2016-2017 Science and Math Division

Total Active Courses: 117
Total Active Courses with Student Learning Outcomes: 117
Percentage of Active Courses with Student Learning Outcomes (Excluding Deactivation): 100.00%
Percentage of Active Courses Assessed (Excluding Exempt): 59.83%
Percentage of Active Courses with Assessments Accounted for (TOTAL: Assessed + Exempt): 100.00%

Course	Course Title	Student Learning Outcome	Assessment Complete
ANAT - 1 (4013)	General Human Anatomy	1. Students will apply biological principles to healthful vs. pathological conditions. 2. Students will express their understanding of major anatomical concepts by verbal, written, and illustrative means using correct terminology. 3. Students will identify observed microscopic and macroscopic structures	Yes
ASTR - 10 (3819)	Introduction to Astronomy: The Solar System	1. Assessment of overall learning of introductory astronomy concepts from Astro 10, including motions of the sky, history, light and telescopes, the sun, planets, and smaller objects in the solar system, using 25 point quiz/exam administered at end of semester 2. Demonstrate an understanding of the reasons for seasons 3. Demonstrate gain in understanding of key concepts in Astronomy 10 through completion of 25-question multiple choice survey quiz given at least once during the term. 4. Demonstrate understanding of method of detecting extrasolar planets 5. Demonstrates Undertanding of Galileos' Discoveries and why each was important in	Yes

		overthrowing the geocentric model. List of possible answers includes seeing Venus' phase and size changes, seeing Jupiter's 4 moons revolve around Jupiter, seeing Craters and Mountains on the Moon, Sunspots, Saturn's oblong face, distant (and prior, invisible) stars in the Milky Way.	
ASTR - 20 (3820)	Introduction to Astonomy: Stars and The Universe	1. Assessment of overall learning of introductory astronomy concepts from Astro 20, including motions of the sky, history, light and telescopes, the sun, stars, stellar evolution, the galaxy, galaxies in the universe, and cosmology, using 25 point quiz/exam administered at end of semester 2. Demonstrate an understanding of the reasons for seasons 3. Demonstrate gain in understanding of key concepts in Astronomy 20 through completion of 28-question multiple choice survey quiz given at least once during the term. 4. Demonstrate understanding of HR diagram 5. Demonstrates Undertanding of Galileos' Discoveries and why each was important in overthrowing the geocentric model. List of possible answers includes seeing Venus' phase and size changes, seeing Jupiter's 4 moons revolve around Jupiter, seeing Craters and Mountains on the Moon, Sunspots, Saturn's oblong face, distant (and prior, invisible) stars in the Milky Way. 6. Read, analyze and critique a magazine or newspaper article about a current discovery in	Yes

		Stellar or Galactic Astonomy specifically identifying parts of the porcess of science, including evidence of observation, past research, testable hypotheses, experimental results, data analysis, support for or against prior therory, peer review and publishing.	
ASTR - 30 (3822)	Introduction to Astonomy Lab	1. Demonstrate an understanding of the difference between precision and accuracy through a lab report or capstone survey 2. Demonstrate an understanding of the meaning of precision and accuracy, as illustrated in the lab exercises in the term. 3. Demonstrate an understanding of the nature of angular size and resolution with telescopes through a lab activity, write-up, project, or hands-on demonstration using a telescope 4. Demonstrate an understanding the Process of Science 5. Measuring and using Angles through the use of diagram the light path of starlight through a telescope, compute the field of view of a telescope using objective mirror or lens and eyepiece dimensions, test the field of view using actual measurements of distances and sizes, compare and contrast results, and critique the experiment for obvious sources of error 6. Relate individual lab exercises to the key concepts in astronomy as well as in the process of science.	Yes

BIOL - 10 (476)	Introduction to the Science of Biology	1. Student will apply biological principles to everyday occurrences, social issues, or novel situations 2. Students will apply biological principles to everyday occurences, social isses, or novel situations 3. Students will collaborate with peers to share information, ideas and responsibilities. 4. Students will design, perform and evaluate experiments 5. Communicate biological concepts by written, verbal, and graphical/illustrative means.	Yes
BIOL - 2 (3981)	Principles of Cell/Molecular Biology and Genetics	1. Describe how form and function are interdependent at the cellular level. 2. Perform experiments; collect, analyze, and report data. 3. Students will use and develop competency with standard equipment and techniques of biosciences (balance, graduate, pipette, metric ruler, chemical indicators, microscopes, make and interpret graphs, interpret data.	Yes
BIOL - 25 (4296)	Human Heredity and Evolution	1. Describe an example of how science is a process of discovery that builds on and modifies previous information. 2. Explain a way in which the scientific discoveries in evolutionary biology may influence humans and their society.	Yes

		3. Explain a way in which the scientific discoveries in genetics may influence humans and their society.	
BIOL - 31 (3979)	Introduction to College Biology	1. Apply biological principles to everyday occurrences, social issues, or novel situations. 2. Students will apply the techniques of scientific inquiry to perform experiments, gather and evaluate data, and interpret their results. 3. Students will collaborate with peers in order to share information, ideas and responsibilities while preparing for lab, conducting lab, and safely managing laboratory equipment.	Yes
BIOL - 4 (3980)	Principles of Animal Biology and Evolution	1. Describe how form and function are interdependent in living organisms at levels of organization ranging from atomic to biome levels. 2. Design, perform and evaluate experiments. 3. Develop competency with standard equipment and techniques of biosciences (balance, graduate, pipette, metric ruler, chemical indicators, microscopes, making and interpreting graphs, & interpreting data)	Yes
BIOL - 50 (3982)	Anatomy and Physiology	1. Apply biological principles to modern life 2. Communicate anatomical and physiological concepts by written, verbal and graphical/illustrative means. 3. Perform controlled experiments; collect and analyze data.	Yes

