



Natural Science/Mathematics

Instructional Program Review

May 2014

Academic Senate Action – Adopted April 29, 2014

Consultation Council Action– Accepted May 1, 2014

Board of Trustees Action – Accepted May 13, 2014

## Natural Science/Mathematics Instructional Program Review

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## Section I: Academic Planning

### I. Program Overview, Program Objectives, Program Student Learning Outcomes

#### **Description:**

The Natural Science/Mathematics Program includes the following degrees:

- University Studies and General Studies Associate in Arts degrees with Emphasis in Natural Science,
- University Studies Associate in Arts degree with Emphasis Allied Health,
- University Studies Associate in Science degree with an Emphasis in Mathematics/Physical Science,
- University Studies Associate in Science degree in Biological Science Major Preparation
- Associate in Science in Geology for Transfer.

The program includes courses meeting the requirements of

- Area B – Scientific Inquiry and Quantitative Reasoning of the California State University (CSU) General Education Certification,
- Area 2 Mathematical Concepts and Quantitative Reasoning and
- Area 5 –Physical and Biological Sciences of the Intersegmental General Education Transfer Curriculum (IGETC) as well as
- Area A – Natural Science and
- Area D2 – Communication and Analytical Thinking of the Vocational and General Studies associate degrees.

Hence, the program contributes to the successful completion of either the CSU General Education Certificate of Achievement or the IGETC Certificate of Achievement.

As a consequence, the program has a two-fold objective to provide core curriculum necessary to meet the needs of students planning to major in one of the natural sciences at a four-year institution, while also providing a variety of options for students to meet their general education requirements for associate degrees and/or Intersegmental General Education Transfer Curriculum (IGETC) or California State University (CSU) certification.

Additionally, in order assure continuity between basic skills, pre-collegiate, and collegiate curriculum, three credit and two non-credit basic skills mathematics courses are included as components of this program.

The program level student learning outcomes for the basic skills mathematics courses are included in the Basic Skills program.

#### **Basic Skills Program Level Student Learning Outcomes**

1. Demonstrate the skills necessary for the first transfer level courses in the reading, English and math competencies for an associate degree.
2. Think critically to construct meaning and solve problems.
3. Read with comprehension
4. Demonstrate the characteristics, habits, and attitudes of an effective learner.

The adopted program level student learning outcomes for the Natural Science/Mathematics program include:

### **Natural Science/Mathematics Program Level Student Learning Outcomes**

1. Demonstrate an understanding of the basic methodologies of science.
2. Examine the influence that the acquisition of scientific knowledge has on the development of the world's civilizations.
3. Demonstrate a basic understanding of the language, laws, theories, and processes that are fundamental to anthropology, biology chemistry, meteorology, geology, and/or physics through the observation and analysis of real life situations.

In addition, several of the General Education Area Student Learning Outcomes (Area B – Scientific Inquiry and Quantitative Reasoning of the California State University (CSU) General Education Certification, Area 2 Mathematical Concepts and Quantitative Reasoning and Area 5 –Physical and Biological Sciences of the Intersegmental General Education Transfer Curriculum (IGETC) as well as Area A – Natural Science and Area D2 – Communication and Analytical Thinking) are included within the purview of the Natural Science/Mathematics Program.

### **General Education Area Student Learning Outcomes**

1. Understand and apply methods of inquiry for a variety of disciplines including the scientific method for scientific inquiry and appropriate methods for social and behavior science inquiries.  
*Note: blends Title V expectations in Natural Science and Social and Behavioral Sciences, yet has in common that there are methods of inquiry unique to different disciplines.*
2. Explain and analyze relationships between science and other human activities.
5. Engage in verbal communication by participating in discussions, debates, and oral presentations utilizing proper rhetorical perspective, reasoning and advocacy, organization, accuracy, and the discovery, critical evaluation and reporting of information.
6. Compose effective written communications and essays with correct grammar, spelling, punctuation and appropriate language, style and format utilizing academically accepted means of researching, evaluating and documenting sources within written works.
7. Analyze, evaluate and explain theories, concepts and skills within varied disciplines using inductive and deductive processes and quantitative reasoning and application.

### **Evaluation:**

The various program degrees, certificates, general education and basic skills curricula all contribute to students successfully completing their educational objectives and hence the achievement of the adopted student learning outcomes for their courses, degrees or certificates. The associations between course and program/institutional student learning outcomes for the Natural Science/Mathematics Program have been established and entered into WEAVE, the online application utilized by the college for tracking student learning outcome assessment and integrating those outcomes into institutional planning.

In addition to the institutional student learning outcomes, the program is tied to the other two major components of the institutional strategic plan, the adopted mission statement and strategic goals. Specifically, the program addresses the components of the mission statement dealing with transfer degrees and certificate programs in addition to providing basic skills instruction in mathematics.

The Natural Science/Mathematics program's primary focus is on two of the institutional strategic goals: Learning Opportunities and Student Success.

## **Natural Science**

### 1. Communication

All natural science classes are degree applicable transfer level courses requiring reading and writing skills at a college level. Classes have required textbooks, which challenge students to comprehend complex concepts through their reading skills. Lectures explaining these same complex concepts require students to hone their listening skills. Each course requires students to communicate in writing either through combination of essay responses on exams, laboratory journals, or research papers.

### 2. Critical Thinking

Scientific inquiry is, by its very nature, an exercise in critical thinking. Science encourages the analysis of data in order to reach an informed decision. In addition, the critical thinking skills acquired in science classes is applicable in many areas of daily life.

### 3. Life Long Learning

Each natural science course promotes an awareness and appreciation of the world in which we live. Individuals are encouraged to question and explore the world around them.

### 4. Personal/Interpersonal Responsibility

The majority of science courses contain a laboratory component, which promotes collaborative interactions in the completion of assignments. The timely completion of the laboratory and field trip reports encourages development of personal responsibility.

## **Mathematics**

### 1. Communication

Mathematics courses require individuals to practice the ability to listen and read critically with comprehension.

### 2. Critical Thinking

Mathematics encourages a systematic approach to the identification, analysis and solution of problems.

### 3. Life Long Learning

Every mathematics course includes real-world application problems so course relates to aspects of everyday life. As future workplaces require more technical skills, the use of technology in teaching mathematics becomes more prevalent and important.

### 4. Personal/Interpersonal Responsibility

As in other college level courses, mathematics courses enhance the acceptance of personal responsibility for an individual's success or failure.

## **Planning Agenda:**

None

## II: Student Outcomes

### A. Trends and Patterns in Student Outcomes

#### Description:

**Table I**  
**Degrees and Certificates Awarded**

	2004/05	2005/ 06	2006/ 07	2007/ 08	2008/ 09	2009/10	2010/11	2011/12	2012/13
Total AA/AS degrees	163	168	177	138	177	153	132	152	190
AS Math- Science Deleted 2008	8	10	0	2	0	0	1	0	0
AS US- Biology Revised 2007	NA	NA	NA	0	0	0	0	0	2
AS US Math/PS Revised 2007	NA	NA	NA	NA	2	2	1	3	3
AA US Allied Health Approved 2008	NA	NA	NA	NA	NA	0	5	1	3
AA GS Natural Science Approved 2008	NA	NA	NA	NA	NA	1	2	4	3
AA US Natural Science Approved 2008	NA	NA	NA	NA	NA	3	3	3	9
AS in Geology for transfer Approved 2013	NA	NA	NA	NA	NA	NA	NA	NA	0
CSU /IGETC Certification	49	42	32	25	37	35	43	54	50

The Office of Institutional Effectiveness provided Retention and Success Data by course for the last four years.

**Table II  
Retention and Success Data by Discipline 2009-2013**

Discipline	2009/10		2010/11		2011/12		2012/13	
	Retention	Success	Retention	Success	Retention	Success	Retention	Success
Anthropology	78%	47%	87%	55%	90%	60%	85%	63%
Astronomy	100%	100%	NA	NA	67%	57%	NA	NA
Biological Science	83%	67%	90%	66%	88%	60%	92%	65%
Chemistry	69%	54%	84%	63%	73%	64%	91%	52%
Geography	NA	NA	NA	NA	NA	NA	NA	NA
Geology	72%	67%	94%	82%	96%	87%	92%	84%
Mathematics	86%	65%	90%	64%	89%	66%	85%	58%
Physical Science	80%	55%	88%	59%	85%	70%	94%	68%
Physics	NA	NA	75%	71%	NA	NA	74%	74%
Total	80%	64%	87%	69%	83%	65%	89%	65%

**Table III  
Retention and Success Data by Mode of Delivery 2011-2013**

Discipline	Face to Face 2011-2012		Correspondence 2011-2012		Internet 2011-2012		Face to Face 2012-2013		Correspondence 2012-2013		Internet 2012-2013	
	Retention	Success	Retention	Success	Retention	Success	Retention	Success	Retention	Success	Retention	Success
Anthro 1	94%	80%	89%	53%	NA	NA	98%	87%	83%	59%	NA	NA
Biol 32	90%	65%	NA	NA	NA	NA	96%	48%	NA	NA	75%	35%
Math 101	64%	38%	87%	52%	NA	NA	79%	46%	88%	41%	NA	NA
Math 102	88%	47%	77%	55%	NA	NA	86%	44%	85%	49%	NA	NA
Math 103	84%	40%	84%	57%	82%	30%	78%	36%	77%	57%	81%	32%
Math 40	99%	79%	NA	NA	NA	NA	95%	64%	NA	NA	82%	71%
Math 60	87%	51%	90%	67%	92%	60%	88%	45%	82%	65%	89%	34%

**Evaluation:**

The numbers of Natural Science/Mathematics program degrees being awarded during the last three years (2010/2011-11, 2011/2012- 11, 2012/2013 - 20) exceeded the number of Math/Science degrees previously awarded annually. A significant increase in degrees awarded occurred in the 2012-2013 academic year.

The retention rates amongst the natural science disciplines vary greatly with mathematics and geology the highest and physics the lowest. The overall average tends to fall in the 80<sup>th</sup> percentile. The success rates also vary between the disciplines with the greatest success rate in geology and the lowest in chemistry. The overall average is consistently in the mid 60<sup>th</sup> percentile.

The success rates of the basic skills mathematics courses are consistently below fifty percent irrespective of the mode of delivery.

The lack of prerequisite enforcement identified in the previous program review has been addressed with student services (counseling and admissions) performing a much better job of monitoring the enrollment of students into classes with prerequisites. During the previous program review faculty identified that lack of consistent attendance in mathematics and science courses are contributing to the lack of success for many

students. The poor attendance by many students has not improved over the last four years. The study to assess the relationship between poor attendance and lack of success and identify factors contributing to poor attendance did not occur.

**Planning Agenda:**

1. Assess the relationship between poor attendance and lack of success in mathematics and science courses and identify the primary factor contributing to poor attendance.
2. Pilot a project to improve attendance in mathematics and science courses and assess impact on success rates.
3. Continue to implement “Pathways through Algebra Project” intervention to increase student success.
4. Pilot projects in Gatekeeper courses, incorporating active learning strategies, learning communities, student-peer mentoring and writing across the curriculum to increase student success.
5. Encourage students to fully utilize the Learning Center and Peer Tutors and expand peer tutoring into summer session when mathematics courses are taught.

**B. Student Learning Outcome Assessment**

**Description:**

All of the degree, certificates and courses within the Natural Science/Mathematics Instructional Program have approved student-learning outcomes.

The Natural Science/Mathematics program has on-going student learning outcome assessment at both the course level and program level. The initial program level assessment occurred during the 2012-2013 academic year. Weave will compile program-level assessment once course-level assessment data is entered. Assessment data for 100% of courses in the program was reported for fall 2013. Action plans generated by student learning outcome assessments focused primarily on the modification of instructional methodology. Examples include:

Math 40:

Initiate pre-test/post-test

Math 51 (103):

1. Remove option to opt out of homework sets.
2. Find new ways to motivate students to come to class and work hard.
3. Encourage students to seek outside help. Promote Math Lab and math tutors available in Learning Center.

Math 60:

1. Assignment of fewer homework problems to be turned in more frequently, so that students are encouraged to not put off homework to the last minute.
2. Encourage students to seek outside help. Promote Math Lab and math tutors available in Learning Center.

Math 102/103:

Initiate pre-test/post-test

Additional recommendations:

1. Seek to meet with high school faculty to define prerequisite problem(s) and to seek improvement.
2. Educate prospective online students about the requirements for taking courses online.



**Table IV**  
**Program Student Learning Outcome Assessments 2012-2013**

Degree/Certificate	Target	Finding
Allied Health AA US	75% on all core course SLOs	SLO 1 100% Met; SLO 2 Not reported; SLO 3 100% Met; SLO 4 100% Met
Biological Science Major Prep AS US	75% on all core course SLOs	SLO 1 100% Met
Geology AS-T	75% on all core course SLOs	SLO 1 75% Met; SLO 2 100% Met; SLO 3 50% Not Met
Mathematics/Physics AS US	75% on all core course SLOs	SLO 1 100 % Met; SLO 2 100% Met; SLO 3 100% Met
Natural Science AS US	75% on all core course SLOs	SLO 1 100 % Met; SLO 2 67% Not Met; SLO 3 100% Met

**Evaluation:**

Even though the assessments were conducted on courses delivered through three different modalities: traditional classroom instruction, online delivery and correspondence delivery, the consistent theme identified was a faculty perceived correlation between attendance/participation and success. Specifically, mathematics faculty have proposed the need for a research project to provide data with respect to this perception. The recommendation that the institution should consider and adopt an appropriate software package for managing student learning outcome assessments at course, program and institutional levels was met with the implementation of WEAVE fall 2012.

**Planning Agenda:**

See planning agenda under A. above

**C. Student Evaluation Summary**

**Description:**

During fall 2013, student evaluations were collected for thirteen classes. [Instructional Program Review - Student Evaluations [Appendix F] contains the student evaluation summaries for four Biological Science classes: Bio 1 – Principles of Molecular and Cellular Biology, Bio 20 – Microbiology, Bio 25 – Human Anatomy & Physiology I, Bio 32 – Life Science; two Chemistry classes: Chem 1A – General Chemistry I and Chem 45 – Introduction to Chemistry; one geology class: Geol 1 – Physical Geology and seven Mathematics classes: Math 1A – Analytic Geometry and Calculus I, Math 7 – Trigonometry, Math 40 - Elementary Statistics, Math 60 -Intermediate Algebra , Math 103 -Elementary Algebra, Math 101 – Basic Mathematics and Math 102 – Pre-algebra. During spring 2014, student evaluations were collected for thirteen classes. [Instructional Program Review - Student Evaluations [Appendix G] contains the student evaluation summaries for four Biological Science classes: Bio 1 – Principles of Molecular and Cellular Biology, Bio 10 – Natural History of Plants and Animals, Bio 26 – Human Anatomy & Physiology II, Bio 32 – Life Science; three Chemistry classes: Chem 1B – General Chemistry I, Chem 8 – Introduction to Organic & Biochemistry and Chem 45 – Introduction to Chemistry; one geology class: Geol 5 – Historical Geology & Paleontology and eight Mathematics classes: Math 1B – Analytic Geometry and Calculus II, Math 8 – Advanced Algebra, Math 40 - Elementary Statistics, Math 60 -Intermediate Algebra, Math 101 – Basic Mathematics, Math 102 – Pre-algebra and Math 103 -Elementary Algebra. Five students

did complete the survey from Math 155- Math Lab - Basic Mathematics. The information was not included here since the students were also enrolled in one of the other mathematics classes.

