

## Applied Math Outcome Assessment Plan

Outcome	Course	Assessment Method	Dates
Develop Problem Solving Skills	Math 231	Related rates section score	Every fall
	Math 232	Solids of revolution section score	Every spring
	Phys 231	Projectile motion section score	Every fall
	Phys 232	Temperature equilibrium score	Every spring
Use scientific/physical laws to model real life phenomena	Phys 231	Circular motion section score	Every fall
	Phys 231	Statics section score	Every fall
	Phys 232	Thermodynamics section score	Every spring
	Phys 232	Electricity/magnetism section score	Every spring
	Phys 232	Light/Optics section score	Every spring

### Biological Chemistry Outcome Assessment Plan

Desired Outcome	Course	Assessment Method	Dates Offered
Develop understanding of function/structure/classification of life	BIOL 201 BIOL 202 BIOL 335	Taxonomy matching items on unit test Plant collection Microorganism Paper	Every Spring Every Fall Every Spring
Explain the principles of biology and chemistry through oral and written means	CHEM 112 CHEM 272 CHEM 278 BIOL 335 BIOL/CHEM 375 BIOL 437 BIOL 496 BIOL 496	Oral Presentation on Final Lab Project Formal Lab Report Method Development Paper Microbiology annotated bibliography Poster Presentation on Protein Crystallography Project Cell Biology Paper Literature review paper Oral Presentation	Every Spring Every Spring Every Spring Every Spring Every Fall Every Fall Every Fall
Integrate the principles of chemistry into biological systems	BIOL/CHEM 375	Formal Lab Report on Enzyme Kinetics	Every Fall
Demonstrate proficiency in laboratory techniques	BIOL 335 BIOL 335, BIOL/CHEM 375, CHEM 271, CHEM 272, CHEM 278, CHEM 431, CHEM 331	Microbiology unknown lab exam Laboratory Notebook	Every Spring
Design experiments using the scientific method	CHEM 112 CHEM 278 CHEM 331	Group project Design Experiment Design Experiment	Every Spring Every Spring Every other fall

## Biology Outcome Assessment Plan

Outcome	Course	Assessment Method	Dates	0	1	2	3	4
Develop understanding of function/structure/classification of life	BIOL 201	Taxonomy matching items on unit test	Every spring	Did not attempt .  Did not attempt .	Attempted, however, with no understanding of plant taxonomy or biology. Attempted, however, with no understanding of microbial biology, taxonomy or ecology.	Attempted, however, demonstrates little understanding of plant taxonomy or biology. Attempted, however, demonstrates little understanding of microbial biology, taxonomy or	Demonstrate s an understandin g of plant taxonomy or biology. Demonstrate s an understandin g of microbial biology, taxonomy or	Demonstrates mastery of plant taxonomy or biology. Demonstrates mastery of microbial biology, taxonomy or ecology.
	BIOL 202	Plant collection	Every fall					
	BIOL 335	Microorganism paper	Every spring					
Effectively communicate principles of biology through oral and written means	BIOL 335	Microbiology annotated bibliography	Every spring	Did not attempt .  Did not attempt .	Attempted, however, with no understanding of scientific writing analysis. however, with no understanding of scientific writing analysis, an inability to communicate important information with effective written	however, demonstrates little understanding of scientific writing analysis. demonstrates little understanding of scientific writing analysis, an inability to communicate important information with effective written	s an understandin g of scientific writing analysis. s an understandin g of scientific writing analysis, and an ability to communicate important	Demonstrates mastery of scientific writing analysis. mastery of scientific writing analysis, and an ability to communicate important information with effective written
	BIOL 437	Cell biology paper	Every spring					
	BIOL 496	Literature review paper	Every fall					

