

MSE Course SLOs

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
SLO (MSE - ES&HE) - Exercise Science (ES)	Adapted Physical Exercise	ES 001	3	Identify specific muscles of the body, including core, upper, and lower limbs.	Active
			4	Demonstrate skills appropriate for participation in fitness-enhancing activity.	Active
	Advanced Aerobic Dance Exercise	ES 009C	1	Define cardiovascular fitness, muscle conditioning, and dance terms.	Active
			2	Describe methods of monitoring cardiovascular, strength, and flexibility fitness.	Active
			3	Identify specific muscles of the body, including core, upper, and lower limbs.	Active
			4	Demonstrate skills appropriate for recreation and fitness-enhancing participation at the advanced level in aerobic dance.	Active
	Advanced Badminton	ES 060C	1	Define badminton terms.	Active
			2	Describe badminton scoring.	Active
			3	Identify appropriate badminton etiquette for singles and doubles play.	Active
			4	Demonstrate badminton skills, appropriate for competition, recreation, and fitness-enhancing play at the advanced level.	Active
	Advanced Basketball	ES 155C	1	Define basketball terms at the advanced level.	Active
			2	Describe advanced-level basketball strategies.	Active
			3	Identify appropriate basketball decorum and etiquette at the advanced level.	Active
			4	Demonstrate basketball skills appropriate for competition, recreation, and fitness-enhancing play at a competitive level.	Active
	Advanced Body Building	ES 014C	1	Define advanced level body-building terms.	Active
			2	Describe differences in benefit between use of free-weights and machine weights.	Active
			3	Identify specific muscles of the body, including core, upper, and lower limbs, and describe potential injuries precipitated through improper body-building techniques.	Active
			4	Demonstrate skills appropriate for recreation and fitness-enhancing participation at the advanced level in body-building.	Active
	Advanced Golf	ES 125C	1	Define golf terms.	Active
			2	Describe golf scoring.	Active
			3	Identify appropriate golf etiquette.	Active
			4	Demonstrate skills appropriate for competition, recreation, and fitness-enhancing play at the advanced level.	Active

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	Advanced Physical Fitness	ES 019C	1	Define cardiovascular fitness, muscle conditioning, and nutrition terms.	Active
			2	Describe methods of monitoring cardiovascular, strength, and flexibility fitness.	Active
			3	Identify specific muscles of the body, including core, upper, and lower limbs.	Active
			4	Demonstrate skills appropriate for recreation and fitness-enhancing participation in advanced level physical fitness activities.	Active
	Advanced Soccer	ES 170C	1	Define advanced level soccer terms.	Active
			2	Describe soccer scoring and advanced-level strategies for competition.	Active
			3	Identify appropriate soccer decorum and etiquette.	Active
			4	Demonstrate soccer skills appropriate for competition, recreation, and fitness-enhancing play at the advanced level.	Active
	Advanced Softball	ES 171C	1	Define advanced-level softball terms.	Active
			2	Describe competitive strategies for each position in softball.	Active
			3	Identify appropriate softball etiquette.	Active
			4	Demonstrate softball skills appropriate for competition, recreation, and fitness-enhancing play at the advanced level.	Active
	Advanced Tennis	ES 076C	1	Define tennis terms.	Active
			2	Describe tennis scoring.	Active
			3	Identify appropriate tennis etiquette for singles and doubles.	Active
			4	Demonstrate tennis skills, appropriate for competition, recreation, and fitness-enhancing play at the advanced level.	Active
	Advanced Volleyball	ES 175C	1	Define advanced-level volleyball terms.	Active
			2	Describe competitive strategies of volleyball by position.	Active
			3	Identify appropriate volleyball etiquette.	Active
			4	Demonstrate volleyball skills appropriate for competition, recreation, and fitness-enhancing play at the advanced level.	Active
	Beginning Aerobic Dance Exercise	ES 009A	1	Define cardiovascular fitness terms.	Active
			2	Describe methods of fitness intensity monitoring.	Active
			3	Identify specific muscles of the body.	Active
			4	Demonstrate skills appropriate for recreation and fitness-enhancing participation at the beginning level in aerobic dance.	Active
	Beginning Badminton	ES 060A	1	Define badminton terms.	Active

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			2	Describe badminton scoring.	Active
			3	Identify appropriate badminton etiquette.	Active
			4	Demonstrate badminton skills, appropriate for competition, recreation, and fitness-enhancing play at the beginning level.	Active
	Beginning Basketball	ES 155A	1	Define basketball terms at the beginning level.	Active
			2	Describe basketball scoring.	Active
			3	Identify appropriate basketball decorum and etiquette at the beginning level.	Active
			4	Demonstrate basketball skills appropriate for competition, recreation, and fitness-enhancing play at the beginning level.	Active
	Beginning Body Building	ES 014A	1	Define muscle conditioning terms.	Active
			2	Describe methods of monitoring muscle strength.	Active
			3	Identify specific muscles of the body, including core, upper, and lower limbs.	Active
			4	Demonstrate skills appropriate for recreation and fitness-enhancing participation in body-building at the beginning level.	Active
	Beginning Golf	ES 125A	1	Define golf terms.	Active
			2	Describe golf scoring.	Active
			3	Identify appropriate golf etiquette.	Active
			4	Demonstrate skills appropriate for competition, recreation, and fitness-enhancing play at the beginning level.	Active
	Beginning Physical Fitness	ES 019A	1	Define cardiovascular fitness, muscle conditioning, and flexibility terms.	Active
			2	Describe methods of monitoring cardiovascular, strength, and flexibility fitness, as well as nutritional status.	Active
			3	Identify specific muscles of the body, including core, upper, and lower limbs.	Active
			4	Demonstrate skills appropriate for recreation and fitness-enhancing participation in physical fitness activities throughout the lifespan.	Active
	Beginning Soccer	ES 170A	1	Define soccer terms at the beginning level.	Active
			2	Describe soccer scoring.	Active
			3	Identify appropriate soccer decorum and etiquette at the beginning level.	Active
			4	Demonstrate soccer skills, appropriate for competition, recreation, and fitness-enhancing play at the beginning level.	Active
	Beginning Softball	ES 171A	1	Define beginning-level softball terms.	Active

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			2	Describe softball positions and scoring.	Active
			3	Identify appropriate softball etiquette.	Active
			4	Demonstrate softball skills appropriate for competition, recreation, and fitness-enhancing play at the beginning level.	Active
	Beginning Tennis	ES 076A	1	Define tennis terms.	Active
			2	Describe tennis scoring.	Active
			3	Identify appropriate tennis etiquette.	Active
			4	Demonstrate tennis skills, appropriate for competition, recreation, and fitness-enhancing play at the beginning level.	Active
	Beginning Volleyball	ES 175A	1	Define beginning-level volleyball terms.	Active
			2	Describe volleyball scoring.	Active
			3	Identify appropriate volleyball etiquette.	Active
			4	Demonstrate volleyball skills appropriate for competition, recreation, and fitness-enhancing play at the beginning level.	Active
	Cardiovascular Fitness and Nutrition	ES 010	2	Describe methods of monitoring cardiovascular, strength, and nutritional status.	Active
			3	Identify specific nutritional analysis programs available on the web.	Active
	Care and Prevention of Athletic Injuries	ES 255	1	Describe the causes of athletic injuries and identify the methods of prevention.	Active
			2	Demonstrate the principles of first aid and emergency care for athletic injuries.	Active
	Child Growth and Development	CD 125	1	Identify major developmental milestones for children from conception through adolescence in the areas of physical, psychosocial, cognitive, and language.	Active
			2	Describe how family, cultural, economic, political, historical contexts affect children's development.	Active
			3	Integrate and apply current theory and research to the observation, documentation and unbiased analysis of a preschool child's behavior.	Active
	Circuit Training	ES 011	3	Identify specific exercises for specific muscle development.	Active
			4	Demonstrate skills appropriate for continued use of circuit training throughout the lifespan.	Active
	Competencies for Intercollegiate Athletes	ES 249	1	Demonstrate advanced conceptual understanding of and physical ability in the activity of choice, through specific skill testing and team statistics.	Active
			2	Outline the decorum standards and expectations for the activity of choice as taken from NCAA guidelines for that sport.	Active
			3	Explain and demonstrate conditioning protocols appropriate to	Active

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			3	the activity of choice. (ME a, c)	Active
			4	Develop a course completion framework to satisfy degree requirements and eligibility maintenance regulations at the 2- and 4 year level.	Active
	Conditioning for Intercollegiate Athletes	ES 248	1	Demonstrate principles for improvement of the five basic parameters of fitness (cardiovascular, muscle strength, muscle endurance, flexibility and body composition).	Active
			2	Evaluate parameters of fitness in order to identify areas of strength and weakness for the purpose of injury prevention and to develop a personal exercise prescription applicable to the sport of choice.	Active
			3	Demonstrate understanding of the rules of play, codes of behavior, use of terminology, and team offensive and defensive strategies through active participation in competitive settings.	Active
			4	Examine the relationship between physical fitness and good health, and apply the skills gained in class to promote good health and fitness throughout the lifespan.	Active
	Cooperative Games	ES 270	1	Define "cooperative activity".	Active
			2	Compare the benefits of cooperative games to those of competitive games.	Active
			3	List the benefits of physical activity for children.	Active
			4	Demonstrate and lead an hour of cooperative activity for children.	Active
	Elementary Statistics	MATH 160	1	Summarize data graphically and numerically	Active
			2	Use descriptive statistics(measures of central tendency, variation, relative position, and levels/scales of measurement) to describe a population and compare populations when appropriate	Active
			3	Identify the sample space of an experiment or random trial	Active
			4	Find and interpret the expected value and standard deviation of a Random variable	Active
			5	Recognize the sampling distribution as a distribution of a sample statistic, the mean of the sampling distribution as the population mean, and the standard error of the sampling distribution as the standard deviation for the population (the Central Limit Theorem)	Active
			6	Construct and interpret confidence intervals	Active
			7	Use hypothesis tests and inference (including t-tests for one and two populations and Chi-square test) to determine if a	Active

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			7	result is statistically significant for discrete (binomial) and continuous (normal) distributions	Active
			8	Perform statistical analysis using technology such as SPSS, EXCEL, Minitab, or StatCrunch.	Active
			Inactive - (3)	Use analysis of variance (ANOVA) to analyze the differences between group means and their associated procedures such as variation among and between groups (originally...Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics)	Active
	Fitness Walking with Children	ES 271	1	Describe ways to incorporate fitness walking into a healthy lifestyle for children.	Active
			2	Demonstrate the ability to set up, program, and use a pedometer to monitor daily fitness walking	Active
	Fundamentals of Chemistry	CHEM 115	1	Classify matter in a variety of ways.	Active
			10	Perform a variety of experimental techniques in a laboratory setting.	Active
			2	Apply knowledge of the periodic table and theories of atomic structure in a variety of ways, including determination of the number of and placement of subatomic particles in an atom and writing electron configurations, among others.	Active
			3	Apply knowledge of bonding theory to draw Lewis dot structures and predict molecular geometry.	Active
			4	Classify bonds in substances according to their polarities and use these classifications to predict the presences of intermolecular forces and various physical properties, including relative boiling points and melting points, among others.	Active
			5	Using a heating or cooling curve, determine melting points and boiling points of pure substances.	Active
			6	Predict the products and write balanced equations for ordinary chemical reactions and nuclear reactions.	Active
			7	Predict the effect of concentration, temperature or catalysts on the rate or equilibrium position of a chemical reaction.	Active
			8	Determine the acid-base properties of substances and buffering properties of mixtures of substances.	Active
			8-original	For a chemical reaction, calculate stoichiometric amounts using the mole concept and the technique of dimensional analysis.	Active

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			9	Solve a wide variety of chemical calculations and unit conversions in a variety of topics, including chemical reactions (stoichiometry), drug dosages and clinical calculations involving solutions, acids and bases, and gases, among others.	Active
	Fundamentals of Physics	PHYC 130	1	Solve problems using a conceptual understanding of kinematics and dynamics with linear or rotational applications.	Active
			2	Apply gravitation, or material behavior problems involving thermal equilibrium, heat transfer and heat engines.	Active
			3	Understand the concepts of heat, thermodynamics and ideal gasses, and be able to use them in solving problems involving thermal equilibrium, heat transfer, and heat engines.	Active
			4	Lab a. Analyze experimental data, including appropriate use of units and significant figures b. Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
			Inactive_6 (2016)	LAB: Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
	General Biology I	BIO 130	1	Outline the methods and activities of scientific inquiry used to solve problems in biology and identify limitations to the types of questions that can be answered scientifically.	Active
			10	Construct a model that represents the chemical composition and architecture of a cell membrane and predict the flow of molecules across the membrane based on osmolarity on opposite sides of the membrane.	Active
			11	Explain how enzymes allow anabolic and catabolic metabolism in a cell to operate in terms of the cell's energy flow.	Active
			12	Describe the processes of photosynthesis, glucose oxidation, and fermentation in terms of their energy flow and conversion properties, and their interrelationships.	Active
			13	Compare and contrast the functions and mechanisms of mitosis and meiosis in a diploid organism's life cycle.	Active
			14	Solve problems that require calculation of the probability of the inheritance of a particular genetic allele for Mendelian and non-Mendelian scenarios.	Active

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			15	Appraise the evidence for evolution and illustrate the key concepts using an example.	Active
			16	Apply the knowledge gained in the course to assess contemporary problems/situations in biology.	Active
			2	Distinguish among statements that describe a hypothesis, a theory or natural law.	Active
			3	Determine whether an entity is living based upon a description of its properties.	Active
			4	Classify an organism into the appropriate domain and kingdom based upon its characteristics; justify the reasons for placing it there.	Active
			5	Explain how the various components of matter can be organized into biological molecules.	Active
			6	Compare and contrast the structures, roles and interrelationships of biological molecules including nucleic acids, proteins, carbohydrates and lipids.	Active
			7	Given a molecule of DNA with a specific nucleotide sequence, demonstrate how to create the complementary strands of the double helix, transcribe one of the strands into mRNA, and translate into a peptide.	Active
			8	Describe the relationship between structure and function in proteins and the implications of changes in structure on the operation of a cell.	Active
			9	Construct a model of a prokaryotic and eukaryotic cell that includes the various sub-cellular structures and describes their inter-relationships and possible origins; contrast this model with that of a typical virus.	Active
	General Biology I Laboratory	BIO 131	1	Perform the basic activities of scientific inquiry, including presentation of data in the form of tables, charts and graphs, design of experiments, collection of data, and critical analysis of data.	Active
			10	Solve problems in genetics based on Mendelian and non-mendelian models of inheritance	Active

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			11	Describe the relationship between classical genetics and modern molecular genetics, and the significance of molecular genetics in the modern world	Active
			12	Understand the structure and functional relationships of plants with other biotic and abiotic factors in ecosystems	Active
			13	Study the structure and function of the major organs and organ systems in a representative mammal and compare and contrast to those of humans.	Active
			14	Understand the basis of the classification of the animal kingdom as well as recognize members of the different animal phyla	Active
			2	Use both compound and stereo microscopes to study cells and organisms.	Active
			3	Describe the relationship between respiration and photosynthesis, producers and consumers and the role of each of these in ecosystems.	Active
			4	Relate membrane transport examples to real world situations	Active
			5	Test for the presence of carbohydrates, lipids, proteins and nucleic acids, recognize the relationships between the testing methods and the chemical properties of these compounds, and the significance of these molecules in living organisms.	Active
			6	Measure the rate of enzyme catalyzed reactions under different conditions, and explain the significance to living systems.	Active
			7	Recognize the roles of light, CO ₂ and pigments in photosynthesis and to measure the rate of photosynthesis under different conditions	Active
			8	Compare human-controlled oxidation to glucose oxidation in respiration and to measure the rate of respiration under different conditions	Active
			9	Compare the role of mitosis to meiosis in cellular division and to recognize the different phases of these processes	Active
	Human Anatomy	BIO 140	1	Identify, compare and contrast the major macroscopic and microscopic structural tissues, organs, organ structures and organ systems of the human body and relate each to function.	Active
			2	Identify and discuss the significance of the interdependence of organs and organ systems in the human body.	Active
			3	Utilize techniques of dissection on a preserved cat and relate results to other mammalian systems, including human.	Active