		4. Students will apply the techniques of scientific inquiry to perform experiments, gather and evaluate data, and interpret their results. 5. Work collaboratively with fellow students to design, conduct, and evaluate scientific experiments.	
BIOL - 6 (4184)	Principles of Plant Biology and Ecology	1. Correctly place representative plants into major phyla and classes and identify the distinguishing characteristics of each major phyla and class. 2. Demonstrate competency with standard equipment and techniques of the biosciences (microscopes, chemical indicators, instruments of measure, elementary statistical analysis, etc.) 3. Explain physiological plant processes including transport in plants and responses to hormones and environmental factors. 4. Identify specific structures of algae, non-vascular plants, seedless vascular plants, and seed plants at both macroscopic and microscopic (cells and tissue) levels. 5. Perform experiments; collect, analyze, and report data.	Yes
BIOT - 20 (493)	Chemistry for Biotechnology	1. Balance the chemical equation provided 2. Measure and calculate mass, volume, density, pressure, and temperature 3. Using the periodic table and given two representative elements, students will determine the simplest formula for a compound. 4. Using the periodic table, predict physical and chemical property of an element	Assessment Exempt - Course was not offered

		5. Write chemical formulas for commonly occurring ionic compounds	
BIOT - 30 (494)	Basic Biotechnology: Introduction to Cell and Molecular Biology	1. Able to construct standard curve and interpret results. 2. Able to keep a professional notebook. 3. Demonstate proper micropipette techniques.	Assessment Exempt - Course was not offered
BIOT - 40 (495)	Biotechnology Lab Skills I	1. Demonstrate an understanding of the scientific method, experimental design, data collection, basic statistics, basic laboratory skills, and procedures including the preparation of reagents and other materials 2. Demonstrate appropriate behaviors, teamwork, and proper safety procedures to work in a laboratory environment, including maintaining a professional quality laboratory notebook 3. Demonstrate the ability to make solutions, reagents, buffers	Assessment Exempt - Course was not offered
BIOT - 50 (496)	Biotechnology Laboratory Skills II	1. Demonstrate ability to prepare media, gels, buffer solutions and reagents of specific concentrations by using the appropriate stock solutions 2. Demonstrate understanding of SOPs 3. Isolate and purify DNA from biological systems and plasmid vectors from bacterial for cloning	Assessment Exempt - Course was not offered
CHEM - 10 (4531)	Introduction to Chemistry	1. Develop an appreciation for and/or a better attitude toward the learning and use of science	Yes

		2. Students will apply scientific prinicples and communication skills to either a research or experimental project. 3. Students will compare and contrast two sources of scientific information on a chemistry related topic and write a four paragraph analysis.	
CHEM - 12A (4514)	Organic Chemistry I	1. (Communication) Communicate chemical concepts, understand definitions, and interpret experimental results. 2. (Critical Thinking) Analyze experimental data and explain chemical processes at the molecular level. 3. (Development of the Whole Person) Recognize and appreciate the impact of the scientific principles of chemistry in day-to-day life.	Yes
CHEM - 12B (4520)	Organic Chemistry II	1. (Communication) Communicate chemical concepts, understand definitions, and interpret experimental results. 2. (Critical Thinking) Analyze experimental data and explain chemical processes at the molecular level. 3. (Development of the Whole Person) Recognize and appreciate the impact of the scientific principles of chemistry in day-to-day life	Yes
CHEM - 1A (3049)	General College Chemistry I	1. (Communication) Communicate chemical concepts, understand definitions, and interpret experimental results.	Yes

		2. (Critical Thinking) Analyze experimental data and explain chemical processes at the molecular level. 3. (Development of the Whole Person) Recognize and appreciate the impact of the scientific principles of chemistry in day-to-day life.	
CHEM - 1B (4528)	General College Chemistry II	1. (Communication) Communicate chemical concepts, understand definitions, and interpret experimental results 2. (Critical Thinking) Analyze experimental data and explain chemical processes at the molecular level. 3. (Development of the Whole Person) Recognize and appreciate the impact of the scientific principles of chemistry in day-to-day life.	Yes
CHEM - 30A (4529)	Introductory and Applied Chemistry I	1. (Communication) Communicate chemical concepts, understand definitions, and interpret experimental results 2. (Critical Thinking) Analyze experimental data and explain chemical processes at the molecular level. 3. (Development of the Whole Person) Recognize and appreciate the impact of the scientific principles of chemistry in day-to-day life	Yes
CHEM - 30B (4530)	Introductory and Applied Chemistry II	1. (Communication) Communicate chemical concepts, understand definitions, and interpret experimental results	Yes