	BIOL 496	Oral presentation	Every fall					
Demonstrate pr	BIOL 335	Microbiology unknown lab exam	Every spring	Did not attempt .	Attempted, however, with no skill in lab technique.	Attempted, however demonstrates little skill in lab technique.	Demonstrate s some skill in lab technique.	Demonstrates skill in lab technique.
	BIOL 338	Genetics fruit fly gene propagation lab	Every fall 338, 342, 343 - fall	Did not attempt .	Attempted, however, with no skill in lab technique.	Attempted, however, demonstrates little skill in lab technique.	Demonstrate s some skill in lab technique.	Demonstrates skill in lab technique.
	BIOL 335, 3	Laboratory notebook	335 - spring	Did not attempt .	Attempted, however, with no attention to detail, effort in collecting detail, and disregard for the scientific	Attempted, however, demonstrates little attention to detail, effort in collecting detail, and	Demonstrate s an attention to detail, effort in collecting detail, and	Demonstrates acute attention to detail, outstanding effort in collecting detail,
Demonstrate at	BIOL 200	Group investigation	Every fall		however, with no understanding for plant biology, analysis of plant characteristics, and	however, demonstrates a lack of understanding for plant biology, analysis of plant characteristics, and	s an understandin g of plant biology, analysis of	mastery of plant biology, analysis of plant characteristics, and synthesis
	BIOL 202	Food systems project	Every fall	Did not attempt .	synthesis of food system	synthesis of food	plant characteristic	of food system requirements.

	BIOL 338	Primer design exercise	Every fall	Did not attempt .	Attempted, however, with no knowledge of primer design, disability in analyze factors for primer design, and an inability to synthesize these	Attempted, however, demonstrates little knowledge of primer design, disability in analyze factors for primer design, and an	Demonstrate s knowledge of primer design, ability to analyze factors influencing primer	Demonstrates mastery of primer design, mastery of analyzing factors influencing primer design,
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Biology  
Education

Outcome	Course	Assessment Method	Dates	0	1	2	3	4
Develop understanding of function/structure/classification of life	BIOL 201	Taxonomy matching items on unit test	Every spring					
	BIOL 202	Plant collection	Every fall	Did not attempt.	Attempted, however, with no understanding of plant taxonomy or biology.	however, demonstrates little understanding of plant taxonomy or biology.	an understanding of plant taxonomy or biology.	Demonstrates mastery of plant taxonomy or biology.
	BIOL 335	Microorganism paper	Every spring	Did not attempt.	Attempted, however, with no understanding of microbial biology, taxonomy or ecology.	Attempted, however, demonstrates little understanding of microbial biology, taxonomy or ecology.	Demonstrates an understanding of microbial biology, taxonomy or ecology.	Demonstrates mastery of microbial biology, taxonomy or ecology.
Effectively communicate principles of biology through oral and written means	BIOL 335	Microbiology annotated bibliography	Every spring	Did not attempt.	Attempted, however, with no understanding of scientific writing analysis.	however, demonstrates little understanding of scientific writing analysis.	Demonstrates an understanding of scientific writing analysis.	Demonstrates mastery of scientific writing analysis.
	BIOL 437	Cell biology paper (elective)	Every spring	Did not attempt.	Attempted, however, with no understanding of scientific writing analysis, an inability to communicate important information with	however, demonstrates little understanding of scientific writing analysis, an inability to communicate important	Demonstrates an understanding of scientific writing analysis, and an ability to communicate important information with	Demonstrates mastery of scientific writing analysis, and an ability to communicate important information with effective written communication.

Demonstrate proficiency in laboratory and field techniques	BIOL 335	Microbiology unknown lab exam	Every spring	Did not attempt.	Attempted, however, with no skill in lab technique.	Attempted, however demonstrates little skill in lab technique.	Demonstrates some skill in lab technique.	Demonstrates skill in lab technique.
	BIOL 335, 342, 343	Laboratory notebook	Every Fall	Did not attempt.	Attempted, however, with no attention to detail,	Attempted, however, demonstrates little	Demonstrates an attention to detail, effort in	Demonstrates acute attention to detail, outstanding
Demonstrate ability to know, analyze, and synthesize scientific principles	BIOL 200	Group investigation lab report	Every fall					
	BIOL 202	Food systems project	Every fall	Did not attempt.	Attempted, however, with no understanding for plant biology, analysis of plant characteristics, and synthesis of food system requirements.	Attempted, however, demonstrates a lack of understanding for plant biology, analysis of plant characteristics, and synthesis of food system requirements.	Demonstrates an understanding of plant biology, analysis of plant characteristics, and synthesis of food system requirements.	Demonstrates mastery of plant biology, analysis of plant characteristics, and synthesis of food system requirements.