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			4	Describe the process and phases of embryological development and growth to adult structure for selected organ systems.	Active
			5	Apply anatomical information to diverse disciplines such as nursing, exercise science, athletic training, physical therapy and psychology.	Active
			6	Describe structural or anatomical changes that occur in disease, injury or aging of human body systems.	Active
	Human Physiology	BIO 141	1	Identify physiological parameters regulated by homeostatic mechanisms and distinguish between mechanisms that operate at different levels of the biological hierarchy (e.g., regulation of blood pressure versus local perfusion).	Active
			10	Explain how the excitation of muscle fibers produces muscular contractions, and relate the force of this contraction to variations in fiber type and organization, muscle type, exercise and health.	Active
			11	Chart the flow of blood through the cardiovascular system, relating each structure encountered to its function (e.g., the heart generates pressure to drive the flow of blood while capillaries permit gas exchange).	Active
			12	Predict changes in cardiovascular function due to exercise or disease.	Active
			13	Manipulate a model of normal respiratory physiology to explain respiratory conditions arising from disease or environment (e.g., emphysema, high altitude, etc.).	Active
			14	Explain how kidney function integrates with other systems to regulate osmolarity, gas exchange, excretion of wastes and acid/base balance.	Active
			15	Trace the path of a balanced meal through the gastrointestinal tract, describing its chemical and mechanical digestion and absorption.	Active
			2	Diagram the components of a given reflex (e.g., the insulin reflex) from stimulus to response including feedback loops.	Active
			3	Design a generalized human cell relating key structures to their specific functions.	Active
			4	Compare and contrast the four major classes of biological macromolecule, the monomers used to construct them, their chemical behavior, and their roles in normal physiology, exercise and disease.	Active
			5	Relate the structure of the cell membrane to its transport and signaling functions.	Active

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			5		Active
			6	Predict the physiological consequences of endocrine pathologies involving major glands and hormones.	Active
			7	Compare and contrast the functions of the male and female reproductive tracts including gametogenesis, hormonal control of reproductive cycles and behaviors, fertilization, pregnancy and parturition.	Active
			8	Demonstrate the mechanisms by which a neuron transmits information electrically down its axon and chemically across a synaptic cleft.	Active
			9	Construct a map of the nervous system with functional links between its major divisions, organs, pathways and effectors.	Active
	Individualized Sports Conditioning	ES 012	1	Define strength conditioning terms.	Active
			2	Describe methods of monitoring strength fitness improvement.	Active
	Intercollegiate Basketball	ES 206	1	Define basketball terms at the advanced level.	Active
			2	Describe basketball scoring and strategies by position.	Active
			3	Identify appropriate basketball decorum and sportsmanship.	Active
			4	Demonstrate basketball skills appropriate for competition at the college level.	Active
			5	Demonstrate appropriate fitness level for college-level competition to avoid injury.	Active
	Intercollegiate Cross-Country	ES 209	1	Define cross-country running terms at the advanced level.	Active
			2	Describe cross-country team scoring and strategies for competition.	Active
			3	Identify appropriate cross-country race decorum and sportsmanship.	Active
			4	Demonstrate cross-country running skills appropriate for competition at the college level.	Active
			5	Demonstrate appropriate fitness level for college-level competition to avoid injury.	Active
	Intercollegiate Golf	ES 213	1	Define golf terms at the advanced level.	Active
			2	Describe golf scoring and competitive strategies.	Active
			3	Identify appropriate golf decorum, etiquette, and sportsmanship.	Active
			4	Demonstrate golf skills appropriate for competition at the college level.	Active

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			5	Demonstrate appropriate fitness level for college-level competition to avoid injury.1	Active
	Intercollegiate Soccer	ES 218	1	Define soccer terms at the advanced level.	Active
			2	Describe soccer scoring and strategies by position.	Active
			3	Identify appropriate soccer decorum and sportsmanship.	Active
			4	Demonstrate soccer skills appropriate for competition at the college level.	Active
			5	Demonstrate appropriate fitness level for college-level competition to avoid injury.	Active
	Intercollegiate Tennis	ES 224	1	Define tennis terms at the advanced level.	Active
			2	Describe tennis scoring and strategies for singles and doubles competition.	Active
			3	Identify appropriate tennis etiquette, decorum, and sportsmanship.	Active
			4	Demonstrate tennis skills appropriate for competition at the college level.	Active
			5	Demonstrate appropriate fitness level for college-level competition to avoid injury.	Active
	Intercollegiate Track	ES 227	1	Define track and field terms at the advanced level.	Active
			2	Describe track and field scoring and strategies by event.	Active
			3	Identify appropriate track and field decorum and sportsmanship.	Active
			4	Demonstrate track and field skills appropriate for competition at the college level.	Active
			5	Demonstrate appropriate fitness level for college-level competition to avoid injury.	Active
	Intercollegiate Volleyball	ES 230	1	Define volleyball terms at the advanced level.	Active
			2	Describe volleyball scoring and strategies by position.	Active
			3	Identify appropriate volleyball etiquette, decorum, and sportsmanship.	Active
			4	Demonstrate volleyball skills appropriate for competition at the college level.	Active
			5	Demonstrate appropriate fitness level for college-level competition to avoid injury.	Active
	Intermediate Aerobic Dance Exercise	ES 009B	1	Define cardiovascular fitness and dance terms.	Active
			2	Describe methods of monitoring cardiovascular and flexibility fitness.	Active

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			3	Identify specific muscles of the body, including upper and lower limbs.	Active
			4	Demonstrate skills appropriate for recreation and fitness-enhancing participation at the intermediate level in aerobic dance.	Active
	Intermediate Badminton	ES 060B	1	Define badminton terms.	Active
			2	Describe badminton scoring.	Active
			3	Identify appropriate badminton etiquette for singles and doubles play.	Active
			4	Demonstrate badminton skills, appropriate for competition, recreation, and fitness-enhancing play at the intermediate level.	Active
	Intermediate Basketball	ES 155B	1	Define basketball terms at the intermediate level.	Active
			2	Describe basketball intermediate level basketball strategies.	Active
			3	Identify appropriate basketball decorum and etiquette at the intermediate level.	Active
			4	Demonstrate basketball skills appropriate for competition, recreation, and fitness-enhancing play at the intermediate level.	Active
	Intermediate Body Building	ES 014B	1	Define muscle conditioning terms and compare concentric versus eccentric workout techniques.	Active
			2	Describe methods of monitoring muscle strength, including one rep max and max reps measurement.	Active
			3	Identify specific muscles of the body, including core, upper, and lower limbs, and their actions.	Active
			4	Demonstrate skills appropriate for recreation and fitness-enhancing participation in body-building at the intermediate level.	Active
	Intermediate Golf	ES 125B	1	Define golf terms.	Active
			2	Describe golf scoring.	Active
			3	Identify appropriate golf etiquette.	Active
			4	Demonstrate skills, appropriate for competition, recreation, and fitness-enhancing play at the intermediate level.	Active
	Intermediate Physical Fitness	ES 019B	1	Define cardiovascular and muscle conditioning terms.	Active
			2	Describe methods of monitoring cardiovascular and strength fitness.	Active

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			3	Identify specific muscles of the body, including core, upper, and lower limbs.	Active
			4	Demonstrate skills appropriate for recreation and fitness-enhancing participation in activities that promote physical fitness at the intermediate level.	Active
	Intermediate Soccer	ES 170B	1	Define intermediate-level soccer terms.	Active
			2	Describe soccer scoring and penalties at the intermediate level.	Active
			3	Identify appropriate soccer decorum and etiquette.	Active
			4	Demonstrate soccer skills appropriate for competition, recreation, and fitness-enhancing play at the intermediate level.	Active
	Intermediate Softball	ES 171B	1	Define intermediate-level softball terms.	Active
			2	Describe softball positions, scoring and strategies.	Active
			3	Identify appropriate softball etiquette.	Active
			4	Demonstrate softball skills appropriate for competition, recreation, and fitness-enhancing play at the intermediate level.	Active
	Intermediate Tennis	ES 076B	1	Define tennis terms.	Active
			2	Describe tennis scoring.	Active
			3	Identify appropriate tennis etiquette for singles and doubles.	Active
			4	Demonstrate tennis skills, appropriate for competition, recreation, and fitness-enhancing play at the intermediate level.	Active
	Intermediate Volleyball	ES 175B	1	Define intermediate-level volleyball terms.	Active
			2_1	Describe volleyball position.	Active
			3_1	Identify appropriate volleyball etiquette.	Active
			4	Demonstrate volleyball skills appropriate for competition, recreation, and fitness-enhancing play at the intermediate level.	Active
	Introduction to General, Organic and Biological Chemistry	CHEM 102	1-a	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: a. Recognizing the difference between ionic and covalent compounds and writing their names and formulas.	Active
			1-b	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by:	Active

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			1-b	b. Identifying and employing units of measurement and concentration as they relate to drug administration.	Active
			1-c	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: c. Calculating medication dosages and IV drip rates utilizing dimensional analysis and ratio and proportion while carrying the proper number of significant figures.	Active
			1-d	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: d. Describing the concepts of pH, buffers, acids and bases and calculating pH.	Active
			1-e	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: e. Describing the properties of gases and solving problems utilizing gas laws.	Active
			2-a	Demonstrate their knowledge of organic chemistry by: a. Recognizing the most common organic functional groups.	Active
			2-b	Demonstrate their knowledge of organic chemistry by: b. Describing how properties of functional groups dictate the chemical and physical properties of organic compounds.	Active
			2-c	Demonstrate their knowledge of organic chemistry by: c. Writing names and structures of the major classes of organic compounds.	Active
			3-a	Demonstrate their knowledge of biochemistry with respect to the major classes of biomolecules (carbohydrates, lipids, proteins, nucleic acids) by: a. Describing their chemical and physical properties.	Active
			3-b	Demonstrate their knowledge of biochemistry with respect to the major classes of biomolecules (carbohydrates, lipids, proteins, nucleic acids) by: b. Describing their major metabolic and catabolic pathways.	Active
			4-a	In the laboratory: a. Observe qualitative phenomena and measure quantitative properties of inorganic substances undergoing physical or chemical changes.	Active
			4-b	In the laboratory: b. Observe and record physical and chemical properties of the major classes of organic compounds and biomolecules.	Active