		2. (Critical Thinking) Analyze experimental data and explain chemical processes at the molecular level 3. (Development of the Whole Person) Recognize and appreciate the impact of the scientific principles of chemistry in day-to-day life	
CHEM - 31 (4525)	Introduction to College Chemistry	1. (Communication) Communicate chemical concepts, understand definitions, and interpret experimental results 2. (Critical Thinking) Analyze experimental data and explain chemical processes at the molecular level. 3. (Development of the Whole Person) Recognize and appreciate the impact of the scientific principles of chemistry in day-to-day life	Yes
CHEM - 5 (4532)	Quantitative Analysis	1. 70% of students will be able to describe the major methods of quantitative analysis 2. 70% of students will be able to discuss the advantages and limitations of the various methods of analysis 3. 70% of students will be able to perform experiments using established laboratory procedures to acceptable standards of precision and accuracy	Assessment Exempt - Course was not offered
CSCI - 10 (734)	Introduction to Programming Using Visual BASIC.NET	1. Recognize the functionally and ease of windows based user interface (IDE) for programs written in Visual Basic.NET by selecting and understanding which of the proper or available	Yes

		objects controls to embed on the Form and to code the proper event that each of those objects "detect" when the program is executing. Discuss the advantages of a window based, event driven language vs. an older "command line prompt language such as C or C++. 2. Recognize the functionally and ease of windows based user interface for programs written in Visual Basic.NET by selecting and understanding which of the proper or available objects controls to embed on the Form and to code the proper event that each of those objects "detect" when the program is executing. Discuss the advantages of a window based, event driven language vs. an older "command line prompt language such as C or C++. 3. Use of graphics, sound, mouse and timer based capabilities within a Visual Basic application 4. Using and concept of loops (i.e. for and while). When is a loop appropriate to the logic and which particular type of loop is best to use in that situation.	
CSCI - 14 (3103)	Introduction to Structured Programming In C++	1. Code void and value-returning functions with value and reference parameters and use them in a program 2. Demonstrate steps involved in program development 3. Produce well-documented, user-friendly programs of short to medium length 4. Understand the mechanics under C++ of passing argument values by values and by reference to a	Yes

		function. Given the relevant code, the student will demonstrate their knowledge of parameter passing by correctly determining what would be output of that function.	
CSCI - 15 (738)	Object-Oriented Programming Methods	1. Manipulate arrays using pointer notation 2. define, design and use simple classes, including at least one project that uses a class inheritance hierarchy 3. manipulate objects in standard class libraries such as strings, vectors and streams 4. use the new operator to implement a singly linked list	Yes
CSCI - 18A (739)	The C Programming Language	1. 70% of students will be able to design and write a recursive function in C. 2. 70% of students will be able to identify the differences between the C and C++ programming languages 3. 70% of students will be able to use standard C compilers, such as the cc or gcc C compilers for UNIX or Linux.	Assessment Exempt - Course was not offered
CSCI - 19A (746)	Object-Oriented Programming Methods in Java	1. Produce well-documented, user-friendly programs of short to medium length 2. Write program incorporating basic exception handling technique: try-catch and throw 3. construct a class hierarchy 4. demonstrate steps involved in program development	Yes

CSCI - 20 (3104)	Introduction to Data Structures	1. Define a stack ADT and implement a stack ADT as array (or vector) and as a linked list 2. Explain how recursion is implemented 3. Write recursive methods 4. design and code a complete program of 500 lines or more 5. manipulate arrays using pointer notation	Yes
CSCI - 21 (749)	Computer Organization and Assembly Language Programming	1. Ability to write a simple interrupt handler. 2. Define the term interrupt 3. Define the term interrupt handler and discuss how interrupts happen and how they are handled. 4. Demonstrate familiarity with the function of CPU registers 5. Design and write a simple interrupt handler	Yes
CSCI - 41 (759)	Introduction to UNIX	1. Design and develop the logic for a basic C program under the UNIX environment. This task requires a working knowledge of one oth the available UNIX text editors, the file directory structure of the UNIX environment, file security permissions under UNIX as well as basic programming practices and procedures 2. Differentiate between a single-user and multi-user system 3. Edit, compile, and run a simple C program 4. Identify the major components of a UNIX system 5. Set the proper Owner, Group, Other security permissions on the relevant individual subdirectories and files to let the Instructor (Other) read and execute their assignments on their individual student accounts.	Yes

		6. Using one of the UNIX ASCII editors construct a basic HTML web page on their account, set the proper security permissions, import images and a sound file into their UNIX account and allow anonymous users from the web to see that web page on our UNIX server. 7. Using one of the UNIX ASCII editors, the student should be able to write the source code for an elementary C program and then compile that program using the built in C compiler	
CSCI - 42 (760)	UNIX Tools, Shell Programming and System Administration Concepts	1. 70% of student will be able to use advanced UNIX utilities and introduction to system programming. 2. 70% of student will be able to use advanced UNIX utilities and introduction to system programming. 3. 70% of students will be able to Develop and test Unix programming scripts by using different types of Unix shells 4. 70% of students will be able to Develop and test Unix programming scripts by using different types of Unix shells 5. 70% of students will be able to analyze problems and design UNIX solutions using shell command files and scripts. 6. 70% of students will be able to analyze problems and design UNIX solutions using shell command files and scripts. 7. 70% of students will be able to provide the main UNIX system administration tasks such as	Assessment Exempt - Course was not offered

		creating and managing user?s accounts on network servers. 8. 70% of students will be able to provide the main UNIX system administration tasks such as creating and managing user?s accounts on network servers.	
CSCI - 5 (769)	Technology for Academic Success	1. 70% of students will be able to create an online study group using Google Groups and other web-based collaboration tools 2. 70% of students will be able to download and upload files to a course management system such as Blackboard 3. 70% of students will be able to use Microsoft Word or equivalent software to create, edit and print research papers that include properly formatted footnotes, references, citations, endnotes and related elements	Assessment Exempt - Course was not offered
CSCI - 6 (771)	Computer Programming for Visual Thinkers	1. Construct small program using various elements, such as variable, I/O, conditionals, loops, functions, expressions, and parameters. 2. Use skills gained in the course to design and program an original game, story or animation. 3. draw a flowchart to represent the logical structure of an given algorithm.	Assessment Exempt - Course was not offered
CSCI - 7 (772)	Introduction to Computer Programming Concepts	1. Able to draw a flowchart using the standard symbols showing the logic flow to add, subtract, divide, and multiply two numbers. Detect if the	Yes