## Chemistry Outcome Assessment Plan

Desired Outcome	Course	Assessment Method	Dates Offered
Explain the principles of chemistry through oral and written means	CHEM 112	Oral Presentation on Final Lab Project	Every Spring
	CHEM 272	Formal Lab Report	Every Spring
	CHEM 278	Method Development Paper	Every Spring
	CHEM 332	Poster on Final Project	Every other year
	CHEM 431	Paper presentation from scientific literature	Every other Fall
	CHEM 432	Paper presentation from scientific literature	Every other Spring
	CHEM 496	Literature review report	As needed
	CHEM 496	Oral Presentation on literature review	As needed
Demonstrate proficiency in laboratory techniques and instrumentation	CHEM 271	Laboratory report assignment	Every Fall
	CHEM 272	Laboratory report assignment	Every Spring
	CHEM 331	Acid/Base titration report	Every other Fall
	CHEM 332	HPLC Laboratory report	Every other Spring
	CHEM 332	UVvis Laboratory report	Every other Spring
	CHEM 431	Iodine Clock Laboratory Report	Every other Fall
	CHEM 432	HCL/DCL laboratory report (FTIR)	Every other Spring
Demonstrate ability to document scientific experiments	CHEM 271	Laboratory notebook assignment	Every Fall
	CHEM 272	Laboratory notebook assignment	Every Spring
	CHEM 278	Laboratory notebook assignment	Every Spring
	CHEM 331	Laboratory notebook assignment	Every other Fall
	CHEM 332	Laboratory notebook assignment	Every other Spring
	CHEM 431	Laboratory notebook assignment	Every other Fall
	CHEM 432	Laboratory notebook assignment	Every other Spring
Design experiments using the scientific method	CHEM 112	Group project	Every Spring
	CHEM 278	Design Experiment	Every Spring
	CHEM 331	Design Experiment	Every other Fall
	CHEM 332	Design Experiment	Every other Spring



**Chemistry Education Outcome Assessment Plan**

<b>Desired Outcome</b>	<b>Course</b>	<b>Assessment Method</b>	<b>Dates Offered</b>
Explain the principles of chemistry through oral and written means	CHEM 112 CHEM 272 CHEM 278	Oral Presentation on Final Lab Project Formal Lab Report Method Development Paper	Every Spring Every Spring Every Spring
Demonstrate proficiency in laboratory techniques and instrumentation	CHEM 271 CHEM 272	Laboratory report assignment Laboratory report assignment	Every Fall Every Spring
Demonstrate ability to document scientific experiments	CHEM 271 CHEM 272 CHEM 278	Laboratory notebook assignment Laboratory notebook assignment Laboratory notebook assignment	Every Fall Every Spring Every Spring
Design experiments using the scientific method	CHEM 112 CHEM 278	Group project Design Experiment	Every Spring Every Spring