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	Introduction to Kinesiology	ES 250	1	Describe the historical, philosophical and ethical foundations of kinesiology and its modern sub-disciplines incorporating the use of appropriate and current vocabulary.	Active
			3	Describe the sub-disciplines of kinesiology: motor behavior, motor learning/control, motor development, and the basic movement forms for sport, dance, and exercise, biomechanics, exercise physiology, psychological/social foundations, pedagogy, including theories of behavior change and health maintenance through the lifespan.	Active
			5	Identify pathways and requirements for career opportunities in the field, including tenets of professional-level job performance.	Active
	Introductory Psychology	PSY 120	1	Apply scientific methods to the ethical exploration of human behavior through analysis of environment, behavioral and physiological conditions	Active
			2	Describe the different schools of psychology and analyze their perspectives on consciousness, intelligence, learning and possible identification and treatment of psychological disorders	Active
			3	Identify characteristics associated with individual development through childhood and their possible influences in adult behavior and possible links to adult behavior and personality	Active
			4	Analyze the implications of how the social world influences the motivation and emotions of cultures, groups and the resulting behavior of an individual	Active
	Introductory Sociology	SOC 120	1	Apply the major theoretical perspectives in sociology to information and real experiences.	Active
			2	Identify, explain and apply the principles of social scientific research methodology.	Active
			3	Appraise the range of cultural variability in human societies.	Active
			4	Explain sociologically inequalities of class, race, ethnicity, gender, and age in modern and pre-modern societies.	Active
	Issues in Childhood Obesity	ES 272	1	List causes and risk factor associated with childhood obesity.	Active
			2	Describe methods of increasing physical activity in children including the use of pedometers	Active
			Inactive_2	Demonstrate methods to assess body composition.	Active
	Laboratory in Human Physiology	BIO 141L	1	Utilize the methods of scientific inquiry and the philosophy of science to design scientific experiments in physiology, collect data, and discuss, interpret, analyze and draw conclusions from data presented in graphs, tables and diagrams related to lab exercises.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			10	Relate fitness level of individuals and the effects factors such as smoking, amount of exercise, etc., have on long term heart fitness.	Active
			11	Calculate heart rate on an EKG and recognize arrhythmias and other pathologies from the EKG; relate output to specific electrical and mechanical events of the cardiac cycle.	Active
			12	Demonstrate the proper use of a sphygmomanometer and a stethoscope to measure blood pressure and examine the homeostatic regulation of blood pressure in response to challenges such as exercise.	Active
			13	Test for blood glucose and cholesterol levels and determine blood type.	Active
			14	Measure lung volumes under different physiological conditions and relate to respiratory pathologies.	Active
			15	Test urine for various solutes and metabolites and classify abnormal samples by pathology.	Active
			16	Determine optimal conditions for the function of digestive enzymes and compare these to physiological conditions.	Active
			2	Determine the different concentrations of biomolecules in intracellular and extracellular fluid.	Active
			3	Demonstrate the different types of physiological transport including diffusion and osmosis, and predict the tonicity between compared solutions.	Active
			4	Carry out enzymatically catalyzed experiments and determine optimal conditions for the function of these enzymes.	Active
			5	Classify the different types of sensory receptors in the human body and know the stimulus to which each receptor responds.	Active
			6	Explore reflex pathways of the nervous system and distinguish experimentally between reflexes and voluntary responses.	Active
			7	Correlate EMG recordings with variations in force and anatomically defined movements generated by skeletal muscles.	Active
			8	Demonstrate the mechanical principles of skeletal muscle contraction.	Active
			9	Measure heart rate and determine the effects of exercise on heart rate.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
	Physical Education in Elementary Schools	ES 253	2	Develop age-appropriate physical education programs for students at the elementary school level.	Active
			3	Critique existing elementary school physical education curricula for addressing childhood obesity.	Active
			Public Speaking	COMM 122	1
	2	Research, write and deliver an effective public speech.			Active
	3	Demonstrate that they are careful and critical thinkers and communicators, both as speakers and as listeners.			Active
	Science of Nutrition	HED 255	1	Describe the relationship between optimal nutrition and optimal health, citing examples of the unique nutritional needs of various population groups.	Active
			2	Identify the nutrients essential for optimal health and describe their physiological functions, chemical interactions, and food sources.	Active
			3	Describe and design healthy diet plans for a variety of population groups using the various dietary planning guides available (e.g., food guide pyramids, recommended dietary intakes, exchange lists, etc.).	Active
			4	Identify characteristics of digestion and absorption of various nutrients.	Active
			5	Evaluate a variety of "diets" for their content and sufficiency (e.g., cultural and ethnic comparisons, vegetarianism versus omnivores, weight control issues including the athlete and sedentary obese individuals, global nutrition concerns, extensive use of artificial ingredients and bioengineered foods), as compared to the guidelines set by the United States Department of Agriculture (USDA).	Active
	Statistics for the Behavioral Sciences	PSY 215	1	Apply and calculate the appropriate statistical test to validate a hypothesis, including mean, standard deviations z-scores, t tests, one way analysis of variance, chi-square and multivariate analysis of variance	Active
			2	Interpret the relationship between variables using correlations, simple regressions and multivariate regression analysis and the implications of effect size on power calculations	Active
			3	Use statistical procedures to make probability assessments based on various distributions of data	Active
			4	Investigate a hypothesis through literature research to develop of proper experimental method and research protocol, produce	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			4	analysis and a written conclusion, and discuss limitations inherent in tests of significance	Active
SLO (MSE - ES&HE) - Health Education (HED)	Health and Social Justice	HED 204	SLO 1	Describe disparities in health outcomes in the United States by race, socioeconomic status and gender.	Active
			SLO 2	Review recent public health literature detailing ways that race, socioeconomic status and gender become embodied in disparate health outcomes.	Active
			SLO 3	Analyze the contribution of environmental conditions to disparate health outcomes, using case studies.	Active
			SLO 4	Describe strategies or tactics to improve health inequalities, such as advocacy, community organizing, and/or policy change.	Active
			SLO 5	Identify, assess and utilize credible information resources on public health current issues, such as the Internet, social media, media outlets, and libraries.	Active
	Health Education for Teachers	HED 105	1	Analyze risk and preventive factors for health problems that affect youth in the United States.	Active
			2	Discuss and design appropriate grade-level curriculum that will effectively influence youth to embrace healthy lifestyle choices.	Active
			3	Evaluate community resources, programs, services and networks and explain how they are used to assist in health promotion with students and their families.	Active
			4	Discuss the legal issues of health education in the public schools in California such as the operation of free clinics in schools, parent reporting laws, etc.	Active
			5	Analyze social and cultural influences that can impact health and lifestyle choices.	Active
			6	Compare and contrast the effects of optimal health and poor health on student learning and academic performance.	Active
	Health Professions and Organizations	HED 202	1	Define the role of public health in various settings such as free clinics and disease surveillance programs.	Active
			2	Identify and describe the characteristics of the public health workforce in the United States.	Active
			3	List specific public health occupational categories, and compare and contrast the job qualifications, work responsibilities, salaries, and career prospects of the different public health occupations.	Active
			4	List the national professional associations/organizations that help to promote the health professions and describe their goals and responsibilities.	Active
			6	Use criteria learned in class to evaluate the accuracy and reliability of internet information as it relates to health care	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			6	professions.	Active
	Healthy Lifestyles: Theory and Application	HED 251	1	Describe the importance and value of physical fitness and assessment of personal fitness.	Active
			2	Describe how principles learned in class may be applied to improve five basic components of fitness.	Active
			3	Modify present Monitor behavior that create health conditions that may develop into hypokinetic disease.	Active
			4	Evaluate current diet to determine appropriate nutritional content and balance of essential nutrients.	Active
			5	Identify appropriate internet resources for information on diet and health, stating why these sources are valid and reliable.	Active
	Introduction to Public Health	HED 201	1	Identify different public health disciplines, professions and organizations, and explain how each contributes to the field of public health.	Active
			2	Describe the most important historical milestones/achievements of public health.	Active
			3	Describe the appropriate use of basic epidemiological methods.	Active
			4	Outline strategies for prevention, detection and control of infectious and chronic disease.	Active
			5	Describe the organization, financing and delivery of various medical and population-based services in the United States health care system.	Active
			6	Explain the role of Public Health in addressing the following issues: disparities among different populations, aging, injuries, obesity, control of emerging diseases and epidemics, and emergency preparedness.	Active
	Personal Health and Lifestyles	HED 120	1	Describe how principles learned in class may be applied to improve the six dimension of wellness.	Active
			2	Examine the major contemporary health problems in society.	Active
			3	Describe the inter-relationship between human beings and their environment.	Active
			4	Describe the role of substance use and abuse in our society.	Active
			5	Identify common practices and attitudes that contribute to accidents, and strategies for prevention.	Active
			6	Describe the inter-relatedness of physical, emotional and psychological health.	Active
			7	Identify valid and reliable, non-commercial Internet sources of health information.	Active
	Realities of Nutrition	HED 155	1	Describe the relationship between good nutrition and good health.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2	List the nutrients essential for good health, their food sources and physiological roles in the body.	Active
			3	Examine a variety of dietary planning guides in order to make informed dietary decisions.	Active
			4	Examine nutritional facts labels and correctly identify the nutritional content.	Active
			5	Evaluate current diet utilizing a dietary intake log in the context of personal needs/goals.	Active
			6	Examine the special nutritional needs of various stages in the human life span.	Active
			7	Evaluate a variety of eating styles for nutritional content and sufficiency (e.g., vegetarianism, cultural and ethnic practices, etc.).	Active
	Science of Nutrition	HED 255	1	Describe the relationship between optimal nutrition and optimal health, citing examples of the unique nutritional needs of various population groups.	Active
			2	Identify the nutrients essential for optimal health and describe their physiological functions, chemical interactions, and food sources.	Active
			3	Describe and design healthy diet plans for a variety of population groups using the various dietary planning guides available (e.g., food guide pyramids, recommended dietary intakes, exchange lists, etc.).	Active
			4	Identify characteristics of digestion and absorption of various nutrients.	Active
			5	Evaluate a variety of "diets" for their content and sufficiency (e.g., cultural and ethnic comparisons, vegetarianism versus omnivores, weight control issues including the athlete and sedentary obese individuals, global nutrition concerns, extensive use of artificial ingredients and bioengineered foods), as compared to the guidelines set by the United States Department of Agriculture (USDA).	Active
	Substance Abuse and Public Health	HED 203	1	Differentiate the concept of substance abuse from substance dependence.	Active
			2	Describe the psychotherapeutic benefits (if any) and harmful effects of common substances of abuse, and identify the populations most at risk of using these substances.	Active
			3	Identify the risk factors associated with the use of specific substances of abuse.	Active
			4	Evaluate historical legal cases and situations related to substance abuse.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			5	Analyze the current public health perspective on the issue of substance abuse prevention.	Active
			6	Analyze reliable public data sources to find statistical and epidemiologic data on incidence, prevalence, and trends in drug, tobacco and alcohol use.	Active
SLO (MSE - Math) - Mathematics (MATH)	Analytic Geometry and Calculus I	MATH 180	1	Compute the limit of a function at a real number;	Active
			2	Determine if a function is continuous at a real number;	Active
			3	Find the derivative of a function as a limit;	Active
			4	Find the equation of a tangent line to a function;	Active
			5	Compute derivatives including implicit differentiation	Active
			6	Use differentiation to solve applications such as related rate problems and optimization problems	Active
			7	Graph functions using methods of calculus;	Active
			8	Evaluate definite and indefinite integrals	Active
			9	Apply integration to find area.	Active
	Analytic Geometry and Calculus II	MATH 280	1	Evaluate definite and indefinite integrals using a variety of integration formulas and techniques	Active
			2	Apply integration to areas and volumes, and other applications such as work or length of a curve	Active
			3	Evaluate improper integrals	Active
			4	Apply convergence tests to sequences and series	Active
			5	Represent functions as power series	Active
			6	Graph, differentiate and integrate functions in polar and parametric form.	Active
	Analytic Trigonometry	MATH 170	1	Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs.	Active
			2	Prove trigonometric identities.	Active
			3	Manipulate and simplify trigonometric expressions.	Active
			4	Solve trigonometric equations.	Active
			5	Calculate vector sum, vector products, dot products, vector magnitudes and vector angles.	Active
			6	Analyze physical problems and create trigonometric relationships involving triangles, the coordinate system, the unit circle or vectors.	Active
			7	Identify special triangles and their related angle and side	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			7	measures.	Active
			8	Evaluate the trigonometric function at an angle whose measure is given in degrees and radians.	Active
			9	Evaluate and graph inverse trigonometric functions.	Active
	Calculus for Business, Social and Behavioral Sciences	MATH 178	2	Apply derivatives to solve application problems from business or the natural or social sciences.	Active
			3	Use graphical, numerical or analytical methods to solve real-world problems from business or the natural or social sciences.	Active
	College Algebra	MATH 175	1	Analyze and investigate properties of functions;	Active
			2	Apply transformations to the graphs of functions;	Active
			3	Recognize the relationship between functions and their inverses graphically and algebraically;	Active
			4	Solve rational, linear, polynomial, radical, absolute value, exponential, and logarithmic equations and solve linear, nonlinear, and absolute value inequalities;	Active
			5	Solve systems of equations and inequalities;	Active
			6	Apply techniques for finding zeros of polynomials and roots of equations;	Active
			7	Apply functions and other algebraic techniques to model real world STEM applications;	Active
			8	Analyze conics algebraically and graphically.	Active
			9	Use formulas to find sums of finite and infinite series.	Active
	Differential Equations	MATH 285	1	Create and analyze mathematical models using ordinary differential equations.	Active
			2	Identify the type of a given differential equation and select and apply the appropriate analytical technique for finding the solution of first order and selected higher order ordinary differential equations.	Active
			3	Apply the existence and uniqueness theorems for ordinary differential equations.	Active
			4	Find power series solutions to ordinary differential equations.	Active
			5	Determine the Laplace Transform and inverse Laplace Transform of functions.	Active
			6	Solve Linear Systems of ordinary differential equations.	Active
	Discrete Mathematics	MATH 245	1	Use recursion to analyze algorithms and programs.	Active
			2	Write proofs using symbolic logic and Boolean Algebra.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			3	Use sets to solve problems in combinatorics and probability theory.	Active
			4	Apply matrices to analyze graphs and trees.	Active
			5	Use finite state machines to model computer operations.	Active
	Electricity and Magnetism	PHYC 200	1	Recognize the basic concepts concerning electric fields, electric potential, capacitance, resistance, current, DC circuits, magnetic fields, inductance, AC circuits, Maxwell's Equations, and use algebraic, trigonometric and advanced calculus expressions to represent physical situations involving these subjects.	Active
			2	Investigate and delineate the relationship between the theoretical principles of physics and their practical applications, and explain how this relationship affects real world problem solving.	Active
			3	Investigate, interpret and analyze the fundamental principles of physics based on reading assignments and in-class discussions.	Active
			4	Calculate solutions to physics problems using the fundamental principles of physics and symbolic logic skills.	Active
			5	Design experiments using the scientific method.	Active
			6	Demonstrate laboratory technique by collecting data using both traditional and computer data acquisition methods, using computers to interpret and analyze numerical data and to generate a visual representation of the data.	Active
			7	Evaluate the experimental results using techniques presented in class.	Active
	Elementary Statistics	MATH 160	1	Summarize data graphically and numerically	Active
			2	Use descriptive statistics(measures of central tendency, variation, relative position, and levels/scales of measurement) to describe a population and compare populations when appropriate	Active
			3	Identify the sample space of an experiment or random trial	Active
			4	Find and interpret the expected value and standard deviation of a Random variable	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			5	Recognize the sampling distribution as a distribution of a sample statistic, the mean of the sampling distribution as the population mean, and the standard error of the sampling distribution as the standard deviation for the population (the Central Limit Theorem)	Active
			6	Construct and interpret confidence intervals	Active
			7	Use hypothesis tests and inference (including t-tests for one and two populations and Chi-square test) to determine if a result is statistically significant for discrete (binomial) and continuous (normal) distributions	Active
			8	Perform statistical analysis using technology such as SPSS, EXCEL, Minitab, or StatCrunch.	Active
			Inactive - (3)	Use analysis of variance (ANOVA) to analyze the differences between group means and their associated procedures such as variation among and between groups (originally...Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics)	Active
	Engineering Computer Applications	ENGR 120	1	Design and write efficient computer programs using top-down design techniques and pseudocode for program development.	Active
			2	Apply various data types including single, double, integer, complex, and logical in conjunction with constants, variables and multi-dimensional arrays in the computer analysis of engineering problems.	Active
			3	Apply relational and logical operators in conjunction with branching structures.	Active
			4	Apply appropriate loop structures including nested loop structures and recursive operations.	Active
			5	Apply input and output functions, formatted I/O, and communication with data files.	Active
			6	Apply general intrinsic functions, and design and write callable functions.	Active
			7	Apply basic computer graphics techniques to produce simple xy plots, multiple plots, and simple enhanced control of plotted lines.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			8	Apply advanced computer graphics to the display of multi-dimensional data and images and use of advanced graphical controls.	Active
			9	Design and write computer programs to solve engineering problems using numerical techniques and/or intrinsic functions including: polynomial operations, statistical operations, matrix operations, symbolic operations, curve fitting, linear interpolation, and integration and differentiation.	Active
	General Biology I	BIO 130	1	Outline the methods and activities of scientific inquiry used to solve problems in biology and identify limitations to the types of questions that can be answered scientifically.	Active
			10	Construct a model that represents the chemical composition and architecture of a cell membrane and predict the flow of molecules across the membrane based on osmolarity on opposite sides of the membrane.	Active
			11	Explain how enzymes allow anabolic and catabolic metabolism in a cell to operate in terms of the cell's energy flow.	Active
			12	Describe the processes of photosynthesis, glucose oxidation, and fermentation in terms of their energy flow and conversion properties, and their interrelationships.	Active
			13	Compare and contrast the functions and mechanisms of mitosis and meiosis in a diploid organism's life cycle.	Active
			14	Solve problems that require calculation of the probability of the inheritance of a particular genetic allele for Mendelian and non-Mendelian scenarios.	Active
			15	Appraise the evidence for evolution and illustrate the key concepts using an example.	Active
			16	Apply the knowledge gained in the course to assess contemporary problems/situations in biology.	Active
			2	Distinguish among statements that describe a hypothesis, a theory or natural law.	Active
			3	Determine whether an entity is living based upon a description	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			3	of its properties.	Active
			4	Classify an organism into the appropriate domain and kingdom based upon its characteristics; justify the reasons for placing it there.	Active
			5	Explain how the various components of matter can be organized into biological molecules.	Active
			6	Compare and contrast the structures, roles and interrelationships of biological molecules including nucleic acids, proteins, carbohydrates and lipids.	Active
			7	Given a molecule of DNA with a specific nucleotide sequence, demonstrate how to create the complementary strands of the double helix, transcribe one of the strands into mRNA, and translate into a peptide.	Active
			8	Describe the relationship between structure and function in proteins and the implications of changes in structure on the operation of a cell.	Active
			9	Construct a model of a prokaryotic and eukaryotic cell that includes the various sub-cellular structures and describes their inter-relationships and possible origins; contrast this model with that of a typical virus.	Active
	General Biology I Laboratory	BIO 131	1	Perform the basic activities of scientific inquiry, including presentation of data in the form of tables, charts and graphs, design of experiments, collection of data, and critical analysis of data.	Active
			10	Solve problems in genetics based on Mendelian and non-mendelian models of inheritance	Active
			11	Describe the relationship between classical genetics and modern molecular genetics, and the significance of molecular genetics in the modern world	Active
			12	Understand the structure and functional relationships of plants with other biotic and abiotic factors in ecosystems	Active
			13	Study the structure and function of the major organs and organ systems in a representative mammal and compare and contrast to those of humans.	Active
			14	Understand the basis of the classification of the animal	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			14	kingdom as well as recognize members of the different animal phyla	Active
			2	Use both compound and stereo microscopes to study cells and organisms.	Active
			3	Describe the relationship between respiration and photosynthesis, producers and consumers and the role of each of these in ecosystems.	Active
			4	Relate membrane transport examples to real world situations	Active
			5	Test for the presence of carbohydrates, lipids, proteins and nucleic acids, recognize the relationships between the testing methods and the chemical properties of these compounds, and the significance of these molecules in living organisms.	Active
			6	Measure the rate of enzyme catalyzed reactions under different conditions, and explain the significance to living systems.	Active
			7	Recognize the roles of light, CO ₂ and pigments in photosynthesis and to measure the rate of photosynthesis under different conditions	Active
			8	Compare human-controlled oxidation to glucose oxidation in respiration and to measure the rate of respiration under different conditions	Active
			9	Compare the role of mitosis to meiosis in cellular division and to recognize the different phases of these processes	Active
	General Chemistry I	CHEM 141	1	Solve a wide variety of problems including those involving the topics of calorimetry, gases, thermodynamics, ionization energy, and lattice energy, among others.	Active
			2	Apply knowledge of a variety of theories of atomic structure and bonding.	Active
			3	Perform a variety of experimental analytical techniques in a laboratory setting to collect data: analyze data and make predictions about the nature of matter.	Active
	General Chemistry II	CHEM 142	1	Solve a wide variety of problems including those involving the topics of electrochemistry, kinetics, equilibrium, heat transfer, entropy and free energy, and lattice energy, among others. Analyze results to make predictions.	Active
			2	Apply knowledge of the bonding and intermolecular forces in solids, liquids and gases.	Active
			3	Perform a variety of experimental analytical techniques and qualitative analysis in a laboratory setting to collect data/observations, analyze data/observations and make predictions about the nature of matter.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
	Intermediate Algebra for Business, Mathematics, Science & Engineering	MATH 110	1	Simplify or reorganize expressions	Active
			2	Solve equations and inequalities	Active
			3	Solve systems of two or three equations	Active
			4	Recognize and graph elementary conics	Active
			5	Use the graphing calculator to solve equations graphically	Active
			6	Solve application problems	Active
			7	Simplify or reorganize functions by operations	Active
			8	Graph a function and identify its defining elements	Active
			9	Find the domain and range of a given function	Active
	INTERMEDIATE ALGEBRA FOR ENGLISH LANGUAGE LEARNERS	MATH 106	1	Apply numerical and algebraic reasoning and computational skills to solve contextualized problems.	Active
			2	Construct, use, and interpret mathematical models, specifically linear, quadratic, and exponential functions to represent and communicate relationships in quantitative data.	Active
	INTERMEDIATE ALGEBRA FOR MATH 175	MATH 075	1	Simplify or reorganize expressions.	Active
			2	Solve equations and inequalities.	Active
			3	Solve systems of two equations.	Active
			4	Graph a function and identify its defining elements (including domain and range).	Active
	INTERMEDIATE ALGEBRA FOR MATH 176	MATH 076	1	Simplify or reorganize expressions.	Active
			2	Solve equations and inequalities.	Active
			3	Solve systems of two equations.	Active
			4	Graph a function and identify its defining elements (including domain and range).	Active
	INTERMEDIATE ALGEBRA FOR MATH 178	MATH 078	1	Simplify or reorganize expressions.	Active
			2	Solve equations and inequalities.	Active
			3	Solve systems of two equations.	Active
			4	Graph a function and identify its defining elements (including domain and range).	Active