**Table V**  
**Student's Educational Goal**

Course	Transfer Four-year	Transfer CC	AA/AS	GE Certification	Job Requirement	Continuing Education	Personal Development
Biol 1	83%	10%	64%	5%	19%	29%	14%
Biol 10	86%	14%	100%	14%	14%	43%	43%
Biol 20	38%	46%	62%	23%	38%	62%	8%
Biol 25/26	32%	26%	77%	4%	20%	16%	12%
Biol 32	80%	4%	76%	12%	16%	60%	12%
Chem1A/1B	100%		67%				
Chem 8	100%		100%	67%		33%	33%
Chem 45	84%	3%	81%	6%	39%	29%	19%
Geol 1	71%	12%	76%	24%	18%	24%	18%
Geol 5	66%	7%	86%		14%	34%	14%
Math 101	52%	11%	68%	7%	16%	23%	18%
Math 102	61%	14%	55%	2%	29%	28%	14%
Math 103	72%	7%	66%	4%	14%	34%	13%
Math 60	74%	6%	76%	6%	23%	33%	21%
Math 40	78%		72%	16%	12%	48%	12%
Math 7	100%		100%		33%	50%	17%
Math 8	87%		74%		22%	39%	17%
Math1A/1B	88%	10%	63%	20%	30%	20%	

**Table VI**  
**Student's Reason for Taking Course**

Course	Core Requirement	Degree Elective	General Education	Job Requirement	Continuing Education	Personal Development
Biol 1	71%	5%	31%	5%	9%	5%
Biol 10	71%	14%	29%			
Biol 20	77%	15%	8%	23%	23%	15%
Biol 25/26	77%		26%	4%	13%	4%
Biol 32	56%	4%	56%	10%	10%	
Chem1A/1B	100%		17%			
Chem 8	100%				33%	33%
Chem 45	74%	3%	23%		6%	13%
Geol 1	47%	6%	41%		6%	12%
Geol 5	66%	10%	34%		7%	14%
Math 101	41%	5%	45%	5%	16%	11%
Math 102	61%	2%	32%	6%	16%	9%
Math 103	56%	3%	49%	2%	16%	6%
Math 60	56%	1%	55%	6%	18%	11%
Math 40	67%	3%	45%	3%	14%	3%
Math 7	33%		33%	17%	50%	33%
Math 8	52%	4%	61%		17%	13%
Math 1A/1B	100%		20%	10%	10%	

**Table VII  
General Questions**

Course	Catalog/Schedule Description Accurate	Scheduling Order Explained	Cost beyond Books Explained	Was textbook Required	Was textbook adequately used	Syllabus provided	Syllabus identified SLOs
Biol 1	100%	93%	69%	98%	79%	100%	100%
Biol 10	100%	86%	86%	86%	71%	100%	100%
Biol 20	100%	92%	92%	100%	92%	100%	100%
Biol 25/26	100%	84%	61%	100%	87%	100%	97%
Biol 32	100%	96%	68%	84%	64%	100%	100%
Chem1A/1B	100%	100%	100%	100%	100%	100%	100%
Chem 8	100%	100%	100%	100%	100%	100%	100%
Chem 45	97%	90%	71%	100%	90%	100%	90%
Geol 1	94%	94%	82%	100%	88%	100%	94%
Geol 5	93%	76%	76%	100%	90%	100%	100%
Math 101	84%	91%	48%	95%	98%	98%	98%
Math 102	98%	94%	63%	99%	95%	77%	99%
Math 103	100%	98%	72%	99%	99%	100%	99%
Math 60	100%	98%	78%	99%	99%	100%	100%
Math 40	95%	93%	79%	100%	100%	100%	100%
Math 7	100%	100%	67%	100%	100%	100%	100%
Math 8	91%	100%	78%	100%	100%	100%	100%
Math1A/1B	100%	100%	80%	100%	100%	100%	100%

**Table VIII  
Scheduling Times**

Course	Current schedule met needs	Needed mornings	Needed afternoon	Needed evening	Needed summer	Needed week-ends	Needed every semester
Biol 1	83%	6%	12%	2%	5%		
Biol 10	100%						
Biol 20	92%				8%		8%
Biol 25/26	87%	8%		8%		4%	
Biol 32	100%	4%	12%				
Chem1A/1B	100%						
Chem 8	100%						
Chem 45	84%	3%	3%				
Geol 1	82%	12%					
Geol 5	93%	3%			3%		
Math 101	89%	12%			4%		
Math 102	91%	7%	6%	3%	3%	3%	
Math 103	84%	7%	5%	1%			
Math 60	95%	2%	2%		1%		
Math 40	76%	17%	9%	5%	3%	2%	
Math 7	83%						
Math 8	87%		9%	9%			
Math1A/1B	100%						

**Table IX  
Scheduling Conflicts**

Course	No conflicts	Conflict with another core requirement	Conflict with elective	Conflict with GE course
Biol 1	88%	12%		
Biol 10	100%	29%		
Biol 20	77%	8%	8%	8%
Biol 25/26	77%	16%	8%	
Biol 32	96%	1/25		
Chem 1A/1B	100%			
Chem 8	100%			
Chem 45	71%	6%	19%	6%
Geol 1	94%			
Geol 5	83%	7%	3%	3%
Math 101	89%	8%	8%	
Math 102	91%	2%	2%	5%
Math 103	83%	1%	5%	3%
Math 60	90%	4%	8%	5%
Math 40	88%	3%	3%	
Math 7	67%		33%	
Math 8	91%		4%	3%
Math 1A/1B	80%	10%	10%	

**Table X  
Facilities**

Course	Access to Facilities Provided	Temperature was comfortable	Lighting was adequate	Furniture was adequate
Biol 1	95%	79%	86%	88%
Biol 10	100%	86%	86%	86%
Biol 20	100%	54% (31% too cold)	92%	62%
Biol 25/26	90%	77%	100%	100%
Biol 32	100%	76%	92%	92%
Chem 1A/1B	100%	100%	100%	100%
Chem 8	100%	100%	100%	100%
Chem 45	87%	81%	97%	87%
Geol 1	88%	65% (12% too cold)	76%	76%
Geol 5	90%	45% (28% too hot)	69%	41%
Math 101	87%	30/44	70%	68%
Math 102	85%	61% (28% too hot)	63%	67%
Math 103	90%	71%	79%	78%
Math 60	91%	79% (3% too cold)	79%	88%
Math 40	100%	83% (7% too cold)	88%	83% (hard chairs)
Math 7	100%	67%	83%	83%
Math 8	87%	70% (26% too cold)	78%	74%
Math 1A/1B	100%	80% (20% too cold)	100%	90%

**Table XI  
Equipment**

Course	Sufficient equipment	Sufficient time on equipment provided	Equipment up-to-date	Equipment in good operating order
Biol 1	95%	93%	88%	93%
Biol 10	100%	100%	86%	86%
Biol 20	92%	85%	54%	92%
Biol 25/26	100%	90%	97%	97%
Biol 32	NA	NA	NA	NA
Chem 1A/1B	100%	100%	100%	100%
Chem 8	100%	100%	100%	100%
Chem 45	87%	97%	81%	90%
Geol 1	76%	71%	71%	71%
Geol 5	90%	72%	72%	76%
Math 101	NA	NA	NA	NA
Math 102	NA	NA	NA	NA
Math 103	NA	NA	NA	NA
Math 60	NA	NA	NA	NA
Math 40	NA	NA	NA	NA
Math 7	NA	NA	NA	NA
Math 8	NA	NA	NA	NA
Math 1A/1B	NA	NA	NA	NA

**Evaluation:**

Students consistently expressed satisfaction with:

1. scheduling of mathematics and natural science classes
2. availability of facilities and equipment
3. temperature control in the building with exception of MS-125 which was identified as too cold
4. provision of a syllabus which included student learning outcomes

Students expressed concerns with:

1. chairs in several rooms are either uncomfortable or squeaky
2. catalog description not adequately preparing students for the cost of the program beyond the cost of textbooks
3. Insufficient equipment and time one equipment in the over enrolled Geology classes.

The significant number of student enrolled in basic skills course who indicated that they were taking the course to meet core or general education requirements for a degree implies a need to better communicate the difference between degree applicable courses and basic skill courses. The majority of students enrolling in natural science and mathematics courses indicate the intention to transfer to a four-year institution. Many of these students do not indicate the intention of earning an associate degree.

**Planning Agenda:**

1. Identify on the syllabus of all basic skill mathematics courses that the course is not degree applicable and is intended to prepare the student to be successful in degree applicable mathematics courses leading to a degree.

2. Promote the earning of associate degrees particularly degrees for transfer (SB 1440) to student's indicating plans to transfer to four-year institutions.
3. Implement a replacement schedule for the chairs in the various classrooms.

### III: Curriculum.

#### A. Degrees and/or Certificates

##### **Description:**

Associate in Arts Degree University Studies– Emphasis in Allied Health  
 Associate in Science Degree University Studies - Biological Science Major Preparation  
 Associate in Science Degree University Studies – Emphasis in Mathematics/Physical Science  
 Associate in Arts Degree General Studies – Emphasis in Natural Science  
 Associate in Arts Degree University Studies – Emphasis in Natural Science  
 Associate in Science Degree in Geology for Transfer  
 California State University General Education Certificate of Achievement  
 Intersegmental General Education Transfer Curriculum Certificate of Achievement

See Appendix “C” for requirements for specific degrees and certificates  
 See Appendix “D” for two-year plan

##### **Evaluation:**

The current curriculum provides multiple options in both life and physical science with and without a laboratory for completing Area B – Scientific Inquiry and Quantitative Reasoning of the California State University (CSU) General Education Certification, Area 5 –Physical and Biological Sciences of the Intersegmental General Education Transfer Curriculum (IGETC), and Area A – Natural Science for the non-transfer associate degree.

Life Science without a laboratory: Anthr 1, Biol 32  
 Life Science with a laboratory: Biol 1, Biol 4, Biol 10, Biol 20, Biol 25, Biol 26  
 Physical Science without a laboratory: Geog 1, PHSC 1  
 Physical Science with a laboratory: Astr 1, Chem 45, Chem 1A, Chem 1B, Chem 8, Geol 1, Geol 5, Phys 2A, Phys 2B

In addition, a variety of courses in mathematics are provided to meet Area B – Scientific Inquiry and Quantitative Reasoning of the California State University (CSU) General Education Certification, Area 2 – Mathematical Concepts and Quantitative Reasoning of the Intersegmental General Education Transfer Curriculum (IGETC), and Area D Language and Rationality for the non-transfer associate degree.

Area B – Scientific Inquiry and Quantitative Reasoning of the California State University (CSU) General Education Certification – Mathematics 1A, 1B, 1C, 7, 8, 11A, 11B, and 40  
 Area 2 – Mathematical Concepts and Quantitative Reasoning of the Intersegmental General Education Transfer Curriculum (IGETC) – Mathematics 1A, 1B, 1C, 8, 40  
 Area D Language and Rationality for the non-transfer associate degree – Mathematics 1A, 1B, 1C, 7, 8, 11A, 11B, 40, and 60

All courses have been reviewed against and found consistent with the expectations for general education courses at four-year universities.

### *Area B - Physical Universe and Its Life Forms*

*Instruction approved for the fulfillment of this requirement is intended to impart knowledge of the facts and principles, which form the foundations of living and non-living systems. Such studies should promote understanding and appreciation of the methodologies of science as investigative tools, the limitations of scientific endeavors; namely, what is the evidence and how was it derived? In addition, particular attention should be given to the influence which the acquisition of scientific knowledge has had on the development of the world's civilizations, not only as expressed in the past but also in present times. In specifying inquiry into mathematical concepts and quantitative reasoning and their application, the intention is not to imply merely basic computational skills, but to encourage as well the understanding of basic mathematical concepts.*

The current curriculum provides core lower division courses for majors in allied health, anthropology, biological science, natural science, and geology. The lower division core offerings in mathematics are limited. The college has been unable to offer Math 1C - Analytical Geometry and Calculus III, Math 11A - Concepts of Elementary School Mathematics I or Math 11B - Concepts of Elementary School Mathematics II for a number of years due to insufficient enrollment and lack of availability of instructors.

Lassen Community College currently offers only one transfer degree (Associate in Science in Geology for Transfer), which prepares a student to transfer to a California State University and enter as a junior. A transfer degree in Anthropology has been approved by the local governing board, but has not yet been approved by the Chancellor's Office. Now that the CI-D descriptors and the Transfer Model Curriculum for Biology have been adopted the biology courses will be re-evaluated and the AS-T in Biology developed. As additional transfer Model Curriculum are developed further associate degrees for transfer within the Natural Science area will be developed as appropriate.

### **Planning Agenda:**

Develop transfer degrees (SB 1440) in life and physical sciences as the Transfer Model Curriculum (TMC) become available.

### **B. Courses**

#### **Description:**

No new courses have been added to the program during the last four years, but significant rewrites to the curriculum have occurred. The Common Course Identification System (C-ID) has been a driving factor in the revisions to many of the courses. Anthro 1, Chemistry 1A & 1B and Geol 1 and Geol 5 have all been submitted for CI-D approval. All biology courses applicable to associate degrees for transfer are currently being compared to the recently adopted CI-D descriptors. The previous degree applicable Elementary Algebra course (Math 51) was renumbered as a basic skills course (Math 103) following Title V regulations changes requiring Intermediate Algebra as the lowest level degree applicable mathematics course.

**Table XII  
Program Courses**

Courses				
TOP Code	Course Number	Title	Units	Lecture/ Lab Hours
2202	Anthr 1	Biological Anthropology	3	3 lec
1911	Astr 1	Introduction to Astronomy	4	3 lec/3 lab
0401	Bio 1	Principles of Molecular and Cellular Biology	4	3 lec/3 lab
0401	Bio 4	Principles of Evolutionary, Organismal, and Ecological Biology	5	3 lec/6 lab
0401	Bio 10	Natural History of Plants & Animals	4	3 lec/3 lab
0403	Bio 20	Microbiology	5	3 lec/6 lab
0410	Bio 25	Human Anatomy & Physiology I	4	3 lec/3 lab
0410	Bio 26	Human Anatomy & Physiology II	4	3 lec/3 lab
0401	Bio 32	Life Science	3	3 lec
1905	Chem 1A	General Chemistry	5	3 lec/6 lab
1905	Chem 1B	General Chemistry	5	3 lec/6 lab
1905	Chem 8	Introduction to Organic and Biochemistry	4	3 lec/3 lab
1905	Chem 45	Introduction to Chemistry	4	3 lec/3 lab
2206	Geog 1	Physical Geography	3	3 lec
1914	Geol 1	Physical Geology	4	3 lec/3 lab
1914	Geol 5	Historical Geology and Paleontology	4	3 lec/3 lab
1700	Math 1A	Analytical Geometry and Calculus I	5	5 lec
1700	Math 1B	Analytical Geometry and Calculus II	5	5 lec
1700	Math 1C	Analytical Geometry and Calculus III	5	5 lec
1700	Math 7	Trigonometry	3	3 lec



1700	Math 8	Advanced Algebra	3	3 lec
1700	Math 11A	Concepts of Elementary School Mathematics I	3	3 lec
1700	Math 11B	Concepts of Elementary School Mathematics II	3	3 lec
1700	Math 40	Elementary Statistics	3	3 lec
1700	Math 60	Intermediate Algebra	4	3 lec/3 lab
1700	Math 101	Basic Mathematics	2	1 lec/3 lab
1700	Math 102	Pre-algebra	2	1 lec/3 lab
1700	Math 103	Elementary Algebra	4	3 lec/3 lab
4930.62	Math 155	Math Lab Basic Skills	0	
4930.62	Math 156	Math Lab – Pre-collegiate Algebra	0	
1901	PHSC 1	General Physical Science	3	3 lec
1902	Phys 2A	General Physics	4	3 lec/3 lab
1902	Phys 2B	General Physics	4	3 lec/3 lab

### **Evaluation:**

The course outlines for the natural science/mathematics program were reviewed as part of the instructional program review process during Spring 2014 as indicated on the Natural Science/Mathematics Instructional Program Review: Status of Curriculum Review form [Appendix B]. All the courses in the Natural Science/Mathematics program have either recommended preparation or prerequisites. The documented content reviews for the recommended preparation and prerequisites have all been completed and accepted by the Curriculum/Academic Standards Committee. In addition, all courses in the Natural Science/Mathematics program have approved course level student learning outcomes. All courses have updated representative textbooks identified on the course outlines of record.