		two entered numbers are valid numerics, and any "division by zero". 2. Describe the major hardware components of a typical computer (e.g. main memory, secondary storage, CPU, input and output peripheral devices) and what function or part that each component performs when the computer system is functioning. 3. Produce well-documented, user-friendly programs of short to medium length 4. code void and value-returning functions with value and reference parameters and use them in a program 5. demonstrate steps involved in program development	
CSCI - 8 (3970)	Computer Literacy	1. Construct a basic database application using table, Input Form and Report Form using Microsoft Access 2. Demonstrate the proper use of headers, footers, page numbering, footnotes, margin spacing, character properties and tables in word processing using Microsoft Word from the appropriate menu options. 3. Develop a basic self calculating spreadsheet using formulas and functions in Microsoft Excel from the correct menu options recognizing these capabilities' use in a Business environment.	Yes
ENGR - 10 (3161)	Introduction to Engineering	1. Describe the Engineering-Practice in THREE Major Engineering Fields (e.g.: CHEMICAL, CIVIL, ELECTRICAL, INDUSTRIAL,	Yes

		MATERIALS, MECHANICAL) Engineering. Include at least TWO Specific EXAMPLES of Projects, Products, or Processes which an Engineer in each of these fields might Design. Jul2011 2. Describe the Engineering-Practice in THREE Major Engineering Fields (e.g.: CHEMICAL, CIVIL, ELECTRICAL, INDUSTRIAL, MATERIALS, MECHANICAL) Engineering. Include at least TWO Specific EXAMPLES of Projects, Products, or Processes which an Engineer in each of these fields might Design. 3. Describe the Ethical Responsibilities of Practicing Engineering in terms of three Components: a) describe the GENERAL NATURE of Ethics, b) List one (out of 3) of the general Ethical MODELS, c) The National Council of Examiners of Engineering and Surveying (NCEES) Model Rules for Professional Conduct notes that Practicing Engineers have ETHICAL OBLIGATIONS to THREE Major Groups or Persons. List at least one these Groups or Persons to which Engineers are ETHICALLY Obligated. Jul2011 4. Students shall be able to list the THREE major Ethical OBLIGATIONS of Practicing Engineers as delineated in the National Council of Examiners for Engineering and Surveying (NCEES) Model Rules for Professional Conduct. 5. The National Council of Examiners of Engineering and Surveying (NCEES) Model Rules for Professional Conduct notes that Practicing Engineers have ETHICAL	

		OBLIGATIONS to THREE Major Groups or Persons. List the THREE Groups or Persons to which Engineers are ETHICALLY Obligated.	
ENGR - 11 (4243)	Engineering Design and Analysis	1. Student are to create a design for Tide-Pool Wave maker which will gently agitate a benchtop marine biology tank containing Tide-Pool organisms. Students will learn how create a detailed and justified Concept-Level description of the proposed design and present and defend the design, concept before a knowledgeable and skeptical audience in Engineering Practice this presentation is known as the CONCEPTUAL Design Review (CDR). Jul2011 2. Student are to create a design for Tide-Pool Wave maker which will gently agitate a benchtop marine biology tank containing Tide-Pool organisms. Students will learn how create a detailed and justified Production-Ready description of the proposed design and present and defend the design, concept before a knowledgeable and skeptical audience in Engineering Practice this presentation is known as Final Desgin Review (FDR) 3. Student are to create a design for Tide-Pool Wave maker which will gently agitate a benchtop marine biology tank containing Tide-Pool organisms. Students will learn how create a detailed and justified Production-Ready description of the proposed design and present and defend the design, concept before a knowledgeable and skeptical audience in	Yes

		Engineering Practice this presentation is known as the CRITICAL Review (CrDR). Jul2011 4. Student are to create a design for Tide-Pool Wave maker which will gently agitate a benchtop marine biology tank containing Tide-Pool organisms. Students will learn how create a detailed and justified Concept-Level description of the proposed design and present and defend the design, concept before a knowledgeable and skeptical audience in Engineering Practice this presentation is known as Critical Desgin Review (CRDR)	
ENGR - 22 (4247)	Engineering Design Graphics	1. Analyze the FORM of Mechanical Object as depicted by 3-Dimensional Pictorial Representation to determine the object s FUNCTION => Explain or infer how the form of the bearing block dictates its function 2. Apply Quantitative and Accurate physical Dimensions (distances & Sizes) to Machined Mechanical Object Depicted in a 3-Dimensional Pictorial Representation of the Object => Apply Dimensions to describe the relative size of features and hole placement 3. Convert a 3-Dimensional Pictorial Representation of a Machined Mechanical Object to an accurate & complete ORTHOGRAPHIC PROJECTION Representation of the Object => Differentiate between front & top views, and visible & hidden Surfaces/Features 4. Effectively Describe the Spatial Shape and/or Form a Machined Mechanical Object Depicted in	Yes