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	Intermediate C++ Programming & Fundamental Data Structures	CS 281	1	Decompose problems and design program solutions using flowcharts, pseudocode, models, or other tools.	Active
			2	Properly code applications using the fundamental coding structures: sequence, selection, and loops.	Active
			3	Test and debug applications using debugging tools such as trace execution.	Active
	Intermediate Java Programming & Fundamental Data Structures	CS 282	1	Decompose problems and design program solutions using flowcharts, pseudocode, models, or other tools.	Active
			2	Properly code applications using the fundamental coding structures: sequence, selection, and loops.	Active
			3	Test and debug applications using debugging tools such as trace execution.	Active
	Intermediate Multivariable Calculus	MATH 281	1	Perform vector operations.	Active
			2	Determine equations of lines and planes.	Active
			3	Evaluate partial derivatives.	Active
			4	Find local extrema and test for saddle points.	Active
			5	Solve constraint problems using Lagrange multipliers.	Active
			6	Compute arc length.	Active
			7	Evaluate two and three dimensional integrals involving rectangular, polar, cylindrical and spherical coordinates.	Active
			8	Analyze multivariable function, equations, graphs, contour maps, vector fields, or tables of data.	Active
	Introduction to Java Programming	CS 182	1	Decompose problems and design program solutions using flowcharts, pseudocode, models, or other tools.	Active
			2	Properly code applications using the fundamental coding structures: sequence, selection, and loops.	Active
			3	Test and debug applications using debugging tools such as trace execution.	Active
	JUST-IN-TIME SUPPORT FOR ELEMENTARY STATISTICS	MATH 060	1	Formulate questions that can be addressed with data, then organize, display, and analyze relevant data to address these questions and communicate results.	Active
			2	Apply numerical and algebraic reasoning and computational skills to support statistical analysis.	Active
			3	Construct, use, and interpret mathematical models, specifically linear functions to represent and communicate relationships in	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			3	quantitative data	Active
	Linear Algebra	MATH 284	1	Find solutions of systems of equations using various methods appropriate to lower division linear algebra.	Active
			2	Use bases and orthonormal bases to solve problems in linear algebra.	Active
			3	Find the dimension of spaces such as those associated with matrices and linear transformations.	Active
			4	Find eigenvalues and eigenvectors and use them in applications;	Active
			5	Prove basic results in linear algebra using appropriate proof-writing techniques such as linear independence of vectors; properties of subspaces; linearity, injectivity and surjectivity of functions; and properties of eigenvectors and eigenvalues.	Active
	Mechanics and Heat	PHYC 190	1	Recognize the basic concepts concerning kinematics, dynamics, energy, momentum, gravitation, oscillations and thermodynamics, and use algebraic, trigonometric and advanced calculus expressions to represent physical situations involving these subjects.	Active
			2	Investigate and delineate the relationship between the theoretical principles of physics and their practical applications, and explain how this relationship affects real world problem solving.	Active
			3	Investigate, interpret and analyze the fundamental principles of physics based on reading assignments and in-class discussions.	Active
			4	Calculate solutions to physics problems using the fundamental principles of physics and symbolic logic skills.	Active
			5	During the lab students will: Design experiments using the scientific method.	Active
			6	During the lab students will: Demonstrate laboratory technique by collecting data using both traditional and computer data acquisition methods, using computers to interpret and analyze numerical data and to generate a visual representation of the data.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			6		Active
			7	During the lab students will: Evaluate the experimental results using techniques presented in class.	Active
	Precalculus: Functions and Graphs	MATH 176	1	Graph functions and relations in rectangular coordinates and polar coordinates;	Active
			10	Solve trigonometric equations, triangles, and applications;	Active
			11	Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs;	Active
			12	Evaluate and graph inverse trigonometric functions;	Active
			13	Prove trigonometric identities;	Active
			2	Apply transformations to the graphs of functions and relations;	Active
			3	Recognize the relationship between functions and their inverses graphically and algebraically;	Active
			4	Solve equations including rational, linear, polynomial, exponential, absolute value, radical, and logarithmic, and solve linear, nonlinear, and absolute value inequalities;	Active
			5	Solve systems of equations and inequalities;	Active
			6	Apply functions to model real world applications;	Active
			7	Identify special triangles and their related angle and side measures;	Active
			8	Evaluate the trigonometric function at an angle whose measure is given in degrees and radians;	Active
	Preparation for Elementary Statistics	MATH 096	9	Manipulate and simplify a trigonometric expression;	Active
			1	Formulate questions that can be addressed with data, then organize, display, and analyze relevant data to address these questions and communicate results.	Active
			2	Apply the basic principles of study design to develop and analyze the validity of simple experiments and sampling plans related to a given situation and goal.	Active
			3	Apply numerical and algebraic reasoning and computational skills to support statistical analysis.	Active
			4	Construct, use, and interpret mathematical models, specifically linear functions and exponential functions to represent and communicate relationships in quantitative data.	Active
	Quantitative Reasoning	MATH 120	1	Use reasoning techniques and problem solving strategies to categorize and solve a wide range of problems covered in a survey of mathematical topics.	Active
			2	Analyze patterns, and apply visualization and organizational	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2	techniques to a range of topics that can be applied to liberal arts courses and life experiences.	Active
	Wave Motion and Modern Physics	PHYC 210	1	Analyze basic physical situations involving reflection and refraction, and use this analysis to predict the path of a light ray.	Active
			2	Analyze situations involving interference and diffraction of light waves, and apply these to situations including double slits, diffraction gratings, and wide slits.	Active
			3	Apply concepts from special relativity to analyze physical situations.	Active
			4	Apply basic concepts of quantum mechanics to analyze basic physical setups.	Active
			5	LAB: Collect and analyze experimental data using graphical representation, including appropriate use of units and significant figures.	Active
			6	LAB: Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
SLO (MSE - S&E) - Astronomy (ASTR)	Descriptive Astronomy	ASTR 110	1	Recognize and define the following terms: planet, Moon, comet, meteoroid, constellation, Celestial Sphere, precession, seasons, astronomical unit, parsec, light-year.	Active
			10 (formally 11)	Investigate and delineate the structure of the Universe consistent with scientific observations.	Active
			11 (formally 12)	Identify and evaluate the structure of the Universe as predicted by the Big Bang Theory.	Active
			2 (formally 3)	Describe and explain the phases of the Moon and how the Earth, Moon and Sun are positioned.	Active
			3 (formally 4)	Describe the structure of the Solar System.	Active
			4 (formally 5)	Analyze and evaluate the relationship between photons, atomic structure and spectral lines.	Active
			5 (formally 6))	Use the Hertzsprung-Russell diagram to explain the evolution of a star.	Active
			6 (formally 7)	Analyze and explain how stars evolve.	Active
			7 (formally 8)	Compare and contrast absolute and apparent magnitude.	Active

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			7 (formally 8)		Active
			8 (formally 9)	Analyze and evaluate parallax and distance indicators.	Active
			9 (formally 10)	Compare and contrast current models of galaxy types. (formally) Compare and contrast current models of galaxy types and of the evolution of galaxies.	Active
	General Astronomy Laboratory	ASTR 112	1 (formally 2)	Use a telescope to observe the various astronomical objects such as the Sun, Moon, Venus, Mars, Jupiter and its Galilean moons, Saturn, stars, star clusters, nebula and galaxies.	Active
			10 (formally 12)	Write a lab report using proper English to record data and its analysis with the appropriate astronomical concepts and vocabulary.	Active
			11 (formally 14)	Demonstrate laboratory technique by collecting data using both traditional and computer data acquisition methods; use computers to interpret and analyze numerical data and generate a visual representation of the data.	Active
			12 (formally 15)	Evaluate the experimental results using techniques presented in class.	Active
			2 (formally 4)	Identify and describe surface features of the moon.	Active
			3 (formally 5)	Use parallax to determine the distance to an object.	Active
			4 (formally 6)	Calculate the absolute magnitude of a star.	Active
			5 (formally 7)	Use absolute magnitude to determine the distance to a star.	Active
			6 (formally 8)	Identify elements by observing their spectra.	Active
			7 (formally 9)	Classify stars using their spectra.	Active
			8 (formally 10)	Construct and use a Hertzsprung-Russell diagram.	Active
			9 (formally 11)	Use distance indicators to obtain a mental image of the structure of the Universe.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
SLO (MSE - S&E) - Biology (BIO)	Analytic Geometry and Calculus I	MATH 180	1	Compute the limit of a function at a real number;	Active
			2	Determine if a function is continuous at a real number;	Active
			3	Find the derivative of a function as a limit;	Active
			4	Find the equation of a tangent line to a function;	Active
			5	Compute derivatives including implicit differentiation	Active
			6	Use differentiation to solve applications such as related rate problems and optimization problems	Active
			7	Graph functions using methods of calculus;	Active
			8	Evaluate definite and indefinite integrals	Active
			9	Apply integration to find area.	Active
	Biology of Alcohol and Other Drugs	BIO 115	1	Describe how the methods of scientific inquiry are used to understand and resolve problems regarding the effects of drugs on the neurobiology of humans, and interpret graphs and charts that relate to knowledge of drug effects.	Active
			10	Describe the effects of cocaine, amphetamines and other stimulants (including nicotine and caffeine) on the nervous system.	Active
			11	Describe the effects of alcohol and other depressants on the nervous system.	Active
			12	Explain how anti-anxiety agents work on the brain.	Active
			13	Describe the pathways in the brain involved in addictive behavior, how various drugs interact with those pathways and how specific genes may predispose a person to addictive behaviors.	Active
			14	Identify the pain pathways leading to the brain and describe the effects of opioids and non-steroidal anti-inflammatory drugs (NSAIDs) on those pathways.	Active
			15	Describe the effects marijuana, various hallucinogens, and steroids on the nervous system.	Active
	16		Obtain, analyze and synthesize current research on the effects of drugs on the body and society.	Active	
			2	Classify drugs on the basis on their behavioral effects.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			3	Identify parts of the nervous system that are affected by various drugs.	Active
			4	Explain how neurons communicate chemically using neurotransmitters.	Active
			5	Describe how drugs reach the brain via the circulatory system and compare the advantages and disadvantages of the different methods of drug administration.	Active
			6	Define the concept of tolerance to a drug and compare the mechanisms of enzymatic and cellular tolerance.	Active
			7	Recognize the role of psychological dependency versus physical dependency in drug abuse.	Active
			8	Describe how the body eliminates drugs including the role of enzymes, the liver and the kidney.	Active
			9	Explain how drugs can act as agonists, antagonists and facilitators of neurotransmitters.	Active
	Contemporary Issues in Environmental Resources	BIO 112	1	Outline and apply the scientific method to the analysis and resolution of environmental problems.	Active
			10	Diagram a sample food web and describe its relationship to energy flow in an ecosystem.	Active
			11	Describe how species interact via competition and predation and model the impacts on population size.	Active
			12	Explain the relationship between changes in a population's gene pool through successive generations and the process of evolution.	Active
			13	Explain how the extinction of species and formation of new species affect biodiversity and the overall impact on Earth's sustainability.	Active
			14	Model how populations change in size, density and makeup in response to birth, death, fertility, migration rates and environmental stress.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			14		Active
			15	Describe the scientific basis behind soil, water and air resources, describe associated issues with each of them, and evaluate methods for remediation and prevention of future problems.	Active
			16	Evaluate the relationships between humans and their environment and assess the impact of humans on Earth's natural systems.	Active
			2	List a variety of natural resources and describe how they are connected with environmental issues.	Active
			3	Define the concept of sustainability.	Active
			4	Compare and contrast the fields of ecology and environmental science.	Active
			5	List the root causes of environmental problems, examine their interconnections, and discuss their connections to political, economic and social issues.	Active
			6	Describe the major effects that hunter-gatherer, agricultural, and industrial societies have had on the environment.	Active
			7	List the major components of an ecosystem, define ecosystem services and describe how they affect the sustainability of the Earth's life support services.	Active
			8	Model earth's biogeochemical cycles and explain their interconnections with environmental issues.	Active
			9	Analyze how utilization of non-renewable energy sources impacts the natural environment and evaluate and recommend energy alternatives.	Active
	Ethnobotany	BIO 134	1	Use the tools of scientific inquiry to analyze and resolve botanical issues including the identification and classification of plants into different taxa including family, genus and species.	Active
			2	Identify different anatomical structures of different plant phyla, how these structures change through the life of the plant, and	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2	how these structures are utilized by indigenous people.	Active
			3	Demonstrate an understanding of the evolutionary basis for scientific classification and how this compares to traditional methods of classification.	Active
			4	Compare and contrast primary and secondary metabolites, and discuss how each is used in the plant and by humans.	Active
			5	Discuss and demonstrate traditional and modern gathering and harvesting techniques. Determine the effect of these techniques on the promotion of biodiversity and community health.	Active
	Ethnobotany/Ethnoecology Lab	BIO 135	1	Describe the various methods and components of scientific inquiry, and use these methods to assess traditional uses of plants.	Active
			2	Demonstrate correct use and care of the compound binocular microscope.	Active
			3	Identify cellular structures within different types of plant cells.	Active
			4	Identify and describe the anatomy of different types of reproductive structures including cones, seeds, and flowers. Discuss the evolutionary advantage of each.	Active
			5	Identify and classify different plants and plant communities using scientific and ethnobiological classification.	Active
			6	Demonstrate the ability to gather, harvest and prepare medicinal and utilitarian plants utilizing traditional techniques.	Active
			7	Describe how bioassays can be used to evaluate medicinal effects of plants.	Active
	Ethnoecology	BIO 133	1	Use the tools of scientific inquiry to analyze and resolve ecological issues.	Active
			2	Demonstrate an understanding of the ecological and evolutionary effects of indigenous land management.	Active
			3	Diagram the pathways of energy, organic and inorganic chemicals in the environment, and discuss ways in which humans have impacted those pathways and the consequences of those actions.	Active
			4	Compare and contrast indigenous land management techniques with those used by modern land managers, and discuss how changing land management priorities have affected California's ecosystems.	Active
			5	Evaluate the relationships between humans and their environment and assess the impact of humans on Earth's natural systems.	Active
			6	List the major components of an ecosystem, define ecosystem	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			6	services and describe how they affect the sustainability of the Earth's life support services.	Active
			7	Diagram a sample food web and describe its relationship to energy flow in an ecosystem.	Active
			8	Develop a conceptual ecological model of a degraded ecological system and predict the effects of changes in interspecific interactions, disturbance, and loss of habitat area.	Active
			9	Apply ethnoecological solutions to modern social and environmental issues such as ecological degradation, climate change, loss of biological and cultural diversity, water scarcity, and economic inequalities.	Active
	Fundamentals of Chemistry	CHEM 115	1	Classify matter in a variety of ways.	Active
			10	Perform a variety of experimental techniques in a laboratory setting.	Active
			2	Apply knowledge of the periodic table and theories of atomic structure in a variety of ways, including determination of the number of and placement of subatomic particles in an atom and writing electron configurations, among others.	Active
			3	Apply knowledge of bonding theory to draw Lewis dot structures and predict molecular geometry.	Active
			4	Classify bonds in substances according to their polarities and use these classifications to predict the presences of intermolecular forces and various physical properties, including relative boiling points and melting points, among others.	Active
			5	Using a heating or cooling curve, determine melting points and boiling points of pure substances.	Active
			6	Predict the products and write balanced equations for ordinary chemical reactions and nuclear reactions.	Active
			7	Predict the effect of concentration, temperature or catalysts on the rate or equilibrium position of a chemical reaction.	Active
			8	Determine the acid-base properties of substances and buffering properties of mixtures of substances.	Active
			8-original	For a chemical reaction, calculate stoichiometric amounts using the mole concept and the technique of dimensional analysis.	Active
			9	Solve a wide variety of chemical calculations and unit conversions in a variety of topics, including chemical reactions (stoichiometry), drug dosages and clinical calculations involving	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			9	solutions, acids and bases, and gases, among others.	Active
	Fundamentals of Physics	PHYC 130	1	Solve problems using a conceptual understanding of kinematics and dynamics with linear or rotational applications.	Active
			2	Apply gravitation, or material behavior problems involving thermal equilibrium, heat transfer and heat engines.	Active
			3	Understand the concepts of heat, thermodynamics and ideal gasses, and be able to use them in solving problems involving thermal equilibrium, heat transfer, and heat engines.	Active
			4	Lab a. Analyze experimental data, including appropriate use of units and significant figures b. Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
			Inactive_6 (2016)	LAB: Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
		PHYC 131	1	Solve problems using a conceptual understanding of electric and magnetic fields.	Active
			2	Apply knowledge of potential and inductance to analyze systems AC and DC circuits.	Active
			3	Interpret and apply fundamental physics concepts such as electromagnetic waves, optics, and interference.	Active
			4	Understand the basics of modern physics concepts including special relativity, quantum mechanics, and nuclear physics.	Active
			5	During the lab students will: a. Analyze experimental data, including appropriate use of units and significant figures. b. Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
			Inactive_5 (2016)	LAB: Collect and analyze experimental data using graphical representation, including appropriate use of units and significant figures.	Active
	General Biology I	BIO 130	1	Outline the methods and activities of scientific inquiry used to solve problems in biology and identify limitations to the types of questions that can be answered scientifically.	Active
			10	Construct a model that represents the chemical composition and architecture of a cell membrane and predict the flow of molecules across the membrane based on osmolarity on opposite sides of the membrane.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			11	Explain how enzymes allow anabolic and catabolic metabolism in a cell to operate in terms of the cell's energy flow.	Active
			12	Describe the processes of photosynthesis, glucose oxidation, and fermentation in terms of their energy flow and conversion properties, and their interrelationships.	Active
			13	Compare and contrast the functions and mechanisms of mitosis and meiosis in a diploid organism's life cycle.	Active
			14	Solve problems that require calculation of the probability of the inheritance of a particular genetic allele for Mendelian and non-Mendelian scenarios.	Active
			15	Appraise the evidence for evolution and illustrate the key concepts using an example.	Active
			16	Apply the knowledge gained in the course to assess contemporary problems/situations in biology.	Active
			2	Distinguish among statements that describe a hypothesis, a theory or natural law.	Active
			3	Determine whether an entity is living based upon a description of its properties.	Active
			4	Classify an organism into the appropriate domain and kingdom based upon its characteristics; justify the reasons for placing it there.	Active
			5	Explain how the various components of matter can be organized into biological molecules.	Active
			6	Compare and contrast the structures, roles and interrelationships of biological molecules including nucleic acids, proteins, carbohydrates and lipids.	Active
			7	Given a molecule of DNA with a specific nucleotide sequence, demonstrate how to create the complementary strands of the double helix, transcribe one of the strands into mRNA, and translate into a peptide.	Active
			8	Describe the relationship between structure and function in	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			8	proteins and the implications of changes in structure on the operation of a cell.	Active
			9	Construct a model of a prokaryotic and eukaryotic cell that includes the various sub-cellular structures and describes their inter-relationships and possible origins; contrast this model with that of a typical virus.	Active
	General Biology I Laboratory	BIO 131	1	Perform the basic activities of scientific inquiry, including presentation of data in the form of tables, charts and graphs, design of experiments, collection of data, and critical analysis of data.	Active
			10	Solve problems in genetics based on Mendelian and non-mendelian models of inheritance	Active
			11	Describe the relationship between classical genetics and modern molecular genetics, and the significance of molecular genetics in the modern world	Active
			12	Understand the structure and functional relationships of plants with other biotic and abiotic factors in ecosystems	Active
			13	Study the structure and function of the major organs and organ systems in a representative mammal and compare and contrast to those of humans.	Active
			14	Understand the basis of the classification of the animal kingdom as well as recognize members of the different animal phyla	Active
			2	Use both compound and stereo microscopes to study cells and organisms.	Active
			3	Describe the relationship between respiration and photosynthesis, producers and consumers and the role of each of these in ecosystems.	Active
			4	Relate membrane transport examples to real world situations	Active
			5	Test for the presence of carbohydrates, lipids, proteins and nucleic acids, recognize the relationships between the testing methods and the chemical properties of these compounds, and the significance of these molecules in living organisms.	Active
			6	Measure the rate of enzyme catalyzed reactions under different conditions, and explain the significance to living systems.	Active
			7	Recognize the roles of light, CO ₂ and pigments in photosynthesis and to measure the rate of photosynthesis under different conditions	Active
			8	Compare human-controlled oxidation to glucose oxidation in respiration and to measure the rate of respiration under	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			8	different conditions	Active
			9	Compare the role of mitosis to meiosis in cellular division and to recognize the different phases of these processes	Active
	General Chemistry I	CHEM 141	1	Solve a wide variety of problems including those involving the topics of calorimetry, gases, thermodynamics, ionization energy, and lattice energy, among others.	Active
			2	Apply knowledge of a variety of theories of atomic structure and bonding.	Active
			3	Perform a variety of experimental analytical techniques in a laboratory setting to collect data: analyze data and make predictions about the nature of matter.	Active
	General Chemistry II	CHEM 142	1	Solve a wide variety of problems including those involving the topics of electrochemistry, kinetics, equilibrium, heat transfer, entropy and free energy, and lattice energy, among others. Analyze results to make predictions.	Active
			2	Apply knowledge of the bonding and intermolecular forces in solids, liquids and gases.	Active
			3	Perform a variety of experimental analytical techniques and qualitative analysis in a laboratory setting to collect data/observations, analyze data/observations and make predictions about the nature of matter.	Active
	Human Anatomy	BIO 140	1	Identify, compare and contrast the major macroscopic and microscopic structural tissues, organs, organ structures and organ systems of the human body and relate each to function.	Active
			2	Identify and discuss the significance of the interdependence of organs and organ systems in the human body.	Active
			3	Utilize techniques of dissection on a preserved cat and relate results to other mammalian systems, including human.	Active
			4	Describe the process and phases of embryological development and growth to adult structure for selected organ systems.	Active
			5	Apply anatomical information to diverse disciplines such as nursing, exercise science, athletic training, physical therapy and psychology.	Active
			6	Describe structural or anatomical changes that occur in disease, injury or aging of human body systems.	Active