### **Planning Agenda:**

Align core courses within the mathematics/natural science program with the C-ID descriptors as they become available for comparison and submit for C-ID approval.

## **C. Scheduling and Enrollment Patterns**

### **Description:**

The Natural Science/Mathematics Program Two-Year Plan [Appendix D] and Natural Science/Mathematics Program Schedules [Appendix E] are provided as attachments.

**Table XIII**  
**Average Class Size by Discipline and Mode of Delivery**

Instructional Area	2011/12 Day	2011/12 Evening	2011/12 Correspondence	2011/12 Internet	2012/13 Day	2012/13 Evening	2012/13 Correspondence	2012/13 Internet	Avg
Anthropology	-	27 (2)	30 (5)	-	-	21.5 (2)	32 (6)	-	29
Astronomy	-	25	-	-	-	-	-	-	25
Biological Science	20.5 (8)	24 (3)	-	-	19 (7)	-	-	20	20.5
Chemistry	13 (5)	-	-	-	17.5 (4)	-	-	-	15
Geography	-	-	-	-	-	-	-	-	-
Geology	25 (2)	-	-	-	28.5 (2)	-	-	-	26.8
Basic Skills Mathematics	20 (9)	22 (3)	27 (11)	-	20 (7)	22 (2)	27.9 (8)	-	23.8
Mathematics	21.6 (18)	24 (7)	30.5 (6)	27 (3)	22 (17)	24.5 (5)	28 (11)	21 (5)	24
Mathematics - noncredit	29.5 (4)	-	-	-	29.8 (4)	-	-	-	29.7
Physical Science	-	20	-	-	-	25.5 (2)	-	-	23.7
Physics	-	-	-	-	5	6	-	-	5.5

(number of sections)

**Table XIV**  
**FTE by Subject Area and Academic Year**

Subject Area	FTEs 08-09	FTE's 09-10	FTE's 10-11	FTE's 11-12	FTE's 12-13
Anthropology	16.5	13	18	20.5	23.9
Astronomy	9.0	4.2	0	5.0	0
Biology	24.5	38.9	33.4	45.3	28
Chemistry	12.4	11.1	16.6	16.7	16.9
Geography	4.6	-	-	-	-
Geology	3.8	7.8	9.0	10.2	11.4
Mathematics	115.4	133.2	145.3	137.6	141.7
Physical Science	1.3	2.1	1.7	2.0	5.0
Physics	2.0	0	3.2	0	2.2
Total Natural Science Program	189	210	227	237	229

(NA) – Not Available (-) Not Offered

**Evaluation:**

The natural science/mathematics two-year plan is a combination of the previously developed two-year plans for mathematics, biological science and physical science. The integration of the three areas into a single two-year plan allows for reduction in the number of scheduling conflicts. The schedule includes traditional on-campus offerings in addition to distance education via online and correspondence delivery for selected courses in mathematics and physical anthropology.

The previous program goal of providing greater access to math and science courses for students of the evening program is clearly reflected in the scheduling over the last several years. Life and/or physical science classes with or without laboratories have been scheduled at night each semester for the last three

years. The enrollments in these night offerings have been consistently high with several classes closing prior to the first evening of instruction [Anthr 1 – each semester, Biol 1 –Spr 2014, Chem 45 – F 2012, PHSC 1 – Fall 2012, Spring 2013].

Physical Anthropology has not been taught during the day for a number of years. This life science without a laboratory could be a beneficial addition to the day program if an instructor could be found.

Biol 4 – Principles of Evolutionary, Organismal, and Ecological Biology, which replace the Principles of Botany and Principles of Zoology courses was offered each of the last two springs with extremely low enrollments. The class has been moved in the two-year plan to being offered only odd springs.

The scheduling of the one-year Physics sequence alternate years has not resolved the low enrollment, but the courses are extremely important to students majoring in biological and several physical sciences.

The offering of the inorganic chemistry (Chem 1A & 1B) each year was returned to the two-year plan in fall 2011. Enrollments in the second semester are low but the courses are necessary to meet the educational needs of a number of majors.

The scheduling of basic skills mathematics courses (Math 101, Math 102) and algebra courses (Math 103 and Math 60) at the same time to allow students make schedule adjustment during the semester seems to be serving the students well. The greater effort to assure that the basic skills mathematics courses do not conflict with basic skills English classes has also improved access for students.

The enrollments in Math 1A - Analytical Geometry and Calculus I and sequentially Math 1B - Analytical Geometry and Calculus II have been low over the last few years. The college has been unable to schedule Math 1C - Analytical Geometry and Calculus III due to insufficient enrollment. The offering of the calculus sequence is essential in order to continue to attract students interested in majoring in mathematics or one of the natural sciences.

The Fall late start and Spring early finish Math 40 – Elementary Statistics course initiated several years ago to address the needs of specific majors such as Fire Technology and subsequently dropped has been re-instated.

For the first time spring 2014, the Math labs (Math 155 and Math 156) were scheduled in the Learning Center. The Learning Center with access to computers provided a positive environment for those laboratory classes. If the Math labs are consistently scheduled in the Learning Center the need for a Math Computer Lab previously included in the program review would be eliminated or at least delayed until enrollments increase.

### **Planning Agenda:**

Schedule traditionally low enrollment core courses (Biol 4, Chem 1A, Chem 1B, Math 1A, Math 1B, Phys 2A, Phys 2B,) according to the two-year plan in order to provide students with the opportunity to complete the majority of the core requirements for a variety of engineering and science majors at LCC.

### **D. Articulation/Integration of Curriculum**

#### **Description:**

The implementation of the C-ID system has shifted the focus for courses with approved C-ID descriptors to obtaining C-ID approval for those courses. Articulation agreements remain in place for all of the degree applicable courses within the Mathematics/Natural Science program.

Articulation agreements are maintained through the efforts of the Transfer Center under the direction of the Articulation Officer. The Articulation Officer works with individual instructors and receiving institutions to resolve articulation issues.

### **Evaluation:**

All transfer level natural science and mathematics courses, which are listed as satisfying the general education requirement of the CSU and UC systems, articulate with those institutions. The Articulation Office updates the agreements annually.

### **Planning Agenda:**

Submit core courses within the mathematics/natural science program for C-ID approval as the C-ID descriptors become available for comparison.

## **E. Equipment**

### **Description:**

The two large lecture rooms, newly furnished small lecture room and each of the five laboratories contain smart room technology with Eno whiteboards. A periodic table chart is located in each large lecture room.

At the biological science end of the building, each laboratory classroom has a complete set of Brightfield Compound Microscopes and a partial set of Dissection Microscopes. There are six Phase-Contrast Compound Microscopes for use in Microbiology. The microscope slide collection contains thousands of slides in cytology, histology, botany, zoology and microbiology. The laboratory classroom used for general biology is equipped with centrifuges, a spectroscope, and a spectrophotometer. The preparation room contains two autoclaves and several stir/hot plates. The laboratory classroom dedicated to Microbiology, Human Anatomy and Physiology has an extensive skeletal collection of real bone purchased before such displays became unavailable. The same room also contains a large number of appropriate models, displays, and charts. The small lecture classroom houses an exceptional natural history collection of local birds and mammals. A portion of the collection is also displayed in the central hallway of the Math-Science building. The biological science storage area contains a cold room with refrigerated aquaria in addition to areas for the storage of preserved specimens, an insect collection, a skin collection, and a botanical collection.

At the physical science end of the building are three laboratory classrooms one each devoted to Chemistry, Physics, and Geology. Additionally, there are two small rooms one of which serves as a balance room, with some storage available, the other houses telescopes, and earth science materials. A preparation and storage room primarily serves the Chemistry classes. The physical science classrooms are well supplied with equipment, although some is dated.

A recently upgraded copier is available for small copying jobs in the central storage area. All rooms in the Math/Science building have Internet connections. All faculty have computers with Internet connections in their offices. The six computers provided in the central area for student use also are connected to the Internet.

### **Evaluation:**

The copy machine located in the Math-Science building is invaluable in allowing instructors to prepare for classes and assist students. Due to the importance of this machine for instruction, on-going maintenance is extremely important.

The biological science laboratory classrooms are well equipped. All equipment is available for student use, a condition not always found in the laboratories at larger institutions. The compound microscopes have excellent optics and serve the students very well. However, due to the considerable use the microscopes are given each semester, maintenance is extremely important. The autoclaves, essential to offering Microbiology and other equipment need periodic servicing.

The program has an excellent collection of models, displays, and charts. The skeletal collection rivals those found in medical programs at some universities. The microscope slide collection is impressive and is being refined and supplemented each year. A replacement budget for broken slides is essential to maintain the quality of this collection.

It is extremely unusual for a community college to have a local bird and mammal collection. Lassen College's collection is extremely well done and diverse, providing an excellent learning tool for students in Natural History and Principles of Evolutionary, Organismal and Ecological Biology.

The Maintenance Department should do regularly scheduled testing of the fume hoods in the Chemistry laboratory. Chemical and dissection wastes continue to accumulate from teaching laboratory sciences classes and must be safely disposed of annually.

Although the science laboratories were well equipped when the campus was opened, the equipment utilized in the majority of science laboratories is outdated. The equipment needs to be systematically updated to reflect the changes in technology over the previous decade. Specifically, the spectrophotometers used in both chemistry and biology are more than thirty years old. The equipment for the physics laboratory is either outdated or in many cases broken or missing. The autoclave and incubators crucial to offering Microbiology received significant use each year and will need to be replaced. The physiology laboratories being offered at major universities are generally linked to the computer. Digital technology is in general use at most educational institutions and the expected norm in industry. Since the cost of updating all of the laboratories would be prohibitive, it is recommended that an ongoing replacement budget be implemented. The budget would allow the gradual replacement and modernization of equipment over probably the next decade. The physics course is the class with the greatest need for updated laboratory equipment.

**Planning Agenda:**

1. Add equipment repair budget for biological and physical science
2. Initiate a replacement of equipment budget for the natural science/mathematics program in order to systematically replace out dated equipment.
3. Annually plan for the disposal of hazardous waste (chemical and preserved specimens)

**IV: OUTSIDE COMPLIANCE ISSUES (if appropriate for program)**

**Description/Evaluation:**

NA

**Planning Agenda:**

NA

**V. Prioritized Recommendations for Implementation by Program Staff**

1. Align core courses within the mathematics/natural science program with the C-ID descriptors as they become available for comparison
2. Submit core courses within the mathematics/natural science program for C-ID approval.
3. Develop transfer degrees (SB 1440) in life and physical sciences as the Transfer Model Curriculum (TMC) become available.

5. Continue to implement “Pathways through Algebra Project” intervention to increase student success.
6. Pilot projects in Gatekeeper courses, incorporating active learning strategies, learning communities, student-peer mentoring and writing across the curriculum to increase student success.
6. Encourage students to fully utilize the Learning Center and Peer Tutors
7. Identify on the syllabus of all basic skill mathematics courses that the course is not degree applicable and is intended to prepare the student to be successful in degree applicable mathematics courses leading to a degree.

2014 Natural Science/Mathematics Instructional Program Review  
 Prioritized Recommendations Requiring Institutional Action for Inclusion in Comprehensive Institutional Master Plan (Institutional Effectiveness Section)

Strategic Goal	Program Priority	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
1,4	6	Assess the relationship between poor attendance and lack of success in mathematics and science courses and identify the primary factor contributing to poor attendance.	2014-2015	No additional cost	Improve student success in mathematics and science courses
1,4	13	Pilot a project to improve attendance in mathematics and science courses and assess impact on success rates.	2015-2016	Unknown at this time	Improve student success in mathematics and science courses

2014 Natural Science/Mathematics Instructional Program Review  
 Prioritized Recommendations Requiring Institutional Action for Inclusion in Student Services Master Plan

Strategic Goal	Program Priority	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
1,4	5	Promote the earning of associate degrees particularly degrees for transfer (SB 1440) to student’s indicating plans to transfer to four-year institutions.	2014-2015	No identified cost	Improve student outcome success in the earning of transfer degrees and subsequent transfer to CSU

2014 Natural Science/Mathematics Instructional Program Review  
 Prioritized Recommendations Requiring Institutional Action for Inclusion in Educational Master Plan

Strategic Goal	Program Priority	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
2,3,4	4	Initiate a replacement of equipment budget for the natural science/mathematics program in order to systematically replace out-of-date equipment. First priority in upgrading the physics laboratory	On-going for at least several years	\$10,000	Provide current technology for instruction in laboratory science classes
1,2,4	2	Schedule traditionally low enrollment core courses (Biol 4, Chem 1A, Chem 1B, Math 1A, Math 1B, Phys 2A, Phys 2B,) according to the two-year plan in order to provide students with the opportunity to complete the majority of the core requirements for a variety of engineering and science majors at LCC.	On-going	Currently in budget (1 FTE/yr)	Increase student outcomes in completion of program degrees
2,4	11	Add equipment repair budget for biological and physical science	On-going	\$2,000	Allow the program to continue to operate while replace equipment is purchased
4	6	Assess the relationship between poor attendance and lack of success in mathematics and science courses and identify the primary factor contributing to poor attendance.	2014-2015	No cost (research office study)	Improve student success through mitigation of factors contributing to poor success
4	7	Expand peer tutoring into summer session when mathematics courses are taught.	2014-2015	\$200.00	Improve student success by providing tutoring for struggling students

## Section II: Human Resource Planning

### A. Program Staffing



**Description:**

There are four full-time tenured faculty assigned to Mathematics, two full-time faculty tenured assigned to Natural Science (one in Biological Science and one in Chemistry). One full-time faculty assigned to Natural Science with a split assignment in Astronomy, Biological Science, Geology and Physical Science retired in June 2010 and was not replaced. Adjunct instructors are used to fill-out the schedule particularly courses in Mathematics, Physics, and Anthropology each semester. Several full-time instructors specifically in mathematics and biological science teach significant overloads each semester. The Instructional Support Specialist II (classified position) for the Natural Science/Mathematics Program was replaced in fall 2011.