		a 3-Dimensional Pictorial Representation of the Object => Describe the Height, Width and Depth of the (HWD) Object, Perhaps referring to a Similar Common Shape 5. Use Correct Mechanical Engineering Terminology to identify significant features of a Machined Mechanical Object Depicted in a 3-Dimensional Pictorial Representation of the Object => Use Technical Terms to described rounded ends, drilled holes of the flange, and the boss around the center hole	
ENGR - 25 (4248)	Computational Methods for Engineers and Scientists	1. Given a data set that can be modeled by either a Power-function or an Exponential-function linearize the data, and then perform a Linear Regression using MATLAB or EXCEL software to determine the best-case fitting constants m & b. Apply the fitting constants to the original function to determine the fitting parameters M & B that apply to the Power or Exponential function model 2. Given a data set that can be modeled by either a Power-function or an Exponential-function linearize the data, and then perform a Linear Regression using MATLAB or EXCEL software to determine the best-case fitting constants m & b. Apply the fitting constants to the original function to determine the fitting parameters M & B that apply to the Power or Exponential function model. Jul2011 3. Given data set that can be modeled by either a Power-function or an Exponential-function	Yes

		linearize the data, and then perform a Linear Regression using MATLAB or EXCEL software to determine the best-case fitting constants m & b. Apply the fitting constants to the original function then plot both the DATA on the FIT on the same graph. 4. PHYS 25/MATH 25/ENGR 25 - Given a data set that can be modeled by either a Power-function or an Exponential-function, linearize the data, and then perform a Linear Regression using MATLAB or EXCEL software to determine the best-case fitting constants M & B. Apply the fitting constants to the original function then plot both the DATA on the FIT on the same graph. 5. Solve by HAND, using differential calculus, for an independent variable that will optimize/minimize/maximize some dependent variable quantity that results from the analysis of a real-world situation-scenario 6. Solve by HAND, using differential calculus, for an independent variable that will optimize/minimize/maximize some dependent variable quantity that results from the analysis of a real-world situation-scenario. Jul2011 7. Use MATLAB s SimuLink InterConnected-Icon based programming environment to create a SimuLink FeedBack Diagram that produces a graph of the numerical solution to a NONlinear, NonHomogeneous, Second order Differential Equation 8. Use MATLAB s SimuLink InterConnected-Icon based programming environment to create a SimuLink FeedBack Diagram that produces a	

		graph of the numerical solution to a NONlinear, NonHomogeneous, Second order Differential Equation. Jul2011	
ENGR - 36 (4249)	Engineering Mechanics -Statics	1. Analyze a Static (non-moving), Force/Moment loaded Frame or Machine (FM) using Newtonian mechanics to determine unknown INTERNAL Force(s) and/or Moment(s) 2. Analyze a Static (non-moving), Force/Moment loaded Frame, Machine, or Truss (FMT) using Newtonian mechanics to determine unknown INTERNAL Force(s) and/or Moment(s) 3. Analyze a Static (non-moving), Force/Moment loaded Structual TRUSS using Newtonian mechanics to determine unknown INTERNAL Force(s) and/or Moment(s) 4. Analyze a Static (non-moving), Force/Moment loaded rigid body structure using Newtonian force mechanics to determine unknown EXTERNAL force(s) and/or moment(s) 5. Construct the SHEAR (V) and Bending-Moment (M) Diagram for a transversely-load Structural Beam 6. Given a Mechanical System that includes multiple Forces (Pushes and/or Pulls) and/or multiple Moments (twists) determine the RESULTANT Force+Couple system comprised of a SINGLE-Force (R) and SINGLE-COUPLE (Mr) 7. Temp Test during FlexDay 130912 8. TestTemp FlexDay 130912	Yes

ENGR - 43 (4250)	Electrical Circuits and Devices	1. Analyze Steady-state ALTERNATING Current circuit 2. Analyze Steady-state DC-RLC, AC-RLC, and Op-Amp circuits to calculate unknown electrical-potentials or electrical-currents using Kirchoff's Current and/or Voltage Law, and the Ideal Op-Amp approximation 3. Analyze Steady-state SWITCHED Transient circuits 4. Analyze a Steady-state DIRECT Current circuit to determine unknown electrical quantities and/or responses. 5. Demonstrate the abilty to construct an AC electrical circuit and then use a DMM and Oscilloscope to measure circuit voltages and currents 6. Given a transistor-level CMOS Logic Gate schematic: 7. Laboratory Practicum to Demonstrate the ability to construct an AC sinusoidal electrical circuit and then use a DMM and Oscilloscope to measure circuit voltages & currents, and to calculate voltage amplitudes & phase-angles.	Yes
ENGR - 45 (4251)	Materials of Engineering	1. Analyze the classic Iron-Carbon room-pressure Phase-Diagram to determine Fourteen quantities worth 22 points on an exam. For Example includes: (i) Phases Present @ 2wt%C & 1300, (ii) The EutectIOD Temperature, (iii) wt%C @ the EutectIOD Temperature, (iv) The Pure-Iron Melting Temperature, (v) Maximum wt%C for Solid Solubility in the gamma-phase, (vi)	Yes

		Weight-Fraction(s) of all Phase(s) Present @ 3wt%C & 1000 °C 2. Analyze the classic Iron-Carbon room-pressure Phase-Diagram to determine Important quantities and metrics. Examples might include: (i) Phases Present @ 2wt%C & 1300, (ii) The EutectIOD Temperature, (iii) wt%C @ the EutectIOD Temperature, (iv) The Pure-Iron Melting Temperature, (v) Maximum wt%C for Solid Solubility in the gamma-phase, (vi) Weight-Fraction(s) of all Phase(s) Present @ 3wt%C & 1000 °C. Jul2011 3. Given PolyMer Crystallinity and Density Data calculate the expected density for a 100% Crystalline Polymer 4. Given PolyMer Crystallinity and Density Data calculate the expected density for a 100% Crystalline Polymer. Jul2011 5. Given Temperature and Diffusion Coefficient information use the Equation for Solid-State Diffusion to find the Exponential-PreFactor, Do, and Activation Energy, Qd, for the Diffusion CoEfficient. 6. Given Temperature and Diffusion Coefficient information use the Equation for Solid-State Diffusion to find the Exponential-PreFactor, Do, and Activation Energy, Qd, for the Diffusion CoEfficient. Jul2011 7. Given Temperature and Diffusion Coefficient information use the Equation for Steady Solid-State Diffusion to find the Exponential-PreFactor, Do, and Activation Energy, Eg, for the Diffusion CoEfficient	