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	Human Dissection	BIO 251	1	Utilize techniques for handling and storing a preserved human specimen.	Active
			2	Demonstrate and convey to others a respectful attitude at all times toward the human specimen.	Active
			3	Utilize techniques of dissection on a preserved human while demonstrating appropriate techniques and use of instruments.	Active
			4	Identify, compare and contrast the major macroscopic organs, organ structures and organ systems of the human body and relate each to function.	Active
			5	Recognize and discuss the significance of the interdependence of organs and organ systems in the human body.	Active
			6	Identify and describe differences between actual human anatomy and information contained in textbook illustrations.	Active
			7	Recognize and apply anatomical information to diverse disciplines such as nursing, exercise science, athletic training, physical therapy and psychology.	Active
	Human Physiology	BIO 141	1	Identify physiological parameters regulated by homeostatic mechanisms and distinguish between mechanisms that operate at different levels of the biological hierarchy (e.g., regulation of blood pressure versus local perfusion).	Active
			10	Explain how the excitation of muscle fibers produces muscular contractions, and relate the force of this contraction to variations in fiber type and organization, muscle type, exercise and health.	Active
			11	Chart the flow of blood through the cardiovascular system, relating each structure encountered to its function (e.g., the heart generates pressure to drive the flow of blood while capillaries permit gas exchange).	Active
			12	Predict changes in cardiovascular function due to exercise or disease.	Active
			13	Manipulate a model of normal respiratory physiology to explain respiratory conditions arising from disease or environment (e.g., emphysema, high altitude, etc.).	Active
			14	Explain how kidney function integrates with other systems to regulate osmolarity, gas exchange, excretion of wastes and acid/base balance.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			15	Trace the path of a balanced meal through the gastrointestinal tract, describing its chemical and mechanical digestion and absorption.	Active
			2	Diagram the components of a given reflex (e.g., the insulin reflex) from stimulus to response including feedback loops.	Active
			3	Design a generalized human cell relating key structures to their specific functions.	Active
			4	Compare and contrast the four major classes of biological macromolecule, the monomers used to construct them, their chemical behavior, and their roles in normal physiology, exercise and disease.	Active
			5	Relate the structure of the cell membrane to its transport and signaling functions.	Active
			6	Predict the physiological consequences of endocrine pathologies involving major glands and hormones.	Active
			7	Compare and contrast the functions of the male and female reproductive tracts including gametogenesis, hormonal control of reproductive cycles and behaviors, fertilization, pregnancy and parturition.	Active
			8	Demonstrate the mechanisms by which a neuron transmits information electrically down its axon and chemically across a synaptic cleft.	Active
			9	Construct a map of the nervous system with functional links between its major divisions, organs, pathways and effectors.	Active
	Introduction to General, Organic and Biological Chemistry	CHEM 102	1-a	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: a. Recognizing the difference between ionic and covalent compounds and writing their names and formulas.	Active
			1-b	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: b. Identifying and employing units of measurement and concentration as they relate to drug administration.	Active
			1-c	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: c. Calculating medication dosages and IV drip rates	Active

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			1-c	utilizing dimensional analysis and ratio and proportion while carrying the proper number of significant figures.	Active
			1-d	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: d. Describing the concepts of pH, buffers, acids and bases and calculating pH.	Active
			1-e	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: e. Describing the properties of gases and solving problems utilizing gas laws.	Active
			2-a	Demonstrate their knowledge of organic chemistry by: a. Recognizing the most common organic functional groups.	Active
			2-b	Demonstrate their knowledge of organic chemistry by: b. Describing how properties of functional groups dictate the chemical and physical properties of organic compounds.	Active
			2-c	Demonstrate their knowledge of organic chemistry by: c. Writing names and structures of the major classes of organic compounds.	Active
			3-a	Demonstrate their knowledge of biochemistry with respect to the major classes of biomolecules (carbohydrates, lipids, proteins, nucleic acids) by: a. Describing their chemical and physical properties.	Active
			3-b	Demonstrate their knowledge of biochemistry with respect to the major classes of biomolecules (carbohydrates, lipids, proteins, nucleic acids) by: b. Describing their major metabolic and catabolic pathways.	Active
			4-a	In the laboratory: a. Observe qualitative phenomena and measure quantitative properties of inorganic substances undergoing physical or chemical changes.	Active
			4-b	In the laboratory: b. Observe and record physical and chemical properties of the major classes of organic compounds and biomolecules.	Active
	Introductory Psychology	PSY 120	1	Apply scientific methods to the ethical exploration of human behavior through analysis of environment, behavioral and physiological conditions	Active
			2	Describe the different schools of psychology and analyze their perspectives on consciousness, intelligence, learning and possible identification and treatment of psychological disorders	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			3	Identify characteristics associated with individual development through childhood and their possible influences in adult behavior and possible links to adult behavior and personality	Active
			4	Analyze the implications of how the social world influences the motivation and emotions of cultures, groups and the resulting behavior of an individual	Active
	Introductory Sociology	SOC 120	1	Apply the major theoretical perspectives in sociology to information and real experiences.	Active
			2	Identify, explain and apply the principles of social scientific research methodology.	Active
			3	Appraise the range of cultural variability in human societies.	Active
			4	Explain sociologically inequalities of class, race, ethnicity, gender, and age in modern and pre-modern societies.	Active
	Laboratory in Human Physiology	BIO 141L	1	Utilize the methods of scientific inquiry and the philosophy of science to design scientific experiments in physiology, collect data, and discuss, interpret, analyze and draw conclusions from data presented in graphs, tables and diagrams related to lab exercises.	Active
			10	Relate fitness level of individuals and the effects factors such as smoking, amount of exercise, etc., have on long term heart fitness.	Active
			11	Calculate heart rate on an EKG and recognize arrhythmias and other pathologies from the EKG; relate output to specific electrical and mechanical events of the cardiac cycle.	Active
			12	Demonstrate the proper use of a sphygmomanometer and a stethoscope to measure blood pressure and examine the homeostatic regulation of blood pressure in response to challenges such as exercise.	Active
			13	Test for blood glucose and cholesterol levels and determine blood type.	Active
			14	Measure lung volumes under different physiological conditions and relate to respiratory pathologies.	Active
			15	Test urine for various solutes and metabolites and classify abnormal samples by pathology.	Active
			16	Determine optimal conditions for the function of digestive enzymes and compare these to physiological conditions.	Active
			2	Determine the different concentrations of biomolecules in intracellular and extracellular fluid.	Active
			3	Demonstrate the different types of physiological transport including diffusion and osmosis, and predict the tonicity between compared solutions.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			4	Carry out enzymatically catalyzed experiments and determine optimal conditions for the function of these enzymes.	Active
			5	Classify the different types of sensory receptors in the human body and know the stimulus to which each receptor responds.	Active
			6	Explore reflex pathways of the nervous system and distinguish experimentally between reflexes and voluntary responses.	Active
			7	Correlate EMG recordings with variations in force and anatomically defined movements generated by skeletal muscles.	Active
			8	Demonstrate the mechanical principles of skeletal muscle contraction.	Active
			9	Measure heart rate and determine the effects of exercise on heart rate.	Active
	Organic Chemistry I	CHEM 231	1	Distinguish among the numerous classes of organic compounds and predict their properties and reactivity.	Active
			10	In the laboratory, characterize compounds based on modern spectrometric data including FTIR and NMR.	Active
			11	Determine the structure of molecules from their FTIR and NMR spectra.	Active
			12	Synthesize, isolate, purify and characterize both solid and liquid organic compounds.	Active
			13	Analyze and evaluate observations acquired in the laboratory by applying the theoretical principles being studied.	Active
			14	Determine the structure of molecules from their FTIR and NMR spectra.	Active
			2	Deduce the structures of the constitutional isomers corresponding to a given molecular formula.	Active
			3	Write a systematic name for an organic compound given its structure and vice-versa.	Active
			4	Deduce the principal conformations of open chain molecules and cyclohexane derivatives and determine their relative potential energies.	Active