**Table XV  
Full-Time Faculty Equivalent by Instructional Area**

Instructional Area	2011/2012 Full-time Faculty	R	2012/2013 Full-time Faculty	R	2013/2014 Full-time Faculty	R	2010/2011 FTEF	2011/2012 FTEF	2012/2013 FTEF	2013/2014 FTEF
Anthropology	-		-		-		0.6	0.7	0.8	0.8
Astronomy	0.2		-		-		-	0.2	-	-
Biological Science	0.8	0.2	1.2		0.8	0.2	1.2	1.9	1.4	1.7
Chemistry	1.0		1.0		1.0		0.78	1.025	1.025	1.025
Geography	-		-		-			-	-	-
Geology	-		-		-		0.35	0.35	0.35	0.35
Mathematics	4.8		4.0		4.0		6.0	5.8	6.6	6.6
Physical Science	-		-		-		0.1	0.1	0.2	0.1
Physics	-		-		-		0.35	-	0.35	-
Natural Science Program Total	6.8	0.2	6.2	-	5.8	0.2	9.4	10.1	10.7	10.6

R – Reassigned time

**Table XVI  
Faculty Load (Full-time, Overload, Part-Time) by Instructional Area**

Instructional Area	2010/2011 Full-time Faculty	2010/2011 Overload	2010/2011 Adjunct	2011/2012 Full-time Faculty	2011/2012 Overload	2011/2012 Adjunct	2012/2013 Full-time Faculty	2012/2013 Overload	2012/2013 Adjunct
Anthropology	-	-	0.6	-	-	0.7	-	-	0.8
Astronomy	-	-	-	0.2	-	-	-	-	-
Biological Science	0.8	0.4	-	0.8	0.6	0.5	1.2	0.1	0.1
Chemistry	0.78	-	-	1.0	0.025	-	1.0	0.025	-
Geography	-	-	-	-	-	-	-	-	-
Geology	0.0	-	0.35	-	-	0.35	-	-	0.35
Mathematics	5.0		1.0	4.8	0.4	0.6	4.0	1.37	1.23
Physical Science	-	-	0.1	-	-	0.1	-	-	0.2
Physics	-	0.175	0.175	-	-	-	-	0.35	-
Natural Science Program Total	6.47	0.6	2.2	6.8	1	2.3	6.2	1.9	2.7



## **Evaluation:**

The full-time mathematics and biological science instructor generally teach overloads each semester. With insufficient qualified adjunct instructor in mathematics and biological science in the area close attention to the potential need to hire additional full-time instructors must continue. The Chemistry instructor was returned to full-time in fall 2011, as recommended in the previous program review. The full-time instructor teaching a combination of physical science and biological science courses who retired in Spring 2010 has not been replaced. The college has been unable to consistently staff Astronomy and other physical science classes since the retirement of the previous instructor. The geology classes taught by an adjunct faculty member have consistently exceeded the capacity of the laboratory classroom. Students are not being served and the institution is missing out on potential revenue due to the lack of the ability to meet student need in physical science courses. Biological science offerings have also been impacted. The hiring of two temporary replacement faculty in Biological Science during the 2012-2013 academic year allowed the offering of several courses that the existing single full-time faculty member had been unable to teach since the faculty retirement despite teaching an overload each semester. With the availability of adjunct faculty in biological science during the 2013-2014 academic year, increased offerings in the subject area were possible providing much better service to students in the area. The faculty who taught during those years will no longer be available in the 2014-2015 academic year again restricting offerings in biological science to those that can be taught by the single full-time faculty member.

The Instructional Support Specialist II hired in fall 2011 has focused primarily on providing support for biological science and mathematics. The position has on occasion provided temporary support to geology, physics and chemistry. On-going instructional support for the physical science laboratory classes needs to be provided through an adjustment to the schedule of the Instructional Support Specialist II particularly when scheduling or enrollments in biological science and mathematics classes provide that opportunity.

## **Recommendation/Plan:**

1. Replacement of a physical science instructor with qualifications to teach in a variety of physical science areas (astronomy, geology, physics, physical geography, physical science).
2. Add a biological science instructor with an emphasis in organismic and ecological biology to provide students with all of the courses included within the proposed two-year biology schedule.
3. Re-align the schedule of the Instructional Support Specialist II to provide on-going support for physical science laboratory classes.

## **B. Professional Development**

### **Description:**

Following the receipt of a Strengthening Institutions (Title III) Grant by the institution in fall 2011, on-campus professional development opportunities have increased significantly.

The full-time instructors keep current in their professions by attending conferences, training on/using additional instructional support materials, and reading professional periodicals. The faculty has taken advantage of Flex activities for professional development, both on and off campus. All faculty are actively involved with on-campus committees.

### **Planning Agenda:**

None

### C. Student Outcomes

#### Description/ Evaluation:

No recommendations directly related to human resource planning have occurred through the assessment of student learning outcomes during the last four years.

#### **Planning Agenda:**

None

### D. Prioritized Recommendations for Implementation by Program Staff

#### 2014 Natural Science/Mathematics Instructional Program Review

#### Prioritized Recommendations Requiring Institutional Action for Inclusion in Human Resource Master Plan

Strategic Goal	Program Priority	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
2,3,4	3	Physical Science Instructor	Fall 2015	\$90,000	Increase physical science offerings (Astronomy, Physics, Geology, Physical Geography, Physical Science), increasing number of degrees and GE certificates awarded
2,3,4	12	Biological Science Instructor	Fall 2015	\$90,000	Increase biological science offerings (Natural History, Life Science, extra sections), increasing number of degrees and GE certificates awarded
2,3,4	8	Realign the schedule of the Instructional Support Specialist in order to provide ongoing support for physical science courses	Fall 2014	No cost	Provide improved laboratory experiences for students in physical science classes and improved laboratory safety

## Section III: Facilities Planning

### A. Facilities

#### **Description:**

The Math/Science building was designed with two large lecture rooms in the center adjacent to the faculty offices. The two ends of the building each contain a central preparation and storage areas and three classrooms. One end of the building is dedicated to physical science and the other to biological science. Each of the laboratory classrooms is designed for twenty-four students per room. Each central preparation area contains a safety shower/eye-wash station. The two lecture rooms each providing seating for thirty-five students are separated by a partition, which can be opened to accommodate a large class (up to seventy students). One of the traditional laboratory classrooms at the biological science end of the building was converted into a lecture classroom in fall 2012. Additionally, one of the small prep rooms at the biological science end of the building was used to house the building's heating pump installed during fall 2012.

Each faculty office houses a single instructor with room for a desk with a computer, shelves for books, and a filing cabinet. The faculty offices will accommodate one or two students during office hours. There is office space available for only one part-time faculty. Consistent with the recommendation in the 2010 Natural Science/Mathematics Instructional Program Review MS-101 was converted into a conference room, which is also used occasionally as a small classroom.

The central area in front of the faculty offices contains large tables and six computers providing a mini-mathematics/science computer laboratory. Students frequently use this area to study.

### **Evaluation:**

Lecture space is limited in the math/science building, resulting in competition between mathematics and science classes for rooms designed specifically for lectures (MS-121 and MS-122). Because of this some lecture classes are held in rooms designed for laboratory classes. Laboratory rooms are not well suited for lectures; the tables are oriented so that students face each other. In order to address the issue, MS-125 was converted from a laboratory classroom to a small lecture classroom during the 2012-2013 academic year.

The partition between the two lecture rooms (MS-121 and MS-122) that allows for larger lectures is cumbersome and awkward to operate smoothly and properly, and is prone to malfunction. Additionally, this partition transmits sound easily from one room to the other which can be a distraction at times, especially during examinations.

The laboratory facilities for the natural science program are well designed. The central location of the preparation and storage facilities provides for the efficient servicing of the three associated classrooms. During the 2011-2013 academic years all of the classrooms in the Math-Science building were painted and smart board technology installed in all classrooms except MS-114, the Chemistry Laboratory. The overall appearance and functionality of the classrooms have been greatly improved. The computer laboratory/student study area in front of the faculty offices is well utilized and although occasionally becoming noisy is generally functioning well. The chairs in each of the laboratory classrooms have been in continuous use for about twenty years. Many of the stools have been broken and repaired. The cushions are flattened and the legs and backs squeak each time a student moves. Comments on the uncomfortable chairs frequently occurred on the student evaluations. The chairs in each of the classrooms need to be systematically replaced over the next few years.

Maintaining the temperature in the building as close to 72°F as possible to prevent unsafe conditions due to chemicals stored in the laboratory and prep rooms is very important for the safety of facilities and personnel.

**Planning Agenda:**

## 2014 Natural Science/Mathematics Instructional Program Review

## Prioritized Recommendations Requiring Institutional Action for Inclusion in Facilities Master Plan

Strategic Goal	Program Priority	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
2	1	Hazardous waste disposal (chemical and preserved specimens)	Annually (on-going)	\$2,000	Provide safe and environmentally sound learning and working environment
2,4	9	Systematically replace the chairs in each of the laboratory classrooms over the next several years.	One time over next several years	\$3,000/ room of 24 chairs	Improve the learning and safety environment for students
2,4	14	Repair or replace the moveable partition between the lecture rooms MS-121 and MS-122.	One time	\$10,000	Improve the learning and safety environment for mathematics and science students

## Section IV: Technology Planning

### Description:

During the 2011-2012 academic year, the institution initiated a lease agreement for computers, which resulted in new monitors and laptops for all faculty. During the same year all computers were linked to the copy machine for printing and individual printers were removed in order to save money. During that same and the following year all of the classrooms in the Math-Science building were painted and smart board technology installed in all classrooms except MS-114, the Chemistry Laboratory. The college has an ongoing agreement with Moodle to support online instruction.

### Evaluation:

The recent technology upgrades have significantly impact instruction. Faculty are utilizing the laptops to bring innovative technology into the lecture classes. The technology upgrades for lecture delivery of instruction have not yet made their way into the laboratory exercises performed in the science labs. Significant investment of resources will be needed over the next few years in order to bring the science labs into the technology age.

### Planning Agenda:

2014 Natural Science/Mathematics Instructional Program Review

Prioritized Recommendations Requiring Institutional Action for Inclusion in Technology Master Plan

Strategic Goal	Program Priority	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
2,3,4	10	Purchase/upgrade faculty software and computers as needed for increase technology/software demands.	On-going	5-yr technology refresh plan (\$100,000/yr)	Maintain and improve instruction through various modalities
2,4	4	Initiate a replacement of equipment budget for the natural science/mathematics program in order to systematically replace out-of-date equipment. First priority is upgrading the physics laboratory	On-going	\$10,000	Provide current technology for instruction in laboratory science classes

# Appendix A

## Student Learning Outcomes

Associate in Arts Degree University Studies—  
Emphasis in Allied Health

Associate in Science Degree University Studies -  
Biological Science Major Preparation

Associate in Science Degree University Studies –  
Emphasis in Mathematics/Physical Science

Associate in Arts Degree General Studies –  
Emphasis in Natural Science

Associate in Arts Degree University Studies –  
Emphasis in Natural Science

Associate in Science in Geology Tor transfer  
California State University General Education  
Certificate of Achievement

Intersegmental General Education Transfer  
Curriculum Certificate of Achievement

**Associate in Arts Degree – University Studies: Emphasis in Allied Health [SLOs Approved June 10, 2008]**

Upon completion of this degree the student will be able to:

1. Analyze information available regarding risk factors to a healthy lifestyle as well as behaviors that promote a healthy lifestyle; understand the impact of positive and negative factors on one's own health; and make lifestyle choices and changes to best promote a wellness balance for one's own life.
2. Relate the structures and functions of the various body systems in a human organism to the metabolic activities of a single selected body cell.
3. Analyze and relate the appropriate identification techniques to be utilized in the diagnosis of a potential life threatening infection.
4. Demonstrate an understanding of the basic methodologies of science.

**Associate in Science Degree - University Studies: Emphasis in Biological Science Major Preparation [SLOs Approved January 16, 2007]**

Upon completion of the specified degree, the student should be able to:

1. Demonstrate an understanding of the uniformity of life by comparing and contrasting characteristics of a variety of living organisms, including genetics and the molecular-cellular levels of organization.

**Associate in Science Degree - Geology for Transfer**

Upon completion of the specified degree, the student should be able to:

1. Demonstrate an understanding of geologic time scale and timing of major events in Earth history.
2. Explain internal and external dynamic processes occurring within the earth system and analyze the effects on these processes on physical constitution of the earth.
3. Apply proper lab techniques and knowledge of theoretical concepts in geology to acquire and interpret geologic data and formulate new questions in a laboratory setting.

**Associate in Arts Degree - University Studies: Emphasis in Mathematics/Physical Science**

Upon completion of the specified degree, the student should be able to:

1. Demonstrate, in a clear and concise manner, how to solve mathematical problems (including application problems) whether in the form of an organized written process on paper, a portfolio of work or orally with step-by-step directions.
2. Use their mathematical knowledge to formulate a hypothesis, gather data to support their hypothesis and justify the validity of the proposed hypothesis.
3. Use current technology, whether it is computer software, calculators or other technology to generate and verify solutions to mathematical problems.

**Associate in Arts Degree – General Studies: Emphasis in Natural Science [SLOs Approved June 10, 2008]**

Upon completion of this degree the student will be able to:

1. Demonstrate an understanding of the basic methodologies of science.
2. Examine the influence that the acquisition of scientific knowledge has on the development of the world's civilizations.
3. Demonstrate a basic understand of the language, laws, theories, and processes that are fundamental to anthropology, astronomy, biology, chemistry meteorology, geology, and/or physics, through the observation and analysis of real life examples.



**Associate in Arts Degree – University Studies: Emphasis in Natural Science [SLOs Approved June 10, 2008]**

Upon completion of this degree the student will be able to:

1. Demonstrate an understanding of the basic methodologies of science.
2. Examine the influence that the acquisition of scientific knowledge has on the development of the world's civilizations.
3. Demonstrate a basic understand of the language, laws, theories, and processes that are fundamental to anthropology, astronomy, biology, chemistry meteorology, geology, and/or physics, through the observation and analysis of real life examples.

**Certificate of Achievement- Intersegmental General Education Transfer Certification (IGETC) [SLOs Approved ]**

Upon completion of the specified certificate, the student should be able to:

1. Understand and apply methods of inquiry for a variety of disciplines including the scientific method for scientific inquiry and appropriate methods for social and behavior science inquiries.
2. Explain and analyze relationships between science and other human activities.
3. Apply knowledge of the ways people act and have acted in response to their societies to express an appreciation for how diverse societies and social subgroups operate to understand social dynamics within historical and contemporary communities.
4. Understand ways in which people throughout the ages and in Western and non-Western cultures have responded to themselves and the world around them in artistic and cultural creation; apply this knowledge to make value judgments on cultural activities and artistic expressions and demonstrate an understanding of the interrelationship between the creative arts, the humanities and self.
5. Engage in verbal communication by participating in discussions, debates, and oral presentations utilizing proper rhetorical perspective, reasoning and advocacy, organization, accuracy, and the discovery, critical evaluation and reporting of information.
6. Compose effective written communications and essays with correct grammar, spelling, punctuation and appropriate language, style and format utilizing academically accepted means of researching, evaluating and documenting sources within written works.
7. Analyze, evaluate and explain theories, concepts and skills within varied disciplines using inductive and deductive processes and quantitative reasoning and application.
8. Demonstrate appreciation of themselves as living organisms through their choices for physical health, activities, stress management, relationships to the social and physical environment, and responsible decision-making.