		8. Given data related to a certain material property use equations that describe the behavior of the material to determine an unknown material property or parameter 9. Given data related to a volume-weighted-average material property use the rule-of-mixture equations to determine the average material property of a multicomponent material 10. Given data related to a volume-weighted-average material property use the rule-of-mixture equations to determine the average material property of a multicomponent material. Jul2011 11. Given the Geometery, Elastic Modulus, and data taken from Stress-Strain diagram for a solid material specimen determine these values: (a) The maximum LOAD that may be applied withOUT causing PLASTIC deformation, (b) The maximum LOAD that may be applied withOUT causing PLASTIC deformation, (c) The maximum load that may be applied withOUT tearing apart the specimen 12. Given the Geometery, Elastic Modulus, and data taken from Stress-Strain diagram for a solid material specimen determine these values: (a) The maximum LOAD that may be applied withOUT causing PLASTIC deformation, (b) The maximum load that may be applied withOUT tearing apart the specimen. Jul2011	
ENSC - 10 (4160)	Humans and the Environment	1. Apply environmental principles to everyday occurrences, social issues, or novel situations	Yes

		2. Communicate environmental concepts by verbal, written, and graphic/illustrative means 3. Students will express their understanding of environmental science concepts by verbal, written, and illustrative means.	
ENSC - 11 (4163)	Humans and the Environment with Laboratory	1. Apply environmental principles to everyday occurrences, social issues, or novel situations 2. Communicate environmental concepts by verbal, written, and graphic/illustrative means 3. Students will design, perform, and evaluate experiments	Yes
ENSC - 12 (4162)	Current Issues in Environmental Science	1. Apply environmental principles to everyday occurrences, social issues, or novel situations. 2. Communicate environmental concepts by written, verbal and graphical/illustrative means. 3. Students will use and develop competency with standard techniques of bio-sciences, (make and interpret graphs, interpret data).	Yes
ENSC - 15 (4507)	Agroecology	1. Students will describe the interactions of culture, human population growth and major environmental challenges in the transition to sustainable agriculture and food systems. 2. Students will describe the structures, functions and interactions of abiotic factors and organisms at all levels of organization in agroecosystems.	Assessment Exempt - New Course

		3. Students will express their understanding of agroecological concepts by verbal, written and graphic/illustrative means.	
ENSC - 15L (4533)	Agroecology Laboratory	1. Students will apply the principles and philosophies of science to developing and maintaining food crops. 2. Students will demonstrate competency with sustainable techniques used in raising food crops. 3. Students will describe the systematics and life cycles of plants, their interactions with other species and integrated pest management 4. Students will express their understanding of agroecological concepts by verbal, written and graphic/illustrative means.	Assessment Exempt - Course was not offered
MICR - 1 (1586)	Microbiology	1. Present scientific data in written and verbal way to support the identification of an unknown bacterial culture 2. Student will apply bacteriological technique in the identification of an unknown bacterial culture 3. Utilizes the microscope to observe detailed characteristics of stained bacterial smears	Yes
MTH - 1 (4509)	Calculus I	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology.	Yes

		3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	
MTH - 103 (4494)	Basic Mathematics	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 104 (4495)	Prealgebra	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 104W (1595)	Prealgebra Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students

MTH - 122 (3398)	Math Lab	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 15 (4492)	Applied Calculus I	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 16 (4493)	Applied Calculus II	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 1W (1604)	Calculus I Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology.	Assessment Exempt - Course does not have the minimum number of students

		3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	
MTH - 2 (4513)	Calculus II	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 20 (3052)	Pre-Calculus Mathematics	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 201 (4660)	Math Jam A	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course was not offered

MTH - 202 (4661)	Math Jam B	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course was not offered
MTH - 203 (4662)	Math Jam C	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course was not offered
MTH - 20W (1608)	Pre-Calculus Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 25 (4491)	Computational Methods for Engineers and Scientists	1. Given a data set that can be modeled by either a Power-function or an Exponential-function linearize the data, and then perform a Linear Regression using MATLAB or EXCEL software to determine the best-case fitting constants m & b. Apply the fitting constants to the original function to determine the fitting parameters M &	Yes

		B that apply to the Power or Exponential function model. Jul2011 2. Solve by HAND, using differential calculus, for an independent variable that will optimize/minimize/maximize some dependent variable quantity that results from the analysis of a real-world situation-scenario. Jul2011 3. Use MATLAB s SimuLink InterConnected-Icon based programming environment to create a SimuLink FeedBack Diagram that produces a graph of the numerical solution to a NONlinear, NonHomogeneous, Second order Differential Equation. Jul2011	
MTH - 2W (1611)	Calculus II Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 3 (4480)	Multivariable Calculus	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes

MTH - 31 (4053)	College Algebra	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 31W (1614)	College Algebra Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 33 (4054)	Finite Mathematics	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 33W (1616)	Finite Mathematics Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology.	Assessment Exempt - Course does not have the minimum number of students