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			4		Active
			5	Deduce the structures of the stereoisomers possible for molecules with stereogenic centers.	Active
			6	Predict the operative mechanisms and the structures of the products in nucleophilic substitution, elimination, electrophilic addition, nucleophilic addition, radical substitution and addition, oxidation, and reduction reactions.	Active
			7	Design the synthesis and identify intermediates for an organic compound requiring multiple reaction steps.	Active
			8	In the laboratory, determine physical properties of organic compounds such as melting point and boiling point.	Active
			9	In the laboratory, perform simple qualitative tests for detection of the different types of functional groups on compounds.	Active
	Paramedical Microbiology	BIO 152	1	Isolate, determine morphology and staining characteristics, and perform biochemical tests to identify to the level of Genus and species unknown bacterial isolates of medical significance.	Active
			2 (formally 4)	Explain the major physiological features of microorganisms including respiration, fermentation, photosynthesis and biosynthesis.	Active
			3	Research and present information regarding diseases caused by human pathogens.	Active
			4	Describe the key factors that impact the growth of microorganisms, and explain the mechanism of action, evaluate and interpret the effects of a variety of disinfectants, antiseptics and antibiotics and physical control methods on microbial growth and survival.	Active
			5	Describe the ways in which the human body fights off disease.	Active
			6	Explain the sources and significance of microorganisms in the healthcare environment and describe methods for their control.	Active
	Principles of Cellular, Molecular and Evolutionary Biology	BIO 230	1	Work alone or in teams, utilizing the methods of scientific inquiry to solve problems in cellular and molecular biology by formulating and testing hypotheses, collecting, analyzing and presenting qualitative and quantitative data, and formulating conclusions.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			10	Use hypothesis testing to analyze experiments that determined the basis of current cellular and molecular models and theories (i.e., establishment of DNA as the genetic material).	Active
			11	Demonstrate standard methods for laboratory notebook documentation, presentation and analysis of data, including graphing and simple statistics, using both a calculator and computer software.	Active
			2	Correctly use standard cellular and molecular biology equipment including but not limited to spectrophotometers, micropipettors, centrifuges, and electrophoresis apparatus.	Active
			3	Describe the different types of biological molecules and their role in cells.	Active
			4	Describe the basic structure of prokaryotic and eukaryotic cells and the functions of the cells and their component parts.	Active
			5	List, organize and differentiate between basic cellular and molecular biological processes and explain each process.	Active
			6	Analyze and predict outcomes for selected examples of biological processes based on experimental data in areas such as energy metabolism, cell division, cell communication and expression of genes.	Active
			7	Identify the steps of mitosis, meiosis and recombination in plants and animals, and relate these processes to the cell cycle.	Active
			8	Use the Principles of Mendelian and non-Mendelian Genetics to solve problems in genetics.	Active
			9	Read for comprehension and analyze selected current papers from the primary biology literature as published in established scientific journals such as Science, Nature, and Proceedings of the National Academy of Sciences (PNAS).	Active
	Principles of Ecology, Evolution and Organismal Biology	BIO 240	1	Utilize the methods of Scientific Inquiry to solve problems in ecology, evolutionary and organismal biology; distinguish scientific investigation from other methods of inquiry.	Active
			10	Diagram the pathways of energy, organic and inorganic	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			10	chemicals in the environment; explain the greenhouse effect and its consequences.	Active
			11	Explain how climatic, biogeographic and ecological conditions impact the life forms found in the major terrestrial and marine biomes, and predict the effects of interspecific interactions, disturbance and habitat area in a community.	Active
			12	Compare and contrast the organisms from the three Domains of life (including invertebrate and vertebrate chordate groups) using anatomical, molecular/genetic, development and metabolic characteristics and phylogenetic relationships, and correctly categorize unknown specimens into taxonomic groups based on these characteristics.	Active
			13	Explain how the digestive, nervous, respiratory, excretory, circulatory, and reproductive systems function from the cell, organ, organ system and organismal perspectives, and their contributions to metabolism and/or homeostasis; identify and label on diagrams or dissected specimens the major structures of each system in representative invertebrate and vertebrate phyla.	Active
			14	On diagrams or dissected specimens, label and discuss the functions of the cell types and structures of plants including roots, shoots, leaves, flowers, fruits, and seeds.	Active
			15	Explain the advantages and disadvantages the various forms of asexual and sexual reproduction found in the three domains of life, and diagram the life cycles of the representative plant divisions and animal phyla.	Active
			16	Describe the events of fertilization, cleavage, organogenesis, morphogenesis, growth and maturation in animal development.	Active
			17	Compare and contrast the function of muscle cells and the musculoskeletal systems of each animal phylum, and their role in locomotion.	Active
			18	Identify the structures of the central and peripheral nervous systems and describe the function of sensory structures in vertebrates.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			18		Active
			19	Explain the role of hormones in within- and between-individual signaling and maintenance of homeostasis in vertebrates.	Active
			2	Discuss the shared characteristics of living things including fundamental processes of metabolism, reproduction, homeostasis and adaptation.	Active
			20	Describe the components of the vertebrate immune system and explain how they interact to produce innate and acquired immunity.	Active
			3	Discuss the evidence for the origins of life on Earth in context of the early biotic environment, and the impact of the major climatic periods and catastrophic events in Earth's history on the subsequent origins, diversity and distribution of single celled and multi celled protist, fungal, plant and animal life.	Active
			4	Discuss the evidence for the theory of evolution and explain specific examples of the manner in which natural selection acts to increase fitness.	Active
			5	Compare and contrast microevolution and macroevolution and describe the circumstances under which each would occur.	Active
			6	Create and interpret phylogenetic tree diagrams and cladograms representing the Domains and Kingdoms of life.	Active
			7	Use the Hardy-Weinberg equilibrium to predict effects on allele frequencies in populations, and discuss the implications of small population size and loss of biodiversity and techniques for protecting endangered species.	Active
			8	Diagram the pathways of energy, organic and inorganic chemicals in the environment, and discuss ways in which life forms, including the human species, have impacted those pathways and the consequences of those actions.	Active
			9	Use ecological principles to explain the significance of the sun to life on earth and discuss the distribution and contribution of primary producers, primary consumers and secondary consumers to life on earth.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
	Public Speaking	COMM 122	1	Analyze their communication situation, including audience, occasion, purpose; and selection of subject matter.	Active
			2	Research, write and deliver an effective public speech.	Active
			3	Demonstrate that they are careful and critical thinkers and communicators, both as speakers and as listeners.	Active
	The Secret Life of Plants	BIO 122	1	Describe the various methods and components of scientific inquiry, describe their applications, and use these methods to solve botanical problems.	Active
			2	Identify, compare and contrast the structural and functional morphologies of nonvascular, vascular, gymnosperm and angiosperm plants, while examining the structures' evolutionary advantage.	Active
			3	Evaluate the methods of plant biotechnology and assess how this new technology affects agriculture, the environment, and society.	Active
			4	Identify and describe nutrient requirements of plants and assess nutritional deficiencies.	Active
SLO (MSE - S&E) - Chemistry (CHEM)	Analytic Geometry and Calculus I	MATH 180	1	Compute the limit of a function at a real number;	Active
			2	Determine if a function is continuous at a real number;	Active
			3	Find the derivative of a function as a limit;	Active
			4	Find the equation of a tangent line to a function;	Active
			5	Compute derivatives including implicit differentiation	Active
			6	Use differentiation to solve applications such as related rate problems and optimization problems	Active
			7	Graph functions using methods of calculus;	Active
			8	Evaluate definite and indefinite integrals	Active
			9	Apply integration to find area.	Active
	Analytic Geometry and Calculus II	MATH 280	1	Evaluate definite and indefinite integrals using a variety of integration formulas and techniques	Active
			2	Apply integration to areas and volumes, and other applications such as work or length of a curve	Active
			3	Evaluate improper integrals	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			4	Apply convergence tests to sequences and series	Active
			5	Represent functions as power series	Active
			6	Graph, differentiate and integrate functions in polar and parametric form.	Active
	Differential Equations	MATH 285	1	Create and analyze mathematical models using ordinary differential equations.	Active
			2	Identify the type of a given differential equation and select and apply the appropriate analytical technique for finding the solution of first order and selected higher order ordinary differential equations.	Active
			3	Apply the existence and uniqueness theorems for ordinary differential equations.	Active
			4	Find power series solutions to ordinary differential equations.	Active
			5	Determine the Laplace Transform and inverse Laplace Transform of functions.	Active
			6	Solve Linear Systems of ordinary differential equations.	Active
	Electricity and Magnetism	PHYC 200	1	Recognize the basic concepts concerning electric fields, electric potential, capacitance, resistance, current, DC circuits, magnetic fields, inductance, AC circuits, Maxwell's Equations, and use algebraic, trigonometric and advanced calculus expressions to represent physical situations involving these subjects.	Active
			2	Investigate and delineate the relationship between the theoretical principles of physics and their practical applications, and explain how this relationship affects real world problem solving.	Active
			3	Investigate, interpret and analyze the fundamental principles of physics based on reading assignments and in-class discussions.	Active
			4	Calculate solutions to physics problems using the fundamental principles of physics and symbolic logic skills.	Active
			5	Design experiments using the scientific method.	Active
			6	Demonstrate laboratory technique by collecting data using both traditional and computer data acquisition methods, using computers to interpret and analyze numerical data and to generate a visual representation of the data.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			6		Active
			7	Evaluate the experimental results using techniques presented in class.	Active
	Fundamentals of Chemistry	CHEM 115	1	Classify matter in a variety of ways.	Active
			10	Perform a variety of experimental techniques in a laboratory setting.	Active
			2	Apply knowledge of the periodic table and theories of atomic structure in a variety of ways, including determination of the number of and placement of subatomic particles in an atom and writing electron configurations, among others.	Active
			3	Apply knowledge of bonding theory to draw Lewis dot structures and predict molecular geometry.	Active
			4	Classify bonds in substances according to their polarities and use these classifications to predict the presences of intermolecular forces and various physical properties, including relative boiling points and melting points, among others.	Active
			5	Using a heating or cooling curve, determine melting points and boiling points of pure substances.	Active
			6	Predict the products and write balanced equations for ordinary chemical reactions and nuclear reactions.	Active
			7	Predict the effect of concentration, temperature or catalysts on the rate or equilibrium position of a chemical reaction.	Active
			8	Determine the acid-base properties of substances and buffering properties of mixtures of substances.	Active
			8-original	For a chemical reaction, calculate stoichiometric amounts using the mole concept and the technique of dimensional analysis.	Active
			9	Solve a wide variety of chemical calculations and unit conversions in a variety of topics, including chemical reactions (stoichiometry), drug dosages and clinical calculations involving solutions, acids and bases, and gases, among others.	Active
	General Chemistry I	CHEM 141	1	Solve a wide variety of problems including those involving the topics of calorimetry, gases, thermodynamics, ionization energy, and lattice energy, among others.	Active
			2	Apply knowledge of a variety of theories of atomic structure and bonding.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			3	Perform a variety of experimental analytical techniques in a laboratory setting to collect data: analyze data and make predictions about the nature of matter.	Active
	General Chemistry II	CHEM 142	1	Solve a wide variety of problems including those involving the topics of electrochemistry, kinetics, equilibrium, heat transfer, entropy and free energy, and lattice energy, among others. Analyze results to make predictions.	Active
			2	Apply knowledge of the bonding and intermolecular forces in solids, liquids and gases.	Active
			3	Perform a variety of experimental analytical techniques and qualitative analysis in a laboratory setting to collect data/observations, analyze data/observations and make predictions about the nature of matter.	Active
	Intermediate Multivariable Calculus	MATH 281	1	Perform vector operations.	Active
			2	Determine equations of lines and planes.	Active
			3	Evaluate partial derivatives.	Active
			4	Find local extrema and test for saddle points.	Active
			5	Solve constraint problems using Lagrange multipliers.	Active
			6	Compute arc length.	Active
			7	Evaluate two and three dimensional integrals involving rectangular, polar, cylindrical and spherical coordinates.	Active
			8	Analyze multivariable function, equations, graphs, contour maps, vector fields, or tables of data.	Active
	Introduction to General, Organic and Biological Chemistry	CHEM 102	1-a	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: a. Recognizing the difference between ionic and covalent compounds and writing their names and formulas.	Active
			1-b	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: b. Identifying and employing units of measurement and concentration as they relate to drug administration.	Active
			1-c	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: c. Calculating medication dosages and IV drip rates utilizing dimensional analysis and ratio and proportion while	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			1-c	carrying the proper number of significant figures.	Active
			1-d	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: d. Describing the concepts of pH, buffers, acids and bases and calculating pH.	Active
			1-e	Demonstrate their knowledge of the principles of general chemistry and their applicability to the field of health care by: e. Describing the properties of gases and solving problems utilizing gas laws.	Active
			2-a	Demonstrate their knowledge of organic chemistry by: a. Recognizing the most common organic functional groups.	Active
			2-b	Demonstrate their knowledge of organic chemistry by: b. Describing how properties of functional groups dictate the chemical and physical properties of organic compounds.	Active
			2-c	Demonstrate their knowledge of organic chemistry by: c. Writing names and structures of the major classes of organic compounds.	Active
			3-a	Demonstrate their knowledge of biochemistry with respect to the major classes of biomolecules (carbohydrates, lipids, proteins, nucleic acids) by: a. Describing their chemical and physical properties.	Active
			3-b	Demonstrate their knowledge of biochemistry with respect to the major classes of biomolecules (carbohydrates, lipids, proteins, nucleic acids) by: b. Describing their major metabolic and catabolic pathways.	Active
			4-a	In the laboratory: a. Observe qualitative phenomena and measure quantitative properties of inorganic substances undergoing physical or chemical changes.	Active
			4-b	In the laboratory: b. Observe and record physical and chemical properties of the major classes of organic compounds and biomolecules.	Active
	Mechanics and Heat	PHYC 190	1	Recognize the basic concepts concerning kinematics, dynamics, energy, momentum, gravitation, oscillations and thermodynamics, and use algebraic, trigonometric and advanced calculus expressions to represent physical situations involving these subjects.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2	Investigate and delineate the relationship between the theoretical principles of physics and their practical applications, and explain how this relationship affects real world problem solving.	Active
			3	Investigate, interpret and analyze the fundamental principles of physics based on reading assignments and in-class discussions.	Active
			4	Calculate solutions to physics problems using the fundamental principles of physics and symbolic logic skills.	Active
			5	During the lab students will: Design experiments using the scientific method.	Active
			6	During the lab students will: Demonstrate laboratory technique by collecting data using both traditional and computer data acquisition methods, using computers to interpret and analyze numerical data and to generate a visual representation of the data.	Active
			7	During the lab students will: Evaluate the experimental results using techniques presented in class.	Active
	Organic Chemistry	CHEM 232	1	Determine whether an organic compound is aromatic and understand electrophilic aromatic substitution reactions.	Active
			2	Predict the mechanisms and products of nucleophilic addition and nucleophilic addition-elimination reactions involving carbonyl substrates.	Active
			3	Distinguish among the various types of reactions and mechanisms involving amines.	Active
			4	Design the synthesis and identify intermediates for an organic compound requiring multiple reaction steps.	Active
			5	In the laboratory, synthesize, isolate, purify and characterize both solid and liquid organic compounds.	Active
	Organic Chemistry I	CHEM 231	1	Distinguish among the numerous classes of organic compounds and predict their properties and reactivity.	Active
			10	In the laboratory, characterize compounds based on modern spectrometric data including FTIR and NMR.	Active
			11	Determine the structure of molecules from their FTIR and NMR	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			11	spectra.	Active
			12	Synthesize, isolate, purify and characterize both solid and liquid organic compounds.	Active
			13	Analyze and evaluate observations acquired in the laboratory by applying the theoretical principles being studied.	Active
			14	Determine the structure of molecules from their FTIR and NMR spectra.	Active
			2	Deduce the structures of the constitutional isomers corresponding to a given molecular formula.	Active
			3	Write a systematic name for an organic compound given its structure and vice-versa.	Active
			4	Deduce the principal conformations of open chain molecules and cyclohexane derivatives and determine their relative potential energies.	Active
			5	Deduce the structures of the stereoisomers possible for molecules with stereogenic centers.	Active
			6	Predict the operative mechanisms and the structures of the products in nucleophilic substitution, elimination, electrophilic addition, nucleophilic addition, radical substitution and addition, oxidation, and reduction reactions.	Active
			7	Design the synthesis and identify intermediates for an organic compound requiring multiple reaction steps.	Active
			8	In the laboratory, determine physical properties of organic compounds such as melting point and boiling point.	Active
			9	In the laboratory, perform simple qualitative tests for detection of the different types of functional groups on compounds.	Active
	Preparation for General Chemistry	CHEM 120	1	Classify matter in a variety of ways; determine changes that matter undergoes.	Active
			2	Apply knowledge of the theories of atomic structure and bonding.	Active
			3	Predict the products and write balanced equations for a wide variety of ordinary chemical reactions and classify reaction.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			4	Predict the effect of concentration, temperature or catalysts on the rate or equilibrium position of a chemical reaction.	Active
			5	Determine the acid-base properties of substances.	Active
			6	Solve a wide variety of chemical calculations and unit conversions in a variety of topics, including chemical reactions (stoichiometry), solutions, acids and bases, equilibrium constants and gases, among others	Active
			7	Perform a variety of experimental techniques in a laboratory setting to collect data; analyze and interpret data.	Active