**Certificate of Achievement- California State University (CSU) General Education Certification [SLOs Approved]**

Upon completion of the specified certificate, the student should be able to:

1. Understand and apply methods of inquiry for a variety of disciplines including the scientific method for scientific inquiry and appropriate methods for social and behavior science inquiries.
2. Explain and analyze relationships between science and other human activities.
3. Apply knowledge of the ways people act and have acted in response to their societies to express an appreciation for how diverse societies and social subgroups operate to understand social dynamics within historical and contemporary communities.
4. Understand ways in which people throughout the ages and in Western and non-Western cultures have responded to themselves and the world around them in artistic and cultural creation; apply this knowledge to make value judgments on cultural activities and artistic expressions and demonstrate an understanding of the interrelationship between the creative arts, the humanities and self.



5. Engage in verbal communication by participating in discussions, debates, and oral presentations utilizing proper rhetorical perspective, reasoning and advocacy, organization, accuracy, and the discovery, critical evaluation and reporting of information.
6. Compose effective written communications and essays with correct grammar, spelling, punctuation and appropriate language, style and format utilizing academically accepted means of researching, evaluating and documenting sources within written works.
7. Analyze, evaluate and explain theories, concepts and skills within varied disciplines using inductive and deductive processes and quantitative reasoning and application.
8. Demonstrate appreciation of themselves as living organisms through their choices for physical health, activities, stress management, relationships to the social and physical environment, and responsible decision-making.


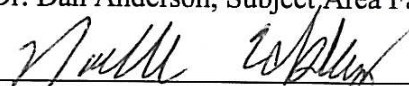
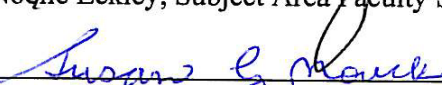
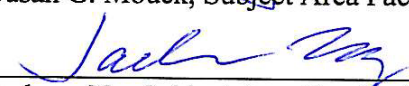

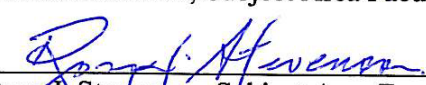
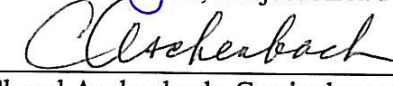
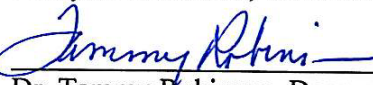
# **Appendix B**

## **Natural Science/Mathematics Instructional Program Review: Status of Curriculum Review**

**Natural Science/Allied Health/Mathematics/Physical Science Instructional Program Review  
Status of Curriculum Review March 25, 2014**

<b>Course</b>	<b>Curriculum Committee Review Completed</b>	<b>Curriculum Committee Review Not Completed</b>
ANTH 1 Physical Anthropology	02/4/2014	
ASTR 1 Introduction to Astronomy	02/4/2014	
BIOL 1 Principles of Molecular and Cellular Biology	02/4/2014	
BIOL 4 Principles of Evolutionary, Organismal, and Ecological Biology	02/4/2014	
BIOL 10 Natural History of Plants & Animals	01/21/2014	
BIOL 18 Environmental Conservation	Inactivate 01/21/2014	
BIOL 20 Microbiology	01/21/2014	
BIOL 25 Human Anatomy & Physiology I	02/4/2014	
BIOL 26 Human Anatomy & Physiology II	02/4/2014	
BIOL 32 Life Science	01/21/2014	
CHEM 1A General Chemistry I	10/15/2013	
CHEM 1B General Chemistry II	10/15/2013	
CHEM 8 Introduction to Organic and Biochemistry	02/4/2014	
CHEM 45 Introduction to Chemistry	02/4/2014	
GEOG 1 Physical Geography	03/04/2014	
GEOL 1 Physical Geology	03/25/2014	
GEOL 5 Historical Geology & Paleontology	03/25/2014	
MATH 1A Analytical Geometry and Calculus I	04/16/2013	
MATH 1B Analytical Geometry and Calculus II	04/16/2013	
MATH 1C Analytical Geometry and Calculus III	02/19/2013	
MATH 7 Trigonometry	02/19/2013	
MATH 8 Advanced Algebra	02/19/2013	
MATH 11A – Concepts of Elementary School Mathematics I	02/19/2013	
MATH 11B Concepts of Elementary School Mathematics II	02/19/2013	
MATH 40 Elementary Statistics	02/19/2013	
MATH 60 Intermediate Algebra	02/19/2013	
MATH 101 Basic Mathematics	02/19/2013	
MATH 102 Pre-algebra	02/19/2013	
MATH 103 Elementary Algebra	11/05/2013	
MATH 155 Math Lab - Basic Skills	02/19/2013	
MATH 156 Math Lab - Pre-collegiate Algebra	02/19/2013	
PHSC 1 General Physical Science	02/4/2014	
PHYS 1A General Physics I	02/4/2014	

PHYS 1B General Physics II	02/4/2014	
AA University Studies: Emphasis in Allied Health	01/21/2014	
AS University Studies: Emphasis in Biological Science Major Preparation	02/4/2014	
AS University Studies: Emphasis in Mathematics/Physical Science	03/04/2014	
AA University Studies: Emphasis in Natural Science	01/21/2014	
AA General Studies: Emphasis in Natural Science	01/21/2014	
AS in Geology for transfer	New degree 4/17/2012	
CA CSU GE Area B	01/21/2014	
CA IGETC Area 2 & 5	01/21/2014	
AA Area A & D2	01/21/2014	

	3/17/14
Dr. Dan Anderson, Subject Area Faculty Signature	Date
	3-17-14
Noelle Eckley, Subject Area Faculty Signature	Date
	3-17-14
Susan G. Mouck, Subject Area Faculty Signature	Date
	3/17/14
Jackson Ng, Subject Area Faculty Signature	Date
	3/17/14
Robert Schofield, Subject Area Faculty Signature	Date
	03.17.14
Ross J. Stevenson, Subject Area Faculty Signature	Date
	3.17.14
Cheryl Aschenbach, Curriculum and Academic Standards Committee Chair Signature	Date
	3/17/14
Dr. Tammy Robinson, Dean of Instructional Services Signature	Date

# Appendix C

Associate in Arts Degree University Studies—  
Emphasis in Allied Health

Associate in Science Degree University Studies -  
Biological Science Major Preparation

Associate in Science Degree University Studies –  
Emphasis in Mathematics/Physical Science

Associate in Arts Degree General Studies –  
Emphasis in Natural Science

Associate in Arts Degree University Studies –  
Emphasis in Natural Science

Associate in Science in Geology for Transfer  
California State University General Education  
Certificate of Achievement

Intersegmental General Education Transfer  
Curriculum Certificate of Achievement

## **ALLIED HEALTH**

**Associate in Arts Degree**  
**University Studies – Emphasis in Allied Health**

Required Core Courses: 20 units

Total Units: 60 units

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
BIO 20	Microbiology	5	
BIO 25	Human Anatomy & Physiology I	4	
BIO 26	Human Anatomy & Physiology II		4
CHEM 8	Introduction to Organic and Biochemistry		4
PSY 1	Introduction to Psychology	3	3

Focused Electives that may be required for health and medical degrees

	<b>Focused Electives</b>	<b>Fall</b>	<b>Spring</b>
ANTHR 2	Cultural Anthropology		3
HLTH 25	Understanding Nutrition	3	3
CD/PSY 31	Child Development: Conception through Adolescence	3	3
SOC 1	Introduction to Sociology	3	3

**Select General Education Option (CSU or IGETC)**

See a counselor to prepare your educational plan with the latest scheduling information.

**2013-2014**  
**Revised 6.20.13**

# BIOLOGICAL SCIENCE

## Associate in Science Degree

### University Studies – Biological Science Major Preparation

Required Core Courses: 18 units

Total Units: 60 units

Select a minimum of eighteen (18) units from the following courses in major preparation [including one course in life science, one course in physical science, and one course in mathematics to meet Area B of the general education core requirements]:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
BIO 1*	Principles of Molecular and Cellular Biology	4	4
BIO 4*	Principles of Evolutionary, Organismal, and Ecological Biology		5
CHEM 1A*	General Chemistry I	5	
CHEM 1B*	General Chemistry II		5

Courses often required for Biological Science Majors

MATH 1A	Analytical Geometry and Calculus I	5	
MATH 40	Elementary Statistics	3	3
PHYS 2A*	General Physics I	4(even)	
PHYS 2B*	General Physics II		4 (odd)

\* Indicates courses providing lower division biological science preparation in most university baccalaureate programs. Most university baccalaureate programs also require one year of Organic Chemistry not offered at Lassen Community College.

**Select General Education Option (CSU or IGETC): 42 Units**

See a counselor to prepare your educational plan with the latest scheduling information.

2013-2014

Revised 6.20.13

# GEOLOGY

## Associate in Science Degree in Geology for Transfer

Required Core Courses: 28 units

Total Units: 60 units

Complete the following six courses:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
CHEM 1A	General Chemistry I	5	
CHEM 1B	General Chemistry II		5
GEOL 1	Physical Geology	4 (even)	
GEOL 5	Historical Geology and Paleontology	4 (odd)	
MATH 1A	Analytical Geometry and Calculus I	5	
MATH 1B	Analytical Geometry and Calculus II		5

**Select General Education Option (CSU or IGETC) 39-42 units**

See a counselor to prepare your educational plan with the latest scheduling information.

2013-2014

Revised 6.20.13



# MATHEMATICS/PHYSICAL SCIENCE

## **Associate in Science Degree**

### **University Studies – Emphasis in Mathematics/Physical Science**

Required Core Courses: 18 units

Total Units: 60 units

Select a minimum of eighteen (18) units from the following courses in area of emphasis [including one course in life science, one course in physical science, and one course in mathematics to meet Area B of the general education core requirements]:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
ASTR 1	Astronomy		4
CHEM 1A	General Chemistry I	5	
CHEM 1B	General Chemistry II		5
GEOG 1	Physical Geography		3
GEOL 1	Physical Geology	4(even)	
GEOL 5	Historical Geology & Paleontology	4(odd)	
MATH 1A*	Analytical Geometry & Calculus I	5	
MATH 1B*	Analytical Geometry & Calculus II		5
MATH 40	Elementary Statistics	3	3
PHYS 2A	General Physics I	4(even)	
PHYS 2B	General Physics II		4 (odd)

\* Indicates courses providing lower division mathematics preparation in most university baccalaureate programs. Most university baccalaureate programs also require one year additional year of mathematics (Math 1C and 1D) not offered at Lassen Community College.

### **Select General Education Option (CSU or IGETC)**

See a counselor to prepare your educational plan with the latest scheduling information.

2013-2014

Revised 6.20.13

# NATURAL SCIENCE

## Associate in Arts Degree

### General or University Studies – Emphasis in Natural Science

Required Core Courses: 18 units

Total Units: 60 units

Select a minimum of eighteen (18) units from the following courses in area of emphasis [including one course in life science and one course in physical science to meet Area B of the general education core requirements]:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
AGR 10	Introduction to Animal Science		4(even)
AGR 20	Introduction to Plant Science		4(even)
ANTH 1	Physical Anthropology	3	3
ASTR 1	Astronomy		4
BIOL 1	Principles of Molecular and Cellular Biology	4	4
BIOL 4	Principles of Evolutionary, Organismal, and Ecological Biology		5
BIOL 10	Natural History of Plants & Animals	4	
BIOL 18	Environmental Conservation		3(odd)
BIOL 20	Microbiology	5	
BIOL 25	Human Anatomy & Physiology I	4	
BIOL 26	Human Anatomy & Physiology II		4
BIOL 32	Life Science		3
CHEM 1A	General Chemistry I	5	
CHEM 1B	General Chemistry II		5
CHEM 8	Introduction to Organic and Biochemistry		4
CHEM 45	Introduction to Chemistry	4	4
GEOG 1	Physical Geography		3
GEOL 1	Physical Geology	4	
GEOL 5	Historical Geology & Paleontology		4
PHSC 1	Physical Science	3	3
PHYS 2A	General Physics I	4(even)	
PHYS 2B	General Physics II		4 (odd)

#### **Select General Education Option (CSU or IGETC)**

**or General Education Requirements:** 18 units

See a counselor to prepare your educational plan with the latest scheduling information.

**2013-2014**

**Revised 6.20.13**

# CALIFORNIA STATE UNIVERSITY GENERAL EDUCATION CERTIFICATE OF ACHIEVEMENT

Total Units: 40 units

## AREA A – English Language and Critical Thinking

One course from each area

### 1. Oral Communication:

Course Number	Course Title	Fall	Spring
SPCH 1	Fundamentals of Speech Communication	3	3

### 2. Written Communication:

Course Number	Course Title	Fall	Spring
ENGL 1	English Composition	3	3

### 3. Critical Thinking:

Course Number	Course Title	Fall	Spring
ENGL 9	Critical Thinking and Composition	3	3
PHIL 2	Critical Thinking	3	

## AREA B – Scientific Inquiry and Quantitative Reasoning

One course from each area including at least one laboratory science course

### 1. Physical Universe:

Course Number	Course Title	Fall	Spring
ASTR 1	Introduction to Astronomy (L)		4
CHEM 1A	General Chemistry I (L)	5	
CHEM 1B	General Chemistry II (L)		5
CHEM 8	Introduction to Organic and Biochemistry (L)		4
CHEM 45	Introduction to Chemistry (L)	4	
GEOG 1	Physical Geography		3
GEOL 1	Physical Geology (L)	4 (even)	
GEOL 5	Historical Geology & Paleontology (L)	4(odd)	
PHSC 1	Physical Science	3	3
PHYS 2A	General Physics I (L)	4 (even)	
PHYS 2B	General Physics II (L)		4 (odd)

### 2. Life Forms:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
AGR 20	Introduction to Plant Science		4(even)
ANTH 1	Physical Anthropology		3
BIOL 1	Principles of Molecular and Cellular Biology (L)	4	4
BIOL 4	Principles of Evolutionary, Organismal and Ecological Biology (L)		5
BIOL 10	Natural History of Plants & Animals (L)	4	
BIOL 18	Environmental Conservation		3(odd)
BIOL 20	Microbiology (L)	5	
BIOL 25	Human Anatomy & Physiology I (L)	4	
BIOL 26	Human Anatomy & Physiology II (L)		4
BIOL 32	Life Science	3	3

3. Laboratory Science (L): Any of the above (L) courses

4. Mathematics/Quantitative Reasoning:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
MATH 1A	Analytical Geometry and Calculus I	5	
MATH 1B	Analytical Geometry and Calculus II		5
MATH 1C	Analytical Geometry and Calculus III		
MATH 7	Trigonometry	3	
MATH 8	Advanced Algebra		3
MATH 11A	Concepts of Elementary School Mathematics I	3(even)	
MATH 11B	Concepts of Elementary School Mathematics II		3(odd)
MATH 40	Elementary Statistics	3	3