		3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	
MTH - 36 (1619)	Trigonometry	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - New Course
MTH - 37 (1621)	Trigonometry with an Emphasis on its Geometric Foundations	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 37W (1622)	Trigonometry with an Emphasis on its Geometric Foundations	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 3W (1623)	Multivariable Calculus Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts.	Assessment Exempt -

		2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Course does not have the minimum number of students
MTH - 4 (4515)	Elementary Differential Equations	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 41 (4479)	Number Systems	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course was not offered
MTH - 43 (4056)	Introduction to Probability and Statistics	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes

MTH - 43W (1628)	Introduction To Probability and Statistics Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 47 (4055)	Mathematics for Liberal Arts	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course was not offered
MTH - 4W (1629)	Elementary Differential Equations Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 53 (4290)	Applied Algebra and Data Analysis	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology.	Yes

		3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	
MTH - 53A (4291)	ELEMENTARY APPLIED ALGEBRA AND DATA ANALYSIS	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - New Course
MTH - 53B (4292)	Intermediate Applied Algebra and Data Analysis	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - New Course
MTH - 54 (4001)	Applied Intermediate Algebra	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes

MTH - 54L (4117)	Applied Intermediate Algebra With Lab	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 55 (4319)	Intermediate Algebra	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 55A (4082)	Intermediate Algebra A	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course was not offered
MTH - 55B (4084)	Intermediate Algebra B	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology.	Assessment Exempt - Course was not offered

		3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	
MTH - 55L (4320)	Intermediate Algebra with Lab	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 55W (4077)	Intermediate Algebra Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 57 (1640)	Plane Geometry	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course was not offered

MTH - 57W (1641)	Plane Geometry Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 6 (4293)	Elementary Linear Algebra	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 65 (4316)	Elementary Algebra	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 65A (4656)	Elementary Algebra A	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology.	Assessment Exempt - New Course

		3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	
MTH - 65B (4657)	Elementary Algebra B	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - New Course
MTH - 65L (4317)	Elementary Algebra with Laboratory	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 65W (4075)	Elementary Algebra Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
MTH - 6W (1650)	Elementary Linear Algebra Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts.	Assessment Exempt -

		2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Course does not have the minimum number of students
MTH - 8 (4164)	Discrete Mathematics	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Yes
MTH - 8W (1652)	Discrete Mathematics Workshop	1. Communicate mathematical ideas, understand definitions, and interpret concepts. 2. Critically analyze mathematical problems using a logical methodology. 3. Increase confidence in understanding mathematical concepts, communicating ideas and thinking analytically.	Assessment Exempt - Course does not have the minimum number of students
PHSI - 1 (4517)	Human Physiology	1. Apply principles of physiology to everyday occurences, social issues, or novel situations. 2. Collaborate with fellow students to design, conduct, and evaluate scientific experiments. 3. Communicate physiological concepts through verbal, written, and graphical/illustrative means. 4. Perform controlled experiments; collect and report data.	Yes

PHYS - 11 (2611)	Descriptive Physics	1. Demonstrate mastery of lab report for an activity in Physics 11 curriculum 2. Quantitative mastery of Physics 11 Problems 3. Read, analyze and critique a magazine or newspaper article about a current discovery in the physical sciences (including physics, chemistry, earth science, geology, meteorology, and astronomy), specifically identifying parts of the process of science, including evidence of observation, past research, testable hypotheses, experimental results, data analysis, support for or against prior theory, peer review and publishing.	Yes
PHYS - 122 (2612)	Physics Supplemental Instruction	1. Apply concepts of and solve problems in physics 2. Demonstrate increased awareness of learning styles in order to enhance success in Physics 3. Solve problems collaboratively	Assessment Exempt - Course was not offered
PHYS - 18 (2613)	Preparatory Physics	1. Demonstrate mastery of math and reasoning ability needed for solving introductory physics analytical and conceptual problems	Assessment Exempt - Course was not offered
PHYS - 25 (4666)	Computational Methods for Engineers and Scientists	1. Given a data set that can be modeled by either a Power-function or an Exponential-function linearize the data, and then perform a Linear Regression using MATLAB or EXCEL software to determine the best-case fitting constants m & b. Apply the fitting constants to the original function to determine the fitting parameters M & B that apply to the Power or Exponential function model. Jul2011	Yes

		2. Solve by HAND, using differential calculus, for an independent variable that will optimize/minimize/maximize some dependent variable quantity that results from the analysis of a real-world situation-scenario. Jul2011 3. Use MATLAB s SimuLink InterConnected-Icon based programming environment to create a SimuLink FeedBack Diagram that produces a graph of the numerical solution to a NONlinear, NonHomogeneous, Second order Differential Equation. Jul2011	
PHYS - 2A (2618)	Introduction to Physics I	1. Demonstrate ability of safely perform laboratory experiments and to gather, analyze, and report data. 2. Studens should identify the role and influence of ethics, morality and politics in the development and application of physics. 3. Students shall be able to read, diagram and sucessfully solve qualitatively key word problems involving the concepts of Newton's Law and laws of motion, conservation of energy, conservation of momentum, concepts of wave motion, Law of Thermodynamics, and laws and concepts of electrostatics. 4. Students shall be able to read, diagram and sucessfully solve quantitatively key word problems involving the concepts of Newton's Law and laws of motion, conservation of energy, conservation of momentum, concepts of wave	Yes

