate on activity
2015-2016 Results	CHEM 1414 32 out of 45 – 66.7% PHYS 1114 54 out of 66 – 81.8%
2016-2017 Results	CHEM 1414 46 out of 53 - 86.8% PHYS 1114 57 out of 63 – 90.5%
2017-2018 Results	CHEM 1414 43 out of 53 – 81.1% PHYS 1114 16 out of 19 – 84.2%
2018-2019 Results	CHEM 1414 26 out of 26 – 100% PHYS 1114 38 out of 51 – 74.5%
2019-2020 Results	
Summary of changes for 2018-2019	Changed the method of evaluation – laboratory grade and laboratory final.
Recommendation for changes for 2019-2020	No changes
Recommendation for changes for 2020-2021	
Timeline for Review	Fall/spring data will be collected in the spring and reviewed at the beginning of the fall semester. Instructors from all campuses will determine needed adjustments.

Summary of Program and Divisional Changes	
2016-2017	• Modified semester offerings of CHEM 1014 Concepts of Chemistry to address the needs of multiple degree program. • Added summer offerings of CHEM 1314 (Tonkawa). • Added online offerings of PHSC 1114 General Physical Science to both Spring and Summer schedules. • Added online sections of ESCI 1114 Earth Science to Summer schedule.
2017-2018	• Added a grading rubric to streamline assessment data collection. • Added online sections of CHEM 1014 Concepts of Chemistry to Summer schedule.
2018-2019	No changes.
2019-2020	

Recommendations for Program Changes

2017-2018	• Pursue more online and evening offerings of course for non-traditional students. • Design program options for different workforce areas. • Assess the needs of adding course offerings in the subjects areas of circuits, concepts of physics (online) and a General, Organic, Biochemistry (GOB) course.
2018-2019	• Add an evening CHEM 1314 General Chemistry I to the Tonkawa course offerings. • Propose splitting the division to form a stand alone Division of Physical Science and Engineering due to growth of programs within the current division. • Incorporating an "Introduction to Scientific Research Course" into the program
2019-2020	• Added the evening CHEM 1314 and an online Gen Chem 1. • Continue to evaluate the current assessment tools. • Working with Math on the Calculus sequencing.
2020-2021	•

Ag, Science, & Engineering

		Program Level Outcomes Timeline				
Program Objectives – Chemistry/Physics	Course Map	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
1. Use and apply physical data to solve problems	CHEM 1414 PHYS 2014 MATH 2145 MATH 2155	X	X	X	X	X
2. Use logical reasoning to solve problems	CHEM 1414 PHYS 2014 MATH 2145 MATH 2155	X	X	X	X	X
3. Communicate scientific ideas through technical writing	CHEM 1414 PHYS 2014	X	X	X	X	X
4. Solve problems related to thermodynamics	CHEM 1414	X	X	X	X	X
Explain concepts of equilibrium, homeostasis, and energy transfer as it relates to mammalian body systems.	CHEM 1414 PHYS 1114 PHYS 1214	X	X	X	X	X
Demonstrate effective oral and written expression.	CHEM 1414	X	X	X	X	X
Demonstrate effective implementation of the scientific method and written and oral expression of	CHEM 1414 PHYS 1114 PHYS 1214	X	X	X	X	X

scientific concepts and analysis of data.						
Demonstrate the concepts of equilibrium and energy transfer.	CHEM 1414 PHYS 1114	X	X	X	X	X