#### AREA C – Arts and Humanities

Three of the following courses. Limit of two in one area

1. Arts (Art, Dance, Music, Theater):

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
ART 1A	Fundamentals of Two-Dimensional Design	3	
ART 1B	Fundamentals of Three-Dimensional Design		3
ART 2	Drawing	3	3
ART 3	Beginning Life Drawing		3(even)

ART 4A	Beginning Photography	3	3
ART 6	Survey of Art History: Prehistoric through Renaissance	3	
ART 7	Survey of Art History: Renaissance through Contemporary		3
ART 8	Art Appreciation	3(odd)	
ART 9	History of Asian Art	3	
ART 10A	Beginning Painting	3	3
ART 30	Introduction to Sculpture	3(odd)	
ART 36A	Beginning Ceramics	3	3
FILM 1	History of the Cinema	3	3
MUS 6	Music History from Antiquity to 1750	3	
MUS 7	Music History from 1750 to Modern Era		3
MUS 12	Music Appreciation		3

2. Humanities (Literature, Philosophy, Foreign Languages):

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
ENGL 2	Introduction to Literary Types	3(odd)	
ENGL 10	Shakespeare		3 (odd)
ENGL 12	Survey of American Literature II	3(even )	
HIST 14	World History, Beginning to 1500	3	
HIST 15	World History, 1500 to Present		3
HUM 1	Western Civilization: Prehistoric Times to 1600	3	3
HUM 2	Western Civilization: 1600 to Present	3	3
PHIL 1	Introduction to Philosophy	3	
PHIL 10	Comparative World Religions	3	3
SPAN 1	First Course in Spanish	3	3
SPAN 2	Second Course in Spanish	3	3

**AREA D – Social Sciences**

Three of the following courses in at least two disciplines

1. Anthropology and Archeology:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
ANTH 2	Cultural Anthropology		3
ANTH 3	Introduction to Archaeology	3	

2. Economics:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
AGR 2	Agricultural Economics	3(even)	
ECON 10	Macro-economics	3	
ECON 11	Micro-economics		3

3. Ethnic Studies:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
ES 1	Ethnic Minorities in America	3	3

4. Gender Studies:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
SOC 4	Introduction to Gender	3	3

5. Geography:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
GEOG 2	Cultural Geography		3(odd)

6. History:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
HIST 14	World History: Beginning to 1500	3	
HIST 15	World History: 1500 to Present		3
HIST 16	U.S. History	3	3
HIST 17	Post Civil War U.S. History	3	3

7. Interdisciplinary Social or Behavioral Science:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
CD/PSY 31	Child Development: Conception through Adolescence	3	3
JOUR 4	Mass Communication and Society	3	
PSY 18	Human Development: A Life Span	3	3

8. Political Science, Government and Legal Institutions:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
AJ 20	Criminal Law	3	
PLSC 1	American Institutions	3	3

9. Psychology:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
PSY 1	Introduction to Psychology	3	3
PSY 2	Principles of Psychology	3	3

10. Sociology and Criminology:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
SOC 1	Introduction to Sociology	3	3
SOC 2	Social Problems	3	3

**AREA E – Lifelong Understanding and Self-Development**

One course or three units

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
CD/PSY 31	Child Development: Conception through Adolescence	3	3
CG 1	Strategies for Creating success in College and in Life	3	3
HLTH 2	Personal Health	3	3
HLTH 25	Understanding Nutrition	3	3
HUS 30	Pharmacology of Drugs of Abuse	3	3
PSY 1	Introduction to Psychology	3	3
PSY 2	Principles of Psychology	3	3
PSY 18	Human Development: A Life Span	3	3
PSY 33	Psychology of Personal Adjustment	3	3
SOC 3	Family Relations	3	3

See a counselor to prepare your educational plan with the latest scheduling information.

**2013-2014**

**Revised 6.20.13**

# INTERSEGMENTAL GENERAL EDUCATION CURRICULUM CERTIFICATE OF ACHIEVEMENT

**Total Units: 34-37 units**

## AREA 1 – English Communication – 9 units

One course from each area

Course Number	Course Title	Fall	Spring
ENGL 1	English Composition	3	3
ENGL 9	Critical Thinking and Composition	3	3
SPCH 1	Fundamentals of Speech Communication	3	3

## AREA 2 – Mathematical Concepts and Quantitative Reasoning - 3 units

Course Number	Course Title	Fall	Spring
MATH 1A	Analytical Geometry and Calculus I	5	
MATH 1B	Analytical Geometry and Calculus II		5
MATH 1C	Analytical Geometry and Calculus III		
MATH 8	Advanced Algebra		3
MATH 40	Elementary Statistics	3	3

## AREA 3 – Arts and Humanities – 9 units

Three courses. At least one from Arts and one from Humanities

### 1. Arts:

Course Number	Course Title	Fall	Spring
ART 6	Survey of Art History: Prehistoric through Renaissance	3	
ART 7	Survey of Art History: Renaissance through Contemporary		3
ART 8	Art Appreciation	3(odd)	
FILM 1	History of the Cinema	3	3
MUS 6	Music History from Antiquity to 1750	3	3
MUS 7	Music History from 1750 to Modern Era		3
MUS 12	Music Appreciation		3

### 2. Humanities:

Course Number	Course Title	Fall	Spring
ENGL 2	Introduction to Literary Types	3(odd)	
ENGL 10	Shakespeare		3 (odd)
ENGL 12	Survey of American Literature II	3(even)	
HUM 1	Western Civilization: Prehistoric to 1600	3	3
HUM 2	Western Civilization: 1600 to Present	3	3
PHIL 1	Introduction to Philosophy	3	
PHIL 10	Comparative World Religions	3	3
SPAN 2	Second Course in Spanish	3	3



**AREA 4 – Social and Behavioral Sciences – 9 units**

Three of the following courses in at least two disciplines

## 1. Agriculture:

Course Number	Course Title	Fall	Spring
AGR 2	Agricultural Economics	3(even)	

## 2. Anthropology and Archeology:

Course Number	Course Title	Fall	Spring
ANTH 2	Cultural Anthropology		3
ANTH 3	Introduction to Archaeology	3	

## 3. Economics:

Course Number	Course Title	Fall	Spring
ECON 10	Macro-economics	3	
ECON 11	Micro-economics		3

## 4. Ethnic Studies:

Course Number	Course Title	Fall	Spring
ES 1	Ethnic Minorities in America	3	3

## 5. Geography:

Course Number	Course Title	Fall	Spring
GEOG 2	Cultural Geography		3(odd)

## 6. History:

Course Number	Course Title	Fall	Spring
HIST 14	World History, Beginning to 1500	3	
HIST 15	World History, 1500 to Present		3
HIST 16	U.S. History	3	3
HIST 17	Post Civil War U.S. History	3	3

## 7. Journalism:

Course Number	Course Title	Fall	Spring
JOUR 4	Mass Communication and Society	3	

## 8. Political Science:

Course Number	Course Title	Fall	Spring
PLSC 1	American Institutions	3	3

## 9. Psychology:

Course Number	Course Title	Fall	Spring
PSY 1	Introduction to Psychology	3	3
PSY 2	Principles of Psychology	3	3
PSY 18	Human Development: A Life Span	3	3
CD 31/PSY 31	Child Development: Conception through Adolescence	3	3

## 10. Sociology:

Course Number	Course Title	Fall	Spring
SOC 1	Introduction to Sociology	3	3
SOC 2	Social Problems	3	3
SOC 4	Introduction to Gender	3	

**AREA 5 – Physical and Biological Sciences – 7-9 units**

Two courses. One physical science, one biological science, at least one must include a laboratory

## 1. Physical Sciences:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
ASTR 1	Introduction to Astronomy (L)		4
CHEM 1A	General Chemistry I (L)	5	
CHEM 1B	General Chemistry II (L)		5
CHEM 8	Introduction to Organic and Biochemistry (L)		4
CHEM 45	Introduction to Chemistry (L)	4	
GEOG 1	Physical Geography		3
GEOL 1	Physical Geology (L)	4 (even)	
PHSC 1	Physical Science	3	3
PHYS 2A	General Physics I (L)	4 (even)	
PHYS 2B	General Physics II (L)		4 (odd)

## 2. Biological Sciences:

<b>Course Number</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>
ANTH 1	Physical Anthropology		3
BIO 1	Principles of Molecular and Cellular Biology (L)	4	4
BIO 4	Principles of Evolutionary, Organismal, and Ecological Biology (L)		5
BIO 10	Natural History of Plants & Animals (L)	4	
BIO 18	Environmental Conservation		3(odd)
BIO 20	Microbiology (L)	5	
BIO 25	Human Anatomy & Physiology I (L)	4	
BIO 26	Human Anatomy & Physiology II (L)		4
BIO 32	Life Science	3	3

See a counselor to prepare your educational plan with the latest scheduling information.

2013-2014

Revised 6.20.13

# Appendix D

## Natural Science/Mathematics Program Two-Year Plan

## Two-Year Plan

COURSE/SESSION	FALL	SPRING	SUMMER
Anthr 1- Physical Anthropology	(2) C	(2) C, (1) E	
Astr 1- Introduction to Astronomy		(1) D (odd), (1) E (even)	
Bio 1 – Principles of Molecular and Cellular Biology	(1) D	(1) D (even), (1) E (odd)	
Bio 4 – Principles of Evolutionary, Organismal, and Ecological Biology		(1) D (odd)	
Bio 10 – Natural History of Plants & Animals	(1) D		
Bio 20 – Microbiology	(1) D		
Bio 25 – Human Anatomy & Physiology I	(1) D (even), (1) E (odd)		
Bio 26 – Human Anatomy & Physiology II		(1) D (odd), (1) E (even)	
Bio 32 – Life Science	(1) D	(1) D	
Chem 1A – General Chemistry I	(1) D		
Chem 1B – General Chemistry II		(1) D	
Chem 8 – Introduction to Organic and Biochemistry		(1) D	
Chem 45 – Introduction to Chemistry	(1) D (even), (1) E (odd)	(1) D	
Geog 1 – Physical Geography		(1) D (even), (1) E (odd)	
Geol 1 – Physical Geology	(1) D		
Geol 5 – Historical Geology & Paleontology		(1) D	
Math 1A – Analytical Geometry and Calculus I	(1) D		
Math 1B – Analytical Geometry and Calculus II		(1) D	
Math 1C– Analytical Geometry and Calculus III			
Math 7 - Trigonometry	(1) D (even), N (odd)		
Math 8 – Advanced Algebra		(1) D (even), N (odd)	
Math 40 - Elementary Statistics	(1) D	(1)	
Math 60 – Intermediate Algebra	(2) D, (1) C	(2) D, (1) E, (1) C	
Math 101 – Basic Mathematics	(1) D, (2) C	(1) D, (2) C	(2) C
Math 102 – Pre-algebra	(1) D, (2) C	(1) D, (1) E, (2) C	(2) C
Math 103 – Elementary Algebra	(3) D, (1) E, (2) C, (1) O	(3) D, (2) C, (1) O	
Math 155 – Math Lab - Basic Skills	(1) D	(1) D	
Math 156 – Math Lab – Pre-collegiate Algebra	(1) D,	(1) D,	
PHSC 1 – General Physical Science	(1) D	(1) D	
Phys 1A – General Physics I	(1) D (even)		
Phys 1B – General Physics II		(1) D (odd)	

( ) – sections; D- Day; E- Evening; C- Correspondence; O- Online

# Appendix E

## Natural Science/Mathematics Scheduling Data

## FALL 2012

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:00 – 9:00	Bio 1 Chem 1A	Chem 1A (8-11 Lab) Math 51 (8-9:15)	Bio 1 Chem 1A	Bio 1 (8-11 Lab) Chem 1A (8-11 Lab) Math 51 (8-9:15)	Bio 1 Chem 1A
9:00 – 10:00	Bio 20 Math 51	Math 51 (9:30-10:45) Math 60 (9:30-10:45)	Bio 20 (9-12) Math 51	Math 51 (9:30-10:45) Math 60 (9:30-10:45)	Bio 20 Math 51
10:00-11:00	Bio 20 (10-12 Lab) Math 51 Math 60		Bio 20 (10-12 Lab) Math 51 Math 60		Bio 20 (10-12 Lab) Math 51 Math 60
11:00-12:00	Math 1A Math 7 Math 40 Math 101 Math 102	Math 1A  Math 101 Math 102	Math 1A Math 7 Math 40 Math 101 Math 102	Math 1A  Math 101 Math 102	Math 1A Math 7 Math 40
12:00 – 1:00					
1:00-2:00	Bio 25 Math 102 (1-3)	Geol 1 Math 51 (1-4) Math 60 (1-4) Phys 2A – (1-4)	Bio 25 Math 102 (1-3)	Geol 1 Math 51 (1-4) Math 60 (1-4) Phys 2A – (1-4)	
2:00- 3:00	Bio 25 (2:30-4:00 Lab)	Geol 1 (2:30-4:00 Lab)	Bio 25 (2:30-4:00 Lab)	Geol 1 (2:30-4:00 Lab)	
3:00-4:00					
5:30 – 8:30	Anthr 1 Math 60 Math 101	Chem 45 Math 51 Math 102 PHSC 1	Anthr 3 Math 60	Chem 45 (Lab) Math 51 Math 102 PHSC 1	

Online  
(1) Math 51  
(1) Math 60

Correspondence  
(1) Anthr 1  
(2) Math 51  
(1) Math 60  
(2) Math 101  
(4) Math 102

## SPRING 2013

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:00 – 9:00	Chem 1B	Chem 1B (8-11Lab) Math 51 (8-9:15)	Chem 1B	Chem 1B (8-11Lab) Math 51 (8-9:15)	Chem 1B
9:00 – 10:00	Math 51	Math 51 (9:30-10:45)	Math 51	Bio 1 (9:30-12:30)	Math 51

		Math 60 (9:30-10:45)		Lab) Math 51 (9:30-10:45) Math 60 (9:30-10:45)	
10:00-11:00	Bio 1 Math 51 Math 60 Math 101 Math 102	Math 101 Math 102	Bio 1 Math 51 Math 60 Math 101 Math 102	Math 101 Math 102	Bio 1 Math 51 Math 60
11:00-12:00	Chem 45 Math 1B Math 8	Math 1B Math 7 (11-12:15)	Chem 45 Math 1B Math 8	Math 1B Math 7 (11-12:15)	Chem 45 Math 1B Math 8
12:00 - 1:00	Chem 8		Chem 8		Chem 8
1:00-2:00	Bio 4 Bio 26 Math 101 (1-3)	Chem 45 (1-4 Lab) Geol 5 Math 51 (1-4) Math 60 (1-4) Phys 2B – (1-4)	Bio 4 Bio 26 Math 101 (1-3)	Chem 8 (1-4 Lab) Geol 5 Math 51 (1-4) Math 60 (1-4) Phys 2B – (1-4)	Bio 4
2:00- 3:00	Bio 4 (2:00-5:00) Bio 26 (2:30-4:00 Lab)	Geol 5 (2:30-4:00 Lab)	Bio 4 (2:00-5:00) Bio 26 (2:30-4:00 Lab)	Geol 5 (2:30-4:00 Lab)	
3:00-4:00					
5:30 – 8:30	Anthr 1 Astr 1 Math 60 Math 102 (5:30-7:30)	Math 51 (1-4) PHSC 1	Astr 1 Math 60 Math 102 (5:30-7:30)	Math 51 (1-4) PHSC 1	