		motion, Law of Thermodynamics, and laws and concepts of electrostatics	
PHYS - 2B (2619)	Introduction to Physics II	1. Demonstrate ability of safely perform laboratory experiments and to gather, analyze, and report data. 2. Students shall be able to read, translate, diagram and sucessfully solve quantitatively key word problems involving the concepts of electric currents and resistance, laws of magnetism, laws of induction, geometrical and wave optics, and Modern Physics 3. Students shall be able to sucessfully solve qualitatively key word problems involving the concepts of electric currents and resistance, laws of magnetisim, laws of induction, geometrical and wave optics, and Modern Physics	Yes
PHYS - 3A (3911)	College Physics A	1. 70% of students will be able to graph trigonometric functions 2. 70% of students will be able to use the law of sines and the law of cosines to solve oblique triangles 3. 70% of students will be able to write down from memory the Pythagorean identities, reciprocal identities, double angle formulas for sine and cosine, and sum and difference formulas for the sine and cosine	Assessment Exempt - New Course

PHYS - 3B (3986)	College Physics B	1. 70% of students will be able to analyze laboratory data 2. 70% of students will be able to operate standard laboratory equipment 3. 70% of students will be able to write comprehensive laboratory reports	Assessment Exempt - New Course
PHYS - 4A (2622)	General Physics I	1. Assess Physics 4A students improvement in learning over the term using the Force Concept Inventory with a pre- and post-class survey and normalized gain ("NG") 2. Demonstrate qualitative mastery of physics 4A concepts in mechanics, energy, rotation, statics, and/or gravity through presentations, group projects, research papers, and/or homework essays 3. Demonstrates Mastery of Physics 4A lab experiment through submission of a complete lab report with all requirement elements present, including abstract; introduction; materials, methods, and procedures; data and analysis; results and discussion; references; data tables. 4. FCI Test pre/post comparison of basic mechanics, using normalized gain 100% X [(post - pre)/(30-pre)] 5. PHYS 4A - Students shall be able to read, translate, diagram and sucessfully solve qualitatively key word problems involving the concepts of kinematics in one, two, and three dimensions, Newton's Laws of motion, gravitation, work and energy, linear momentum,	Yes

		rotational motion and dynamics, static equilibrium, and oscillations.	
PHYS - 4B (2623)	General Physics II	1. Demonstrate qualitative mastery of physics 4B concepts in electricity, voltage, circuits, capacitors, and/or magnetism through presentations, group projects, research papers, and/or homework essays 2. Demonstrates Mastery of Physics 4B lab experiment through submission of a complete lab report with all requirement elements present, including abstract; introduction; materials, methods, and procedures; data and analysis; results and discussion; references; data tables. 3. Demonstrates Qualititative mastery of Physics 4B concepts in Enull through CSEM test pre/post 4. Demonstrates Quantitative mastery of Physics 4B concepts in E&M through CSEM test pre/post 5. Demonstrates mastery of qualitative aspects electromagnetism through homework and/ or exam problems 6. Students shall be able to read, translate, diagram and successfully solve quantitatively key word problems involving the concepts of Coulomb's Law, Gauss' Law, conservation of energy; definitions of capacitance, current, and resistance, laws of magnetism, Faraday's Law of Induction and concept of AC circuits 7. Students shall be able to sucessfully solve qualitatively key word problems involving the concepts of Coulomb's Law; Gauss' Law; conservation of energy; definitions of	Yes

		capacitance, current, and resistance; laws of magnetism, Faraday's Law of Induction and the concept of AC circuits.	
PHYS - 4C (2624)	General Physics III	1. Demonstrate qualitative mastery of physics 4C concepts in waves, thermodynamics, and/or optics through presentations, group projects, research papers, and/or homework essays 2. Demonstrates Mastery of Physics 4C lab experiment through submission of a complete lab report with all requirement elements present, including abstract; introduction; materials, methods, and procedures; data and analysis; results and discussion; references; data tables. 3. Demonstrates mastery of quantitative aspects of Physics 4C concepts in waves, thermodynamics, and optics through homework and/or exam problems	Yes
PHYS - 5 (2625)	Modern Physics	1. Demonstrates mastery of quantitive and qualitative aspects of Physic 5: concepts and methods of relativity, quantum mechanics and nuclear physics 2. Demonstrates mastery of quantitive and qualitative aspects of Physic 5: concepts and methods of relativity, quantum mechanics and nuclear physics through presentations, group projects, research papers, and/or homework essays 3. Read, translate, diagram and sucessfully solve quantitatively key word problems involvinmg the	Yes

		concepts of relativity, nuclear physics, and quantum mechanics, by 4. Solve qualitatively key word problems involving the concepts of electric currents and resistance, laws of magnetism, laws of induction, geometrical and wave optics, and modern Physics	
PSCI - 15 (2651)	Descriptive Physical Science: Introduction to Principles of Physical Science	1. Read, analyze and critique a magazine or newspaper article about a current discovery in the physical sciences (including physics, chemistry, earth science, geology, meterology, and astronomy), specifically identifying parts of the process of science, including evidence of observation, past research, testable hypotheses, experimental results, data analysis, support for or against prior theory, peer review and publishing	Assessment Exempt - Course in process of Deactivation
STEM - 1 (4325)	Introduction to Science, Technology, Engineering, and Mathematics	1. 70 % of students will be able to discuss, write, or present about the duties, personality traits and values of a practicing scientist with in STEM disciplines 2. 70% of students will be able to apply common MS Word, Excel and PowerPoint to analyze scientific data 3. 70% of students will be able to define and discuss ethics and global impact of STEM fields on society	Assessment Exempt - New Course