## Computer Information Systems

Outcome	Course	Assessment Method	Dates
<b>I - Algorithm Development and Implementation:</b>  Ability to develop an optimal algorithm to solve a problem	CPSC 111	Semester Grade	Every Fall
	CPSC 141	Graded program assignment	Every Fall
	CPSC 211	Graded lab exercise	Every Fall
	MATH/MGMT 210	Semester Grade	Every Fall
<b>II - Computer Architecture and System Hardware:</b> Gain understanding of underlying concepts and characteristics of conceptual machines	CIS 111	Semester Grade	Every Fall
	COMD 355	Semester Grade	Every Spring
	CPSC 225	Subject area quiz scores	Every Fall
	CPSC 225	Subject area homework assignments	Every Fall
	CPSC 225	Semester Grade	Every Fall
	CPSC/CIS 311	Semester Grade	Every Spring
<b>III - System Software:</b>  Gain understanding of software comprising a computer system	CPSC/CIS 311	Subject area homework assignments	Every spring
	CPSC/CIS 325	Semester Grade	Every spring
	CPSC/CIS 441	Semester Grade	Every Spring
	CPSC/CIS 441	Semester Grade	Every Spring
<b>IV - Communication Skills:</b>  Effectively communicate technical information both orally and in writing	RHET 205	Semester Grade	Every Semester
	CPSC/CIS 441	Graded research paper	Every Spring
	BUED 275	Semester Grade	Every Semester

<b>V - Business Systems and</b>	COEM 175	Semester Grade	Every Semester
<b>Methodologies:</b>	COMM 113	Semester Grade	Every Semester
Gain a working knowledge of	CPSC/CIS 101	Semester Grade	Every Semester
competitive business environment	FIN 138	Semester Grade	Every Semester
	MGMT 235	Semester Grade	Every Semester
	MGMT 341	Semester Grade	Every Semester
	MGMT 349	Semester Grade	Every Semester

## Health Care/Nursing Outcome Assessment Plan

Outcome	Course	Assessment Method	Dates	0	1	2	3	4
Develop understanding of function/structure/classification of human beings and their pathogens.	BIOL 211	Laboratory midterm exam	Every fall	Did not attempt.	Attempted, however, with no understanding of human anatomy and physiology.	Attempted, however, demonstrates little understanding of human anatomy and physiology.	Demonstrates an understanding of human anatomy and physiology.	Demonstrates mastery of human anatomy and physiology.
	BIOL 212	Laboratory final exam	Every spring	Did not attempt.	Attempted, however, with no understanding of human anatomy and physiology.	Attempted, however, demonstrates little understanding of human anatomy and physiology.	Demonstrates an understanding of human anatomy and physiology.	Demonstrates mastery of human anatomy and physiology.
	BIOL 235	Microorganism paper	Every spring	Did not attempt.	Attempted, however, with no understanding of microbial biology, taxonomy or ecology.	Attempted, however, demonstrates little understanding of microbial biology, taxonomy or ecology.	Demonstrates an understanding of microbial biology, taxonomy or ecology.	Demonstrates mastery of microbial biology, taxonomy or ecology.
Effectively communicate principles of biology through oral and written means	BIOL 235	Microbiology annotated bibliography	Every spring	Did not attempt.	Attempted, however, with no understanding of scientific writing analysis.	Attempted, however, demonstrates little understanding of scientific writing analysis.	Demonstrates an understanding of scientific writing analysis.	Demonstrates mastery of scientific writing analysis.
	BIOL 211	Critical Thinking Assignment		Did not attempt.	Attempted, however, with no understanding of scientific writing analysis, an inability to communicate important information with effective written communication.	Attempted however demonstrates little understanding of scientific writing analysis, an inability to communicate important information with effective written communication.	Demonstrates an understanding of scientific writing analysis, and an ability to communicate important information with effective written communication.	Demonstrates mastery of scientific writing analysis, and an ability to communicate important information with effective written communication.