Online  
(1) Math 51  
(1) Math 60  
(1) Math 102

Correspondence  
(2) Anthr 1  
(1) Math 51  
(1) Math 60  
(1) Math 101  
(1) Math 102

### SUMMER 2013

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:00-10:00					
5:30-8:30					

## FALL 2013

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:00 – 9:00	Bio 1 Chem 1A	Chem 1A(8-11Lab) Math 51 (8-9:15)	Bio 1 Chem 1A	Bio 1 (8-11Lab) Chem 1A(8-11Lab) Math 51 (8-9:15)	Bio 1 Chem 1A
9:00 – 10:00	Bio 20 Bio 32 Math 51	Math 51 (9:30-10:45) Math 60 (9:30-10:45)	Bio 20 Bio 32 Math 51	Math 51 (9:30-10:45) Math 60 (9:30-10:45)	Bio 32 Bio 20 Math 51
10:00-11:00	Bio 20(10:00-12:00 Lab) Math 51 Math 60 Math 101	Math 101	Bio 20(10:00-12:00 Lab) Math 51 Math 60 Math 101	Math 101	Bio 20(10:00-12:00 Lab) Math 51 Math 60
11:00-12:00	Chem 45 Math 1A Math 40 Math 102	Math 1A Math 7 Math 102	Chem 45 Math 1A Math 40 Math 102	Math 1A Math 7 Math 102	Chem 45 Math 1A Math 40
12:00 – 1:00	Math 101	Math 101	Math 101	Math 101	
1:00-2:00	Bio 25 Math 102 (1-3)	Chem 45 (1-4 Lab) Geol 1 Math 60 (1-4) Math 101 (1-3)	Bio 25 Math 102 (1-3)	Geol 1 Math 60 (1-4) Math 101 (1-3)	
2:00- 3:00	Bio 25 (2:30-4:00 Lab)	Geol 1 (2:30-4:00 Lab)	Bio 25 (2:30-4:00 Lab)	Geol 1 (2:30-4:00 Lab)	
3:00-4:00					
5:30 – 8:30	Anthr 1 Math 102	Math 51 PHSC 1	Math 102	Math 51 PHSC 1	

Online  
Bio 32  
Math 51  
Math 60

Correspondence  
(2) Anthr 1  
(2) Math 51  
(2) Math 60  
Math 101  
Math 102



## SPRING 2014

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:00 – 9:00	Chem 1B	Chem 1B (8-11Lab) Math 51 (8-9:15)	Chem 1B	Chem 1B (8-11Lab) Math 51 (8-9:15)	Chem 1B
9:00 – 10:00	Bio 32 Math 103	Math 103 (9:30-10:45) Math 60 (9:30-10:45)	Bio 32 Math 103	Math 103 (9:30-10:45) Math 60 (9:30-10:45)	Bio 32 Math 51
10:00-11:00	Math 103 Math 60 Math 101	Math 101	Math 103 Math 60 Math 101	Math 101	Math 103 Math 60
11:00-12:00	Chem 45 Math 1B Math 8 Math 60	Bio 10 Math 1B Math 102 (11-1)	Chem 45 Math 1B Math 8 Math 60	Bio 10 Math 1B Math 102 (11-1)	Chem 45 Math 1B Math 8 Math 60
12:00 – 1:00	Chem 8 Math 60		Chem 8 Math 60	Bio 10 (12:30-3:30 Lab)	Chem 8 Math 60
1:00-2:00	Bio 26 Math 101 (1-3)	Chem 45 (1-4 Lab) Geol 5 Math 51 (1-4) Math 102 (1-3)	Bio 26 Math 101 (1-3)	Chem 8 (1-4 Lab) Geol 5 Math 51 (1-4) Math 102 (1-3)	
2:00- 3:00	Bio 26 (2:30-4:00 Lab)	Geol 5 (2:30-4:00 Lab)	Bio 26 (2:30-4:00 Lab)	Geol 5 (2:30-4:00 Lab)	
3:00-4:00					
5:30 – 8:30	Bio 1 Math 103	Math 40 (5:30-7:00)	Bio 1 (Lab) Math 103	Math 40 (5:30-7:00)	

Online  
Anthr 1  
Bio 32  
Math 103  
Math 60  
PHSC 1

Correspondence  
(2) Anthr 1  
(2) Math 51  
(2) Math 60  
Math 101  
Math 102

# Appendix F

## **Natural Science/Mathematics Instructional Program Review Student Evaluation Summaries**

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/06/2013 Current Course: Biology 1 (MWF 8-9 am)

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

If lab book was provided, not purchased by students  
Never had biology class before, meets my expectations  
More lab time needed  
Clarify lab procedures (2)  
Test grading is unfair  
College classes depend on instructors, too many sub-par instructors at LCC  
This class needs a new instructor  
Great course (3)  
More blenders would make labs go faster  
Make a 5 unit class so there can be 2 lab days a week  
Afternoons would be better, morning conflicts with bus schedule

14. Provide any additional comments on the course or program

Great class  
Nice instructor, easily distracted and off topic  
Enjoyable class

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 03/03/2014 Current Course: Biology 1 (MW 5:30-8:30 pm)

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

I can't see any. This is a good program

The course is fine the way it is.

There is no need for improvement

Sue Mouck is a great instructor and should continue teaching bio 1 and any other bio classes

Nothing immediately comes to mind

Mouck is a good teacher

I believe this course is interesting and has the hands on experience to help me learn

This is a great course, I do not think it needs improvement

Offer it more often as an evening class

It is a good class

Shouldn't cram so many chapters in one lecture. Material not able to be absorbed and doesn't match the type of testing that students are expected to know in short amount of time.

14. Provide any additional comments on the course or program

The teachers bring the information down to a learning level to where its easier to remember and make connections

I really enjoy bio 1 due to the fact that I enjoy biology and the studying can be easy for me. Good teacher.

The lab portion is perfectly timed.

Very educational and interesting.

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 02/25/2014 Current Course: Natural History of Plants & Animals (TTh am)

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Could use a moodle follow along and key points to focus on. Diagrams that we are tested on should have been available for more study times and locations

This program doesn't need to be improved. Very well structured.

Overall the course is what I expected and what I felt I needed to learn. No changes are needed

The teacher better prepared and familiar with the area

14. Provide any additional comments on the course or program

Heavy content and information. Guide updates and progress checks on journals could be more frequent. Establishing project titles and subject early would improve time management for completion on essays

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/01/2013 Current Course: Microbiology (MWF 9-11:45 am)

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Offer every semester  
Replace squeaky chairs (3)  
Evening/weekend lab studies  
Nothing needed  
Very satisfied  
Great course  
Updated equipment needed  
Nothing to improve  
Too fast, make a 2 semester course

14. Provide any additional comments on the course or program

Chairs squeak, uncomfortable (4)  
Cold room  
Provides what is needed  
Enjoy course, interesting  
Great instructor, interesting class  
Offer every semester  
Class would not work without a great teacher  
Study guide and syllabus are helpful study tools  
Great, knowledgeable teacher  
Course is challenging, love it

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/01/2013 Current Course: Human Anatomy and Physiology  
(MW 1-4 pm)

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Lower student to teacher ratio  
Building needs new pencil sharpeners and faster student computers  
More audio/video presentations  
Structure to nursing class prep  
More explanation of materials  
More flexible lab times  
More lab time offered  
Class is too hard for community college level  
Course and program are fine  
More scheduled times offered (3)  
Hold class on same days as other LVN pre-requisites  
More help for those who need it (3)  
Three days a week offering

14. Provide any additional comments on the course or program

More multi-media/visual aids (2)  
Not comfortable asking any teacher in math/science a question  
Pass/fail rate is too low  
Make 2 A&P classes, one for nurses, one for biology majors  
Not enough time to learn required amount  
Instructor and aid are great for extra help  
Great teacher-clear explanations and interesting class (2)  
Meets all requirements  
Too fast  
Too hard

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 03/05/2014 Current Course: Human Anatomy and Physiology II  
(MW 1-4 pm)

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

More time offerings at enrollment

The microscopes could be services more often

More comfortable lab chairs will better the learning environment

14. Provide any additional comments on the course or program

I have learned more in this class than any other in my life. Sue is a great teacher.



LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/06/2013 Current Course: Biology 32

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

None needed

Class is reasonable

Follow book, don't jump around

Well organized, good course

Course meets needs

Is a review of H.S. biology

Good class

14. Provide any additional comments on the course or program

Administration needs improvement

Hard, yet easy learning a lot

Too early-makes poor attendance

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 03/03/2014 Current Course: Biology 32

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

More extra credit.

This course meets my needs, needs no improvement

I don't think it needs to be improved

As long as its warm, its good

Could have more hands on learning

More interactive, always just sitting here listening to her lecture

We're not very far in so I don't really know at this point if this course is adequate or not.

They could increase the number of assignments to help the student get a better understanding of the material covered.

Better and more accurate descriptions of courses. This course was advertised as an "intro" course and my counselor even stated it'd be a beginner class, however this course is much more extensive. It covers multiple aspects of different sciences. This course should not be introductory.

I would like this course to maybe give out more work. I don't really know if I understand fully, so if we had more work I would have a better standing.

Program is taught in a accurate matter

14. Provide any additional comments on the course or program

This course is easy to understand and very educational

Ladner is a great teacher and helps when needed. One of my favorite classes I've ever took

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 12/4/13 & 3/13/14 Current Course: Chem 1A/1B

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Program is good, very challenging

Ok right now

Too early in morning, fewer days a week, 1 lab per week

14. Provide any additional comments on the course or program

Program is interesting, shows different elements to learn

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 12/3/14 Current Course: Chem 8

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Time, more time for lab and discussion would help. Time is adequate but more never hurts

14. Provide any additional comments on the course or program

The class is small, this is nice and beneficial

Great class. Plenty of time for questions and doctor Anderson is knowledgeable and very helpful  
I like this class overall. The material is well explained in lecture and laboratory and the small class allows for more time for questions

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 12/3/13 Current Course: Chem 45

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Reasonable course, longer lecture, more specific syllabus  
More detail on hard stuff, homework assignments  
Good challenging course, some students need extra help  
Offer different teachers to suit different students learning styles  
Labs where teacher shows step-by-step  
Chemistry is good, well instructed

14. Provide any additional comments on the course or program

Step-by-step explanations  
Instructor is helpful  
Good program  
Need a tutor for chemistry  
Bio department needs new instructor

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 03/05/14 Current Course: Chem 45

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

For the athletes at this school it would have helped a lot if I didn't have to miss practice for this course. So the time of lab could be changed so athletes wouldn't have to miss practice.  
Ice cream machine for those who get the highest grades  
I found that the equipment should be updated  
A larger periodic table of element away from the lights because the way it is now the lights give it a glare and it is unreadable to some of us  
Maybe give homework or worksheets to practice and give more preparation for exams  
I don't feel like there should be any change I think everything is great  
Everything met the needs of this students needs  
Student count per class was too much layout of classroom was difficult to access materials used in lab  
Updated equipment  
The chairs are very uncomfortable and the math/science building is often hot and cold. Also teachers could be nicer and not so rude.  
More lab space or a few less amount of students per class  
More lab space, less students  
Could use more equipment or smaller number of students

14. Provide any additional comments on the course or program

I found that the teacher was very knowledgeable  
Dr. Anderson is a great teacher and he knows and explains the material very well for students to understand  
I wish we spent more class time practicing what we've learned. For example worksheets for electron dot structure or conversions  
I like the classes and most of the teachers. I think that online classes with in class labs would be great, like Feather River  
Overall good course

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/12/2013 Current Course: Geology 1

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Split lec/lab, three hours is too long  
More times offered  
Field trips needed  
Fine as is (2)  
Exceeds standards  
More rocks, less evolution of them  
More field trips for extra credit  
Great course  
More variety

14. Provide any additional comments on the course or program  
Lecture after homework-should be homework after lecture

Great course  
I like rocks now  
Not all tests are on actual material covered, great class  
Teacher likes material-makes class fun and interesting  
Awesome teacher  
Get out of the box, mix it up, make it exciting

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 02/25/2014 Current Course: Geology 5

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

It should be available more often for students who need a lab class to transfer.

More physics classes and availability in all semesters would be helpful.

A bigger room would be better

Less students per class

Larger facilities and projectors that are higher up. It's almost impossible to see the screen from the back of the room

I am enjoying this course. Mr. Fuller is a great teacher and very knowledgeable

Add more optional times

Larger class room would be helpful

More space

I think all my teacher and courses are awesome so I can't see a need for change except for the lazy-boys

I think that some of the rooms need better set up. Especially the geology room we use the smart board a lot. The screen is low the tables are high, you can't see over the people at all makes it impossible to take notes watch movies or anything else involving the smart board

Needs to have longer breaks and a extra room with wifi to hang out and wait for the next class

More field trips

Needs more space and up to date equipment

Possible provide a larger area so more may attend

I don't really care, but you should offer more classes so not everyone is waitlistedx

14. Provide any additional comments on the course or program

Mr. Fuller is rally knowledgeable and does a great job

I wanted to take astronomy but it was not offered this semester. It would be helpful is that course was offered

Awesome teacher

I want to play with real gold and diamonds

Im not sure if it's the schools decision or teachers decision but I so not believe it is fair to not allow students to schedule another day to take test if the give the teacher enough time in advance and they're not going to be here





LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/01/2013 Current Course: Math 101

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Too much to list  
Courses meet requirements for degree  
A little fast-only 1 teaching style  
More sidewalks from parking to building, keep them clean  
Having 1 on 1 is helpful, better schedule for athletes  
Better chairs  
Instructor should stop students from being rude  
Its help because students can have more comfortable  
Don't know  
Not further opinions  
No complaints about course-disrespectful students in class  
Free beer before and after class  
Class is great, longer times would be nice  
Course is improved and helpful  
No changes  
No improvements needed  
Well put together

14. Provide any additional comments on the course or program  
All courses satisfactory in math and science department  
Small class great for 1 on 1, enough time allotted  
Book is old  
Really helpful  
Glad to be here  
Very happy to be successful after dropping math 3 times, course is awesome  
Love the instructor/teaching style  
The professor is V

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 03/03/2014 Current Course: Math 101

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

I am content with the course/program as is

While signing up for classes, being able to choose which times to be in that class according to your personal schedule.

Better chairs and tables.

Fine the way it is.

Should be left as it is

Don't have any ideas

Needs no improvement

Its good

It could have more classrooms, this way math and science won't have to share rooms

14. Provide any additional comments on the course or program

I like how course is going. Good comments from me.

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/06/2013-11/07/2013 Current Course: Math 102

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Entire school system needs a reform  
Flexible classes for athletes  
More lecture structure, less book work  
No teachers are great, this one gives good explanations  
Classrooms are great, nothing else needed  
Class is fine (5)  
No change  
More explanations

14. Provide any additional comments on the course or program

Adequate (2)  
You do something, not us  
Teacher works hard to provide students knowledge on course  
Good teaching, easy to understand (2)  
Good class

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 02/27/2014 Current Course: Math 102

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Its fine the way it is. Doesn't need improvement.