	Strategies for Success in CHEM 120	CHEM 020	1	Satisfactorily complete the tasks, master the skills and understand the concepts required for success in CHEM 120 through the reinforced instruction of this course along with students' independent study.	Active
			2	Develop & utilize organizational, technical, and study skills obtained in this course to prepare for and succeed in CHEM 120 assignments, quizzes and exams.	Active
			3	Successfully improve technical, reading, and writing skills to produce clear, articulate and complete lab reports.	Active
	Wave Motion and Modern Physics	PHYC 210	1	Analyze basic physical situations involving reflection and refraction, and use this analysis to predict the path of a light ray.	Active
			2	Analyze situations involving interference and diffraction of light waves, and apply these to situations including double slits, diffraction gratings, and wide slits.	Active
			3	Apply concepts from special relativity to analyze physical situations.	Active
			4	Apply basic concepts of quantum mechanics to analyze basic physical setups.	Active
			5	LAB: Collect and analyze experimental data using graphical representation, including appropriate use of units and significant figures.	Active
			6	LAB: Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
SLO (MSE - S&E) - Engineering (ENGR)	3D Solid Modeling	CADD 125	1	Sketch orthographic, sectional, and auxiliary views of complex designed parts.	Active
			2	Show dimensions and determine tolerances.	Active
			3	Determine the scale of the drawings.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			4	Determine which parts should be represented as section view and/or as detail drawings.	Active
			5	Create orthographic and exploded pictorial views in assembly drawings.	Active
			6	Label all parts in assembly drawing, using numbers and balloons format.	Active
			7	Create an ANSI standard parts list with all relevant information for the parts in the assembly.	Active
		ENGR 125	1	Sketch orthographic, sectional, and auxiliary views of complex designed parts.	Active
			2	Show dimensions and determine tolerances.	Active
			3	Determine the scale of the drawings.	Active
			4	Determine which parts should be represented as section view and/or as detail drawings.	Active
			5	Create orthographic and exploded pictorial views in assembly drawings.	Active
			6	Label all parts in assembly drawing, using numbers and balloons format.	Active
			7	Create an ANSI standard parts list with all relevant information for the parts in the assembly.	Active
	Analytic Geometry and Calculus I	MATH 180	1	Compute the limit of a function at a real number;	Active
			2	Determine if a function is continuous at a real number;	Active
			3	Find the derivative of a function as a limit;	Active
			4	Find the equation of a tangent line to a function;	Active
			5	Compute derivatives including implicit differentiation	Active
			6	Use differentiation to solve applications such as related rate problems and optimization problems	Active
			7	Graph functions using methods of calculus;	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			8	Evaluate definite and indefinite integrals	Active
			9	Apply integration to find area.	Active
	Analytic Geometry and Calculus II	MATH 280	1	Evaluate definite and indefinite integrals using a variety of integration formulas and techniques	Active
			2	Apply integration to areas and volumes, and other applications such as work or length of a curve	Active
			3	Evaluate improper integrals	Active
			4	Apply convergence tests to sequences and series	Active
			5	Represent functions as power series	Active
			6	Graph, differentiate and integrate functions in polar and parametric form.	Active
	Basic Engineering CAD	ENGR 119	1	Utilize the basic AutoCAD terms, concepts and techniques.	Active
			2	Sketch and draw isometric drawings.	Active
			3	Produce drawings using geometric construction and apply metric or customary measuring systems.	Active
			4	Construct 3D geometric models by implementing the appropriate 3D commands.	Active
			5	Produce orthographic projections including section and auxiliary views.	Active
			6	Apply dimensions and tolerances in drawings accordance with industry standards.	Active
	Differential Equations	MATH 285	1	Create and analyze mathematical models using ordinary differential equations.	Active
			2	Identify the type of a given differential equation and select and apply the appropriate analytical technique for finding the solution of first order and selected higher order ordinary differential equations.	Active
			3	Apply the existence and uniqueness theorems for ordinary differential equations.	Active
			4	Find power series solutions to ordinary differential equations.	Active
			5	Determine the Laplace Transform and inverse Laplace Transform of functions.	Active
			6	Solve Linear Systems of ordinary differential equations.	Active
	Digital Design	ENGR 270	1	Do arithmetic in the binary, octal, decimal and hexadecimal number systems and convert from one to another.	Active
			2	Design and build multi-level gate circuits, adders, multiplexers, decoders, and other combinational circuits starting from a	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2	verbal description, a truth table, or a Boolean output function. Apply Boolean algebra, Karnaugh maps, and “don’t care” conditions to simplify and optimize circuits.	Active
			3	Analyze a combinational circuit to determine the associated truth table and Boolean output function.	Active
			4	Explain the operation of a ROM (Read-only memory), PLD (programmable logic device), CPLD (complex programmable logic device), and FPGA (field programmable gate array).	Active
			5	Design and build flip-flops, registers, counters, and clocked sequential circuits (Moore and Mealy machines) starting from a verbal description, a state table, a state diagram, or a timing diagram.	Active
			6	Simplify sequential circuits through redundant state analysis, the judicious use of state assignments, and one-hot encoding.	Active
			7	Conduct state and timing analysis of sequential logic circuits.	Active
			8	Apply VHDL (Very High Speed Integral Circuit Hardware Description Language) to simulate and build combinational and sequential logic circuits.	Active
			9	Document all aspects of the design and testing of a digital circuit.	Active
	Electric Circuits	ENGR 210	SLO 1	Explain the voltage and current relationships for the following circuit elements: independent and dependent voltage and current sources, resistors, capacitors, inductors.	Active
			SLO 10	Document results from electrical laboratory experiments and compare those results to theoretical predictions.	Active
			SLO 2 (formerly 3)	Analyze DC circuits using Node-Voltage and Mesh-Current methods.	Active
			SLO 3 (formerly 4)	Analyze DC circuits using theorems of source transformation, Thevenin and Norton equivalents, maximum power transfer, and superposition.	Active
			SLO 4	Analyze simple circuits containing ideal and real operational amplifiers.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			SLO 5	Analyze the natural and step responses of both RC and RL circuits.	Active
			SLO 6 (formerly 8)	Analyze the Natural and Step Responses of both series and parallel RLC circuits.	Active
			SLO 7 (formerly 9)	Analyze circuits containing passive elements and powered by a sinusoidal source by using Node-Voltage and Mesh Current methods.	Active
			SLO 8 (formerly 10)	Explain and perform steady-state power calculations including instantaneous and average power.	Active
			SLO 9	Safely perform electrical measurements in a laboratory setting, using standard lab equipment such as oscilloscopes and signal generators.	Active
	Electricity and Magnetism	PHYC 200	1	Recognize the basic concepts concerning electric fields, electric potential, capacitance, resistance, current, DC circuits, magnetic fields, inductance, AC circuits, Maxwell's Equations, and use algebraic, trigonometric and advanced calculus expressions to represent physical situations involving these subjects.	Active
			2	Investigate and delineate the relationship between the theoretical principles of physics and their practical applications, and explain how this relationship affects real world problem solving.	Active
			3	Investigate, interpret and analyze the fundamental principles of physics based on reading assignments and in-class discussions.	Active
			4	Calculate solutions to physics problems using the fundamental principles of physics and symbolic logic skills.	Active
			5	Design experiments using the scientific method.	Active
			6	Demonstrate laboratory technique by collecting data using both traditional and computer data acquisition methods, using computers to interpret and analyze numerical data and to generate a visual representation of the data.	Active
			7	Evaluate the experimental results using techniques presented	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			7	in class.	Active
	Electronic Drafting	CADD 126	1	Apply electronic graphics and symbols to create basic engineering drawings.	Active
			2	Develop documentation for block diagrams, flow charts and wiring to describe the details of the diagram.	Active
			3	Prepare drawings for mechanical enclosures to represent the mechanical parts of the drawing.	Active
			4	Create Schematic Capture and Printed Circuit Board (PCB) layout and design to capture an electronic circuit created by a designer.	Active
	Elementary Statistics	MATH 160	1	Summarize data graphically and numerically	Active
			2	Use descriptive statistics(measures of central tendency, variation, relative position, and levels/scales of measurement) to describe a population and compare populations when appropriate	Active
			3	Identify the sample space of an experiment or random trial	Active
			4	Find and interpret the expected value and standard deviation of a Random variable	Active
			5	Recognize the sampling distribution as a distribution of a sample statistic, the mean of the sampling distribution as the population mean, and the standard error of the sampling distribution as the standard deviation for the population (the Central Limit Theorem)	Active
			6	Construct and interpret confidence intervals	Active
			7	Use hypothesis tests and inference (including t-tests for one and two populations and Chi-square test) to determine if a result is statistically significant for discrete (binomial) and continuous (normal) distributions	Active
			8	Perform statistical analysis using technology such as SPSS, EXCEL, Minitab, or StatCrunch.	Active
			Inactive - (3)	Use analysis of variance (ANOVA) to analyze the differences between group means and their associated procedures such as variation among and between groups (originally...Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics)	Active
	Engineering Computer	ENGR 120	1	Design and write efficient computer programs using top-down	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
	Applications	ENGR 120	1	design techniques and pseudocode for program development.	Active
			2	Apply various data types including single, double, integer, complex, and logical in conjunction with constants, variables and multi-dimensional arrays in the computer analysis of engineering problems.	Active
			3	Apply relational and logical operators in conjunction with branching structures.	Active
			4	Apply appropriate loop structures including nested loop structures and recursive operations.	Active
			5	Apply input and output functions, formatted I/O, and communication with data files.	Active
			6	Apply general intrinsic functions, and design and write callable functions.	Active
			7	Apply basic computer graphics techniques to produce simple xy plots, multiple plots, and simple enhanced control of plotted lines.	Active
			8	Apply advanced computer graphics to the display of multi-dimensional data and images and use of advanced graphical controls.	Active
			9	Design and write computer programs to solve engineering problems using numerical techniques and/or intrinsic functions including: polynomial operations, statistical operations, matrix operations, symbolic operations, curve fitting, linear interpolation, and integration and differentiation.	Active
	Engineering Materials	ENGR 260	1	Define and determine mechanical properties of materials including tensile strength, yield strength, hardness, stiffness, specific weight, melting temperature, toughness, hardenability. Apply these material properties to select the appropriate metal, ceramic, polymer, or composite material for a particular application.	Active
			10	Explain phase transformation kinetics and use the concept to develop the isothermal transformation diagram for an iron-carbon alloy. Use the isothermal transformation diagram to	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			10	predict the microstructure developed for a given cooling rate. Predict the mechanical properties in terms of microstructure.	Active
			11	Predict ceramic crystal structure from ionic charges and size ratios. Compare the mechanical properties of ceramics to those of metals and explain various ceramic applications and processing techniques.	Active
			12	Describe the mer structure, basic properties and basic processing techniques of some of the chemically simple polymers, both thermoplastic and thermosetting.	Active
			13	Explain the function of particle- and fiber-reinforced composite materials, and predict the mechanical properties of simple composite materials. List common composite materials and give examples of their applications.	Active
			2	Describe and explain the mechanisms for common mechanical and thermal processing techniques including strain hardening, case hardening, quenching, tempering, annealing, precipitation hardening. Describe and explain solid-solution strengthening. Describe industrial processes that employ these techniques (e.g., forging, drawing, annealing) and specify a series of processes to achieve desired mechanical properties in a metal.	Active
			3	Describe and explain various mechanisms for material failure, including ductile and brittle fracture, fatigue, and creep.	Active
			4	Relate macroscopic properties of materials such as melting temperature, modulus of elasticity, strength, electrical and thermal conductivities to the type and characteristics of their interatomic/intermolecular bonds.	Active
			5	Compare crystalline to noncrystalline materials. Sketch unit cells for face-centered cubic (FCC), body-centered cubic (BCC), and hexagonal close-packed (HCP) crystal structures. Compute material density using the unit cell concept. Specify directions and planes in FCC, BCC, and HCP structures and use them to explain the mechanism of plastic deformation in crystals.	Active
			6	Compute weight and atom percentages of the components of an alloy.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			7	Explain edge and screw dislocations, how they are generated, and their role in strengthening metals.	Active
			8	Explain the mechanisms of solid-state diffusion, and apply Fick's first and second laws to compute the concentration of solute atoms as functions of diffusion distance, time, and temperature.	Active
			9	Explain the concepts of phase and microstructure in the context of a phase diagram. Apply the lever rule to compute relative abundance of the phases present. Use a phase diagram to predict the development of microstructure in equilibrium cooling. In particular, apply these techniques to eutectic alloys and to the iron-carbon system.	Active
	Engineering Mechanics–Dynamics	ENGR 220	1	Describe and compute the position, velocity, and acceleration (the kinematics) of particles in both rectilinear and curvilinear motion.	Active
			2	Apply Newton's Second Law to determine the relationship between applied forces and resulting motion (the kinetics) of a particle.	Active
			3	Compute the work of a force and apply the principle of work and energy and the concepts of potential energy and conservation of energy to determining resulting motion of a particle.	Active
			4	Apply the principle of impulse and momentum to impulsive motion and both direct and oblique impact to predict the motion of particles.	Active
			5	Apply kinematic principles to predict and describe free and constrained motion of rigid bodies and interconnected systems of rigid bodies.	Active
			6	Apply Second Law kinetic principles to rigid bodies to determine plane motion of a rigid body, and interconnected systems of rigid bodies.	Active
			7	Apply the principle of work and energy to determine the plane motion of a rigid body.	Active
			8	Apply the concepts of linear and angular momentum, linear and	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			8	angular impulse, and direct and eccentric impact to predict the motion of rigid bodies and systems of rigid bodies.	Active
	Engineering Mechanics–Statics	ENGR 200	1	Apply principles of vector algebra to determine the resultant of several concurrent forces acting on a particle in both 2D and 3D space.	Active
			10	In general, model real-life mechanically static situations both graphically and mathematically, applying simplifying assumptions as needed while estimating the effects those assumptions have on the solution. Identify those situations that cannot be modeled using particles or rigid bodies.	Active
			2	Apply the principle of particle equilibrium and 1) above to determine unknown forces acting on a static particle.	Active
			3	Apply cross- and dot-products of vectors to determine the moment of a force about a point in space and an axis in space.	Active
			4	Simplify a system of forces and couples applied to a rigid body into a single resultant force and couple.	Active
			5	Apply the principle of rigid body equilibrium and 4) above to determine unknown forces and moments acting on a static rigid body. Determine reactions at supports for 2D and 3D rigid bodies, recognizing if these reactions are statically determinant or indeterminant.	Active
			6	Perform basic structural analysis of trusses using the methods of joints and sections. Perform basic structural analysis of frames and machines.	Active
			7	Apply the basic concepts of dry friction to analyze wedges, square-threaded screws, belt and rolling friction.	Active
			8	Determine centroids and centers of gravity of mathematically definable areas and bodies as well as composite areas and bodies made of standard geometric shapes.	Active
			9	Determine the area- and mass-moments of inertia and the radii of gyration of mathematically definable areas and bodies, as well as composite areas and bodies made of standard geometric shapes.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
	Engineering Solid Modeling	ENGR 129	1	Develop a part model.	Active
			2	Construct and develop a complex 3D engineering model.	Active
			3	Create multiple identical objects by using pattern features.	Active
			4	Produce annotation and dimensions on 2D projections of a 3D object based on ANSI standard.	Active
			5	Present an engineering working drawing from a 3D part.	Active
	General Chemistry I	CHEM 141	1	Solve a wide variety of problems including those involving the topics of calorimetry, gases, thermodynamics, ionization energy, and lattice energy, among others.	Active
			2	Apply knowledge of a variety of theories of atomic structure and bonding.	Active
			3	Perform a variety of experimental analytical techniques in a laboratory setting to collect data: analyze data and make predictions about the nature of matter.	Active
	Intermediate C++ Programming & Fundamental Data Structures	CS 281	1	Decompose problems and design program solutions using flowcharts, pseudocode, models, or other tools.	Active
			2	Properly code applications using the fundamental coding structures: sequence, selection, and loops.	Active
			3	Test and debug applications using debugging tools such as trace execution.	Active
	Intermediate Java Programming & Fundamental Data Structures	CS 282	1	Decompose problems and design program solutions using flowcharts, pseudocode, models, or other tools.	Active
			2	Properly code applications using the fundamental coding structures: sequence, selection, and loops.	Active
			3	Test and debug applications using debugging tools such as trace execution.	Active
	Intermediate Multivariable Calculus	MATH 281	1	Perform vector operations.	Active
			2	Determine equations of lines and planes.	Active
			3	Evaluate partial derivatives.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			4	Find local extrema and test for saddle points.	Active
			5	Solve constraint problems using Lagrange multipliers.	Active
			6	Compute arc length.	Active
			7	Evaluate two and three dimensional integrals involving rectangular, polar, cylindrical and spherical coordinates.	Active
			8	Analyze multivariable function, equations, graphs, contour maps, vector fields, or tables of data.	Active
	Introduction to Basic Electronics	ET 110	1	Critique the historical development in the field of electricity/electronics, evaluate career opportunities in the field of electronics and comprehend basic electrical safety principles and practices	Active
			2	Distinguish the difference in physical and operating characteristics, and explain how the various electronics components are used in their applications	Active
			3	Describe basic atomic structure and explain its role in electrical and electronic systems	Active
			4	Describe the difference and evaluate the characteristics between resistance, current and voltage in a circuit, and differentiate between direct and alternating current	Active
			5	Calculate total and branch circuits resistance in series, parallel and series parallel circuits	Active
	Introduction to C++ Programming	CS 181	1	Decompose problems and design program solutions using flowcharts, pseudocode, models, or other tools.	Active
			2	Properly code applications using the fundamental coding structures: sequence, selection, and loops.	Active
			3	Test and debug applications using debugging tools such as trace execution.	Active
	Introduction to Computer-Aided Drafting and Design	CADD 120	1	Utilize the basic AutoCAD terms, concepts and techniques.	Active