	BIOL 212	Critical Thinking Assignment		Did not attempt.	Attempted, however, with no understanding of scientific writing analysis, an inability to communicate important information with effective written communication.	Attempted however demonstrates little understanding of scientific writing analysis, an inability to communicate important information with effective written communication.	Demonstrates an understanding of scientific writing analysis, and an ability to communicate important information with effective written communication.	Demonstrates mastery of scientific writing analysis, and an ability to communicate important information with effective written communication.
Demonstrate proficiency in laboratory techniques	BIOL 235	Microbiology unknown lab exam	Every spring	Did not attempt.	Attempted, however, with no skill in lab technique.	Attempted, however demonstrates little skill in lab technique.	Demonstrates some skill in lab technique.	Demonstrates skill in lab technique.
	CHEM 110	Laboratory Grade	Every fall	Did not attempt.	Attempted, however, with no skill in lab technique.	Attempted, however, demonstrates little skill in lab technique.	Demonstrates some skill in lab technique.	Demonstrates skill in lab technique.
	BIOL 235	Laboratory notebook	Every spring	Did not attempt.	Attempted, however, with no	Attempted, however, demonstrates little	Demonstrates an attention to	Demonstrates acute attention to
Demonstrate ability to know, analyze, and synthesize scientific principles	BIOL 211	Critical Thinking Assignment Case Study	Every fall	Did not attempt.	Attempted, however, with no understanding for human body processes, analysis of case studies, and synthesis of proper treatments.	Attempted, however, demonstrates a lack of understanding for human body processes, analysis of case studies, and synthesis of proper treatments.	Demonstrates an understanding of human body processes, analysis of case studies, and synthesis of proper treatments.	Demonstrates mastery of human body processes, analysis of case studies, and synthesis of proper treatments.

	BIOL 123	Diet analysis project	Every spring	Did not attempt.	Attempted, however, with no understanding for nutritional requirements, analysis of nutrients consumed, and synthesis of proper nutritional applications.	Attempted, however, demonstrates a lack of understanding for nutritional requirements, analysis of nutrients consumed, and synthesis of proper nutritional applications.	Demonstrates an understanding of nutritional requirements, analysis of nutrients consumed, and synthesis of proper nutritional applications.	Demonstrates mastery of nutritional requirements, analysis of nutrients consumed, and synthesis of proper nutritional applications.
	BIOL 212?	Critical Thinking Assignment Case Study	Every spring	Did not attempt.	Attempted, however, with no understanding for human body processes, analysis of case studies, and synthesis of proper treatments.	Attempted, however, demonstrates a lack of understanding for human body processes, analysis of case studies, and synthesis of proper treatments.	Demonstrates an understanding of human body processes, analysis of case studies, and synthesis of proper treatments.	Demonstrates mastery of human body processes, analysis of case studies, and synthesis of proper treatments.

Mathematics Education Outcome Assessment Plan (does not include education courses)

Outcome	Course	Assessment Method	Dates
Develop Problem Solving Skills	Math 231	Related rates section score	Every fall
	Math 232	Solids of revolution section score	Every spring
	Math 431	Second order equation solving	Every spring
Model real life phenomena	Math 210	Regression section score	Every semester
	Math 233	Moment calculation section score	Every fall
	Math 310	Probability modelling score	Fall, odd years
	Math 331	Application section score	Fall, even years
	Math 431	Heating/cooling rates section score	Every spring
Improve Proof Techniques	Math 212	Score on methods of proof section	Every spring
	Math 343	Take home proof score	Fall, even years
	Math 442	Take home proof score	Spring, even years
	Math 496	Presentation scores	Every fall
Improve Technological Skills	Math 210	Computer assignment scores	Every semester
	Math 432	Computer assignment scores	Spring, odd years

## Math Outcome Assessment Plan

Outcome	Course	Assessment Method	Dates
Develop Problem Solving Skills	Math 231	Related rates section score	Every fall
	Math 232	Solids of revolution section score	Every spring
	Math 431	Second order equation solving	Every spring
Model real life phenomena	Math 210	Regression section score	Every semester
	Math 233	Moment calculation section score	Every fall
	Math 310	Probability modelling score	Fall, odd years
	Math 331	Application section score	Fall, even years
	Math 431	Heating/cooling rates section score	Every spring
Improve Proof Techniques	Math 212	Score on methods of proof section	Every spring
	Math 343	Take home proof score	Fall, even years
	Math 442	Take home proof score	Spring, even years
	Math 496	Presentation scores	Every fall
Improve Technological Skills	Math 210	Computer assignment scores	Every semester
	Math 432	Computer assignment scores	Spring, odd years