It could help students be able to transfer or meet a job requirement. I could also help with life math. This math provides you with a different faster way to do multiplication and division. Also provides a quicker easier way to do addition and subtraction.

I believe not only this course allows the opportunity of success, but the instructor does as well.

When given assignments try to let the m figure it out first and if they don't understand explain it to them because this way it helps them think more. When work is done give them the quiz to the people that are because this way we have time to study more for different classes.

In my opinion this class goes too quickly through the material

More time to work in class

Could not be

The class should be talking about/reviewing the homework for the night, not taking the whole class reviewing last nights homework. Answering questions about homework is not bad, but we probably wouldn't have that many questions if we learn about the homework in the class

The desks need to be individual desks

Good job

Schofield does an acceptable job answering any and all questions posed until the material is understood.

Mr. Ng should care more about teaching and actually making sure people understand

No improvement needed

I think maybe a lecture only class could be added because sometimes the full 2 hour combination is too much

More understand program

Offer morning class

Nothing needed

Not many section assignments each class. Too overwhelming when having to deal with other classes and personal responsibilities

I believe that the course adequately meets the needs of the students and that there is no possible way that it could be improved.

I think they should combine pre-algebra and elementary math 50 so people could save money.

This program/course is great, nothing needs to be improved.

One more day a week so the class time could be shorter.

Its pretty good in my opinion it works perfect for me.

It's fine just the way it is

Its fine how it is

I think teacher explains good. No criticism

I need more time on each section but college is fast paced  
Should try to make it more fun.  
Slow down a little.  
In a way make it more fun  
I think it doesn't need improvement, it really all up to the student to make the time and commitment  
Its okay how it is now  
Program is good ok

14. Provide any additional comments on the course or program

My teacher is doing a great job teaching us and helping us understand the material.  
Its been easy and I'm scheduled to retake my placement test on 3/3/14 to see if I place in a higher course to make it easier to transfer to a 4 year faster.  
Had to retake this class. Last semester the teacher didn't explain how to do things or really teach much.  
My teacher this semester really goes in detail with teaching. Schofield is an amazing professor.  
Really enjoy this class from the fact that I have a hard time concentrating. The teacher teaches well and makes sure to answer any and all questions thoroughly  
More seating  
No other comment on this course, just a suggestion: encourage students (often) who need help to seek assistance at the learning center, like tutoring. (I got a tutor) and they help a lot.  
Need lazy-boys  
Great instructor! Nice to know multiple different ways to do things and be allowed to explore the one that best fits me.  
If there was a way to change program, I do not see it, great work  
The teacher did a very good job at spending time to make sure all students questions are answered and spending time if anyone was struggling

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/07/2013-11/12/13 Current Course: Math 51 (103)

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

- |  |   |
|--|---|
| Course is fine (6)                                 |   |
| No improvement needed (2)                          |   |
| No problems  | Different hours available                             |
| None needed  | Liked it the way it was                               |
| Spread out material more                           | Class moves too fast                                  |
| Pretty good  | Ensure class up to speed before moving on             |
| Course is good                                     | 3 days a week   |
| Flexible time schedule                             | Better math lab times                                 |
| Less homework/more classwork                       | Class is fine   |
| Projectors out dated and not working               | Nothing is wrong with the course-less instruction all |
| Not enough time in class                           | at once, too much to absorb                           |
| Course could be better                             | Post current grades, more out of class help           |
| It's math class                                    | Make sure students understand what is taught          |
| Larger classroom, more comfortable chairs          | Longer classes, few days/week (2)                     |
| Could not use math lab due to times offered better | Lectures should teach, fewer quizzes and homework     |
| time offering, better office hours                 | corrections   |
| More convenient class times                        | More instruction on harder chapters                   |
| Bigger classrooms                                  | Supply calculators, more tutor time                   |
| More times available                               | List says 4 required books, only use 1                |
| Fewer days a week for better attendance, fit       | It was fine   |
| schedules better                                   |   |
| None. This course exceeded my standards for online |   |
| classes  |   |

14. Provide any additional comments on the course or program

Math is a terrible night class, afternoon is better

Pre-test would be helpful

Teaching is good, learning a lot

Test right after chapter is finished, not after next is started

Course is great for continuing student who is bad at math

Very good class (2)

Thank you LCC

Parking inadequate, bathrooms outdated, not enough room is study area

I like the idea of internet courses. I live out of town and this is perfect for me.



LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 02/27/2014-03/04/14 Current Course: Math 51 (103)

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Everything runs great, I have everything I need to get my work done

Better instructors

No improvements necessary

Further explanation on how deep you will be going in math

I've greatly enjoyed this math 103 class and hope future classes I take are as good. I plan to get a math major degree. My goal is at least a Master's in math

I have no problems with this course

I think the course is fine the way it is

The teacher need to slow down not everyone learns the same

They could do less homework more teachers willing to help. Took this class once and the teacher was hardly there, never helped us and just shoved us to another student. Answered only questions she wanted to, but wouldn't accept work with ones she said she'd help later with

The course is fine the way it is in my opinion

Fine as it is

It is good just the way it is

It's good the way it is and I have no complaints

The mathematical formulas of learning the course needs more time to learn

It is just fine

I can't think of any

It would be nice to have more options for classes have both instructors available during the day for this class

This course does not need to be improved. Nothing is wrong

Set a more convenient time for class, or allow this particular class to have at least an hour worth so class won't have to meet everyday

Not 3 hours long

Offer a 4 day a week class

I cannot think of anything though I am falling behind on my own. No one fault. Well at least its not college faculties fault

It met my needs and I didn't need anything more

The course is fine the way it is

It is doable, I think the teacher needs show board work. Other than that it just fine

I'm a visual learner, Mr. Stevenson does not show work on the white board so it is hard for me to understand what he's talking about. He does show some things but I would prefer him to show more on the board

Good as it is

This course is good the way it is

Continue to offer night classes as I work 9-5 and this way I am able to attend classes

Make different classes for the same core class. Ie. One would go faster than the other

I believe this course needs no improvement  
This course could better the students at Lassen College better by taking notes in class  
I can't think of any improvements  
My needs have been met  
Offering this course in the afternoon and mon/wed would have been better  
This course would be better if the didn't slam us with classwork and homework as much because some of us already have a lot of other work to do. Currently I am taking 12 units and this class has more work than 2 or 3 of my other classes combined  
If the class weren't so long  
More books need to be available for rental/loan  
This course adequately meets the needs of the student  
This course worked for me  
The entire education system suffers from capitalistic drive for money instead of on Academic drive for knowledge  
For what is needed from this program it meets those needs  
They could have had different class times available  
Math class is for every job you apply so it does improve to better meet the needs of the student

14. Provide any additional comments on the course or program

Engaging, keeps me busy and focused  
I am thankful that instructors make an attempt to make office hours accessible for extra help and the learning center is there also to assist if learning styles don't match with teacher teaching styles.  
My instructor makes excuses more on how he won't teach than how he will help me succeed on the course  
Jackson Ng is a very intelligent, professional professor. Provides adequate practice tests, goes over material thoroughly and sets his students up for success  
I've been very satisfied with this course  
The course is good the switch between teachers was hard  
Mr. Ng is a very helpful teacher I hope he will teach the next math class that follows this one  
I like the instructor we have now  
This course could be shortened to two hours  
Jackson is a great instructor. Very happy!  
Very happy  
Its only as fun as math is. Good course all together though  
The professor needs to give notes in class  
Jackson Ng is a very good teacher  
The course is fine its these reviews that are a problem, they take my valuable class time  
Good and easy to follow along and understand most material  
Its great but the past is calling and it wants its ignorance back

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/07/2013 Current Course: Math 60

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Class is fine	3-2hr classes instead of 2 3hr.meets needs
Go slower through lesson	Conflict with optional bio study lab
More time offerings	Should meet student needs more problems from assignments
Teacher is great, class is fine	More days each week
More time in class	Not 2 day, 3 is better for student retention
	Speed up pace
All teachers should teach class the same	Not 3 hrs long, 2 hours is better
Dropped last semester, teachers should rotate up as students advance	Better communication-advance class cancellations
Great as is	Not everyday-slow down
No improvement needed	Not understood by all-try different things
More math lab times	Meets needs of students as transfer course (2)
More class times to not conflict with other courses	
More correspondence and online options	Let student know textbook not required ahead of time
Meets student needs, instructor is great	
Hard to stay 3 hours at night	

14. Provide any additional comments on the course or program

Would like online  
Math is evil, teacher made it great for this course  
More teachers  
Very happy  
Better chairs for long classes  
Teacher is strict so students do well  
MS 125 very cold (2)  
Know what classes needed each semester  
Generally easy  
Class is ok  
Could have been faster  
Pleased with scheduling options and friendly environment  
Course is thorough, well structured  
More compliant with bus schedule  
Should be a requirement  
None needed

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 02/26-27/2014 Current Course: Math 60

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

I think its fine

The purpose behind algebra is to assist building critical thinking skills as well as learn the math. The pace of the class (by requirement) is too fast for concepts to stick.

There was no problems with the course expect there is a lot of homework which is expected.

I think it is fine how it is. It's a nice course

It was fine I don't think it need help

Everyone gets A's

Provide more classes offered at different times (multiple English classes, art classes at varying times to better meet needs etc.)

The course is fine as it is.

I believe this course could be offered at more times to benefit people. Athletes are struggling to fit it in with their busy schedule.

At the current time, this course fulfills all my needs.

Labs should be used for lecture only, since it is longer than class days, and also use class days as

“workdays” where we can work on our homework and/or take quizzes etc. which will ne helpful to the students with lots of questions/those who need help with math.

It's fine the way it is

I wish it was an hour long

I don't see how it can be improved

Class is really long

They could have netter walls so you don't hear other instructors speak during a lesson

It fine, maybe not as long

I'm not sure, it's good as is

Good. The extra help hours and tutors are great

Seems good to me

Have a choice to take the course with a daily schedule

Being able to locate and know what student grades are

14. Provide any additional comments on the course or program

#7 does not fully account for the usability of the text to assist with learning college level algebra. At times it is not detailed enough to be of use to a student, unless your goal is to require rote memorization and not true understanding.

It is a tougher class and requires retention of a lot of material.

Math is fun.

Book was very expensive.

Overall the course has been straight forward and the instructor made efforts and encouraged students to speak up if they did not understand a concept, and if there was any confusion, form what I saw, the instructor spent more time and made sure the concepts were sufficiently covered.

Probably will have to cram a few extra sections for homework since there will only be a few lecture days. Lab days will be the only day that homework is assigned.

Great class

Good teacher, he will listen to our comments and take them into consideration which is very nice.

It's a solid program not much needed to add to make it better

The course is good

Mr. Schofield is a great instructor, I've learned a lot in his class so far

Mr. Schofield is a great teacher

I have a good teacher who teaches according to my needs

Course is thorough, well structured

More compliant with bus schedule

Should be a requirement

None needed

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/06/2013 Current Course: Math 40

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Course is fine

Terminology is hard, adequate time to study provided, good explanations

Teacher should go at students pace

Have class be five days a week

Class is great

Evening hours needed

More time in class is needed

Nothing needed (3)

Let athletes out early (2)

More examples given in class

Use smart board as designed

14. Provide any additional comments on the course or program

College needs improvement

Free coffee and snacks in winter would be great

Smart boards are expensive, use fund to improve elsewhere on campus

More class times offered

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 03/06/2014 Current Course: Math 40

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

More help with test questions

More labs or something fun like flash cards before a test

Change times, or days mainly because city events such as chamber mixers and art receptions are on Thursdays during the evening. I personally would rather not have to miss class, but would also like to attend said events. Oh the dilemma.

I am satisfied with the way this class has gone. It was taught clearly, there were no unexpected costs, and I've had no scheduling conflicts

Offer more than one class time.

Correspondence or online

Offered more times than once a semester

The class is fine, no changes need to be made

The seating in the classroom made it a little difficult to walk through while people were seated

This class is pretty good the way it is, the material should be explained further in depth

Elaboration on small details in class to better understand the material

Giving out the test maybe it will be better if student takes a test on each section, or take home test so that they can practice more on them

Needs to have tutors to help students!

N/A overall, course met my needs

Offer more than one class for this particular course. Instead of having only one statistics class this semester, there should have been two, in case there's a conflict with other general courses.

Everything about this course is fine. Maybe more in class examples

Tests are difficult, many students struggling perhaps some multiple choice questions would increase success and possibly the addition of extra credit problems.

Its fine, but since you asked, it could use free snacks

More class offered so its not such a big class

We need more great tutors and teachers for this course. My instructor is great but I need more instructors just like him

14. Provide any additional comments on the course or program

Course or program progressing slowly due to not teacher on schedule

Quite a tough class. Details need to be paid attention to

This course is very hard and confusing. There are too many formulas that we students have to memorize which are very hard to memorize and use them to solve a problem solving.

It really needs a study guide for all of the tests

It would have been easier on some student's schedule if this course was available online

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/07/2013 Current Course: Math 7

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

More time in class to prevent drop  
More days/week  
Slow down some when explaining each section

14. Provide any additional comments on the course or program

5 days/week classes save students from failing  
Would like to see more physics courses  
Maintain students, don't let them get behind and drop  
Some content remains confusing



LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 03/05/2014 Current Course: Math 8

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

I don't think there is anything to change in this course. I like the teacher he explains everything  
Be offered on Tuesday/Thursday so that we get more time in the class. 50 minutes is cutting it close.  
I don't think there is need for improvement  
Offer this class online/correspondence every semester  
Offer a class with more lab time  
I think the class should meet everyday  
This class is only offered at one time. For students trying to take other classes or that might be working their way through college might need it at another time in the day, not just one class at one time.  
I don't truly think this course could be improved. It is taught by an excellent teacher who prepares you for life and further education  
None, good as is.  
Move at a slower pace.  
More than one offering  
This course seems to adequately meet the needs of students. I feel as though I have access to all the resources I need to pass the class.  
The program is good, I don't see the need of improvements  
Class is very good no need to improve  
Good course  
Could be offered in the evening so I would not have to take time off of work

14. Provide any additional comments on the course or program

Because it is only a lecture class, it doesn't transfer well  
A very good class, I need more time  
Textbook is very confusing  
This course could be easily offered online/correspondence to allow students freer access to math 8  
Good class  
I feel that this class should not be required for general education. I have no desire to further my education in math and I think many people in this class are the same. This class is difficult and should not be a requirement for me to move on

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 11/7/2013 Current Course: Math 1A

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Longer lesson, fewer times per week (2)  
Move to a room that doesn't smell and has inside access

14. Provide any additional comments on the course or program

Great course, great instructor (2)

LASSEN COMMUNITY COLLEGE  
INSTRUCTIONAL PROGRAM REVIEW – SUMMARY OF STUDENT EVALUATION

Name of Program: Natural Science/Allied Health/Mathematics/Physical Science

Date Survey Completed: 02/26/2014 Current Course: Math 1B

13. Describe how this course/program could be improved to better meet the needs of the students at Lassen Community College.

Not 5x a week, 3x with longer periods

14. Provide any additional comments on the course or program

NA