			2	Sketch and draw isometric drawings.	Active
			3	Produce drawings using geometric construction and apply metric or customary measuring systems.	Active
			4	Construct 3D geometric models by implementing the appropriate 3D commands.	Active
			5	Produce orthographic projections including section and auxiliary views.	Active
			6	Apply dimensions and tolerances in drawings accordance with industry standards.	Active
	Introduction to	ENGR 100	1	Describe the role of the engineer in society as a critical thinker,	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
	Engineering and Design	ENGR 100	1	innovator and problem solver. Differentiate among the various disciplines of engineering, describing typical projects done within each and the necessary academic preparation and reasons for each.	Active
			10	Determine tolerances in an assembly.	Active
			11	Apply solid modeling techniques to create individual parts.	Active
			12	Apply solid modeling techniques to create an assembly.	Active
			13	Produce fully annotated engineering working drawings from a 3D solid model.	Active
			14	Produce a physical part from an engineering drawing and/or from a 3D solid model.	Active
			2	Apply engineering design methods and strategic thinking to solve problems in the development of new or improved products.	Active
			3	Apply engineering analytical skills and methods to solve real world problems including the application and conversion of units.	Active
			4	Use appropriate written and oral forms of technical communication to present, explain, and justify engineering design decisions.	Active
			5	List the basic ethical rules governing engineers and apply them in ethically murky situations.	Active
			6	Apply engineering graphics as a universal language for technical communication: a. Draw freehand technical sketches which demonstrate knowledge of basic engineering conventions including the American standard arrangement of views, the use of a title block, standard drawing sizes, basic line types, and proper dimensioning technique.	Active
			7	Apply engineering graphics as a universal language for technical communication: b. Apply techniques of descriptive geometry and spatial reasoning to represent three-dimensional objects in two dimensions. Translate single-view pictorials into multi-view orthographic drawings. Given two orthographic views, draw a third orthographic view and a single-view pictorial.	Active
			8	Apply engineering graphics as a universal language for technical communication:	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			8	c. Given a real object, draw all necessary orthographic, pictorial, sectional, and auxiliary views. Include sufficient but not excessive dimensions.	Active
			9	Create an exploded assembly drawing with a bill of materials for all parts of the assembly.	Active
	Introduction to Java Programming	CS 182	1	Decompose problems and design program solutions using flowcharts, pseudocode, models, or other tools.	Active
			2	Properly code applications using the fundamental coding structures: sequence, selection, and loops.	Active
			3	Test and debug applications using debugging tools such as trace execution.	Active
	Linear Algebra	MATH 284	1	Find solutions of systems of equations using various methods appropriate to lower division linear algebra.	Active
			2	Use bases and orthonormal bases to solve problems in linear algebra.	Active
			3	Find the dimension of spaces such as those associated with matrices and linear transformations.	Active
			4	Find eigenvalues and eigenvectors and use them in applications;	Active
			5	Prove basic results in linear algebra using appropriate proof-writing techniques such as linear independence of vectors; properties of subspaces; linearity, injectivity and surjectivity of functions; and properties of eigenvectors and eigenvalues.	Active
	Mechanics and Heat	PHYC 190	1	Recognize the basic concepts concerning kinematics, dynamics, energy, momentum, gravitation, oscillations and thermodynamics, and use algebraic, trigonometric and advanced calculus expressions to represent physical situations involving these subjects.	Active
			2	Investigate and delineate the relationship between the theoretical principles of physics and their practical applications, and explain how this relationship affects real world problem solving.	Active
			3	Investigate, interpret and analyze the fundamental principles of physics based on reading assignments and in-class discussions.	Active
			4	Calculate solutions to physics problems using the fundamental principles of physics and symbolic logic skills.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			4		Active
			5	During the lab students will: Design experiments using the scientific method.	Active
			6	During the lab students will: Demonstrate laboratory technique by collecting data using both traditional and computer data acquisition methods, using computers to interpret and analyze numerical data and to generate a visual representation of the data.	Active
			7	During the lab students will: Evaluate the experimental results using techniques presented in class.	Active
	Mechatronics: Intermediate Microcontrollers and Robotics	ENGR 176	1	Read and interpret specifications for an unknown microcontroller.	Active
			2	Design and build custom microcontroller-based circuits.	Active
			3	Write and compile programs in a high-level language such as C.	Active
			4	Write programs and subroutines in Assembly language to.	Active
			5a	Use microcontrollers to detect inputs from mechanical switches, potentiometers and optical sensors, and use the inputs to control the microcontroller.	Active
			5b	Use microcontrollers to control LEDs, servos, and 7-segment displays.	Active
			5c	Use microcontrollers to control DC motors.	Active
			5d	Use microcontrollers to control stepper motors	Active
			5e	Use microcontrollers to control high power (AC) circuits	Active
			6	Use physical prototyping tools including 3D printers, laser cutters, investment casting, and vacuum forming to construct a physical object of arbitrary complexity.	Active
			7	Integrate the elements of #1-6 above to create an electromechanical device to achieve a desired goal.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
	Mechatronics: Introduction to Microcontrollers and Robotics	ENGR 175	1	Write programs in a high-level programming language such as BASIC or C to control a microcontroller.	Active
			2	Use a microcontroller to detect inputs from sensors, and use the inputs to control the microcontroller; control LEDs, servo motors, speakers, and integrated circuits in response to inputs and programming; and store and retrieve data using non-volatile memory (EEPROM).	Active
			3	Integrate the elements of #1-3 above to create an electromechanical device to achieve a desired goal.	Active
			4	Design an autonomous robot that can survive in an uncertain environment by building up complex behaviors from a combination of simple and robust responses to stimuli.	Active
	Plane Surveying	ENGR 218	1	Apply the field techniques of plane surveying such as chaining, leveling, traverse, and topographic work.	Active
			2	Successfully solve a sequence of similar problems, first using older transits and pace methods, later refining results with theodolite instruments, and finally with standard tools of surveying.	Active
			3	Demonstrate the advantages, disadvantages, uses and adjustments of each piece of equipment used.	Active
		SURV 218	1	Apply the field techniques of plane surveying such as chaining, leveling, traverse, and topographic work.	Active
			2	Successfully solve a sequence of similar problems, first using older transits and pace methods, later refining results with theodolite instruments, and finally with standard tools of surveying.	Active
			3	Demonstrate the advantages, disadvantages, uses and adjustments of each piece of equipment used.	Active
	Special Studies or Projects in Engineering	ENGR 199	1	Demonstrate increased knowledge and understanding in diverse areas of engineering.	Active
			2	Develop skill in an engineering topic not addressed in the regular curriculum.	Active
	Survey Drafting Technology	CADD 127	1	Describe the processes, plans, purposes, and method of preparation involved in land development as applied in the Civil Engineering field.	Active
			2	Demonstrate Civil Engineering drawing skills through the preparation of varied working drawings for legal and construction permit purposes.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2		Active
			3	Utilize state and local government standards and practices in project applications and drawing preparation.	Active
			4	Complete pre-planning drawings prior to field work according to the established deadlines.	Active
	Wave Motion and Modern Physics	PHYC 210	1	Analyze basic physical situations involving reflection and refraction, and use this analysis to predict the path of a light ray.	Active
			2	Analyze situations involving interference and diffraction of light waves, and apply these to situations including double slits, diffraction gratings, and wide slits.	Active
			3	Apply concepts from special relativity to analyze physical situations.	Active
			4	Apply basic concepts of quantum mechanics to analyze basic physical setups.	Active
			5	LAB: Collect and analyze experimental data using graphical representation, including appropriate use of units and significant figures.	Active
			6	LAB: Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
	Work Experience in Engineering Technology	ENGR 182	SLO 1	Independently demonstrate standardized safety and handling tools and measuring instruments as given by a supervisor.	Active
			SLO 2	Independently apply technical information and skill sets learned at school to the actual work environment as determined by a supervisor.	Active
SLO (MSE - S&E) - Geography (GEOG)	Cultural Ethnobotany	GEOG 132	1	Delineate the Kumeyaay ethnobotanical region and analyze traditional and modern uses of plants within the Kumeyaay Nation.	Active
			2	Use Kumeyaay and scientific methods to classify plants within the Kumeyaay ethnobotanical region.	Active
			3	Utilize plant, flower, and reproductive structures to positively identify plant species using Kumeyaay and scientific nomenclatures.	Active
			4	Demonstrate an understanding of the evolutionary basis for scientific classification of plants into different taxa including Family, Genus and Species.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			5	Identify traditional and modern uses of plants for food, medicine, shelter, and basketry, and demonstrate plant harvesting and gathering techniques in a field setting.	Active
			6	Differentiate between native and non-native plant species	Active
	Human Geography: The Cultural Landscape	GEOG 130	1	Compare and contrast cultural aspects of the world including ethnicities, languages, religions, political and economic systems, and patterns of livelihood.	Active
			2	Analyze and evaluate current scientific models used to predict human patterns of behavior including population and migration trends, economic and social development, and technology and resource utilization.	Active
			3	Recognize and comprehend spatial and temporal patterns as they relate to cultural phenomena.	Active
			4	Analyze and interpret maps.	Active
			5	Recognize and identify political boundaries and significant physical features.	Active
			6	Analyze and evaluate the current trends toward globalization of economic systems.	Active
			7	Investigate and evaluate the relationships between the physical and cultural environment.	Active
			8	Identify and assess the significance of the human impact on Earth's physical environment.	Active
	Physical Geography: Earth Systems	GEOG 120	1	Identify and utilize the guiding principles of physical geography to analyze and interpret geospatial relationships within and between Earth's four major environmental spheres (atmosphere, hydrosphere, lithosphere, and biosphere).	Active
			10	Model surficial geomorphic processes and apply to the real world in order to explain the development and evolution of common landforms.	Active
			11	Compare and contrast competing scientific interpretations of geospatial data, and explain how divergent conclusions can be drawn from the analysis of similar data.	Active
			12	Evaluate the relationships between humans and their surrounding environment, and assess the significance of the human imprint on Earth's natural systems.	Active
			2	Outline the scientific method, describe its applications, and explain its relevance to real world problem solving.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			3	Analyze geospatial data on maps, tables and graphs, and draw conclusions based on subsequent interpretations.	Active
			4	Describe seasonal Earth-Sun relations and explain resulting physical phenomena on Earth's surface.	Active
			5	Model atmospheric and oceanic circulation patterns in order to predict seasonal changes in the weather.	Active
			6	Utilize basic meteorological information to describe daily weather patterns, and explain the necessary conditions for the development of severe weather.	Active
			7	Compare and contrast daily, seasonal and annual atmospheric phenomena in order to differentiate between short-term weather processes and resulting long-term climate patterns.	Active
			8	Identify local, regional and global scale biogeographic patterns based on soil and climate factors, and evaluate their significance within the context of Earth's biosphere.	Active
			9	Describe the Theory of Plate Tectonics, provide scientific evidence in its support, and explain its significance within the field of geography.	Active
	Physical Geography: Earth Systems Laboratory	GEOG 121	1	Demonstrate the ability to utilize the tools of physical geography and Earth Science to collect data (for example, compasses, GPS receivers, psychrometers, etc.)	Active
			2	Demonstrate observational skills related to reading and modeling the geographic and geologic landscape (for example, relating changes in solar declination to seasonal variation; relating change in longitude to differences in time keeping; relating real-time weather observations to synoptic scale weather maps; developing and using morphologic classification systems (e.g. mafic vs felsic igneous rock classification, biologic taxonomy), relating stream offsets, sagponds and pressure ridges (as found on topographic maps) to lateral-fault location and direction and rate of displacement, etc.	Active
			3	Demonstrate the ability to recognize and name the individual components of the physical environment and of interrelationships between , and spatial patterns produced by these individual components (e.g. recognition of dominant plant species within Coastal Sage Scrub biome; recognition of	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			3	species variation by habitat (e.g. north vs. south facing slopes) within a biome; recognition of typical San Diego weather features and patterns (e.g. inversions, sea-breezes, downslope adiabatics, synoptic-scale highs vs. mesoscale lows,) etc.	Active
			4	Demonstrate the technical skills to analyze and interpret data of Physical Geography and Earth Sciences (e.g. use of analemma, topographic maps, sunoptic-scale weather maps, seismographs, hydrographs etc., application of conversion factors, graphing, isoline mapping, topologic profiling, etc.)	Active
			5	Use the methods of scientific inquiry to develop and test a variety of hypotheses related to physical geography/Earth science phenomena.	Active
	World Regional Geography	GEOG 106	1	Utilize defining cultural and environmental criteria such as language, religion, ethnicity, politics, economics, natural resources and climate to delineate the world's major geographic regions.	Active
			2	Identify key cultural traits and explain how these traits help to shape a given geographic region.	Active
			3	Compare and contrast regional similarities and differences in order to identify unique and shared cultural patterns among the world's major geographic regions.	Active
			4	Utilize maps, tables and graphs to analyze and interpret geo-spatial relationships within and between the world's major geographic regions.	Active
			5	Recognize the factors that lead to cultural change and diffusion and explain how such changes affect regional geographic identity.	Active
			6	Identify cultural influences that both enhance and threaten global cultural diversity, and explain how these influences have contributed to shaping the major geographic regions of our modern world.	Active
			7	Compare and contrast regional patterns of patriarchy and matriarchy and explain how these patterns have influenced the economic, social and political development of the world's major geographic regions.	Active
			8	Evaluate regional and global patterns of economic, social and	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			8	political development in order to assess relative measures of well being within and between the world's major geographic regions.	Active
			9	Identify environmental, political and socioeconomic threats to regional stability and prosperity and assess the impacts of such threats on world political and economic order.	Active
SLO (MSE - S&E) - Geology (GEOL)	Earth Science	GEOL 104	1	Utilize the principles of physical science to analyze Earth's major physical systems.	Active
			10	Analyze the elements of heat, light and seawater chemistry to explain the dynamic components of the world's oceans.	Active
			11	Describe the formation of waves, tides and currents and explain how these motions influence the exchange of heat and energy within and between the world's oceans and their effects on the atmosphere and continental margins.	Active
			12	Describe the Earth's internal structure and model the flow of heat and energy from the core to the surface.	Active
			13	Describe how minerals and rocks form, and classify rock and mineral types based on their physical properties.	Active
			14	Describe the elements, controls and spatial patterns of plate tectonics and explain the resulting seismic and volcanic processes and patterns seen at Earth's surface.	Active
			15	Analyze and interpret geologic and geomorphic phenomena within the context of geologic time.	Active
			16	Describe the role of weathering, erosion and mass wasting on superficial processes, and evaluate their relative influences in the development of Earth's major landforms.	Active
			17	Assess the role of landscape scale disturbance in the development and stability of Earth's environmental processes, and analyze the resulting influences on historical and modern climate change.	Active
			2	Outline and apply the scientific method to real world phenomena.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			3	Analyze and interpret geospatial data on maps, tables and graphs.	Active
			4	Describe the origin and age of the Universe and explain the resulting formation of the solar system and its major components and controls.	Active
			5	Describe the relative motions of the Sun, Moon, planets and stars and explain the resulting physical phenomena of seasonal change, moon phases and eclipses.	Active
			6	Utilize latitude and longitude to calculate time, noon sun angles, and relative location on Earth.	Active
			7	Identify the elements, controls, and spatial patterns of the oceans and atmosphere in order to predict daily and seasonal changes in the weather.	Active
			8	Describe the influence of continents and oceans in determining air mass characteristics, storm genesis and decay, and jet stream dynamics.	Active
			9	Differentiate between weather related processes and resulting long-term climate patterns.	Active
	Planet Earth	GEOL 110	1	Identify and utilize the guiding principles of plate tectonics and uniformitarianism to analyze and interpret the geological patterns and processes of planet Earth.	Active
			10	Identify geologic hazards for a given landscape, evaluate their potential for causing damage, and assess the effectiveness of mitigation strategies for preventing natural disasters.	Active
			11	Outline the geologic history of planet Earth and describe the significance of organic and inorganic evolution within this time frame.	Active
			12	Describe the geologic methods for exploring and developing water, mineral and energy resources, and evaluate their impact on the surrounding environment.	Active
			2	Outline the scientific method, describe its applications to the field of geology, and explain its relevance to real world problem solving.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2		Active
			3	Analyze geologic, topographic and geospatial data on maps, tables and graphs, and draw conclusions based on subsequent interpretations.	Active
			4	Identify the most common elements in the Earth's crust, describe how they chemically bond to form the major rock-forming minerals, and use physical characteristics such as color, texture and hardness to identify the igneous, sedimentary and metamorphic rocks that they form.	Active
			5	Compare and contrast the origin of the three rock families (igneous, sedimentary, metamorphic), describe the physical characteristics of each, and explain the relationships within and between each family.	Active
			6	Model the composition and characteristics of Earth's interior and describe how flows of heat and energy affect the Earth's internal structure.	Active
			7	Describe the Theory of Plate Tectonics, evaluate the evidence for sea floor spreading, subduction and continental drift, and model the motions and interactions of Earth's lithospheric plates.	Active
			8	Model geologic and geomorphic processes in order to explain the development and evolution of common landforms.	Active
			9	Compare and contrast competing scientific interpretations of geologic and geomorphic phenomena, and explain how divergent conclusions can be drawn from the analysis of similar evidence.	Active
	Planet Earth Laboratory	GEOL 111	1	Use the scientific method to develop, test and analyze basic geologic hypotheses in a laboratory setting.	Active
			10	Recognize geologic hazards for a given landscape, evaluate their potential for causing damage, and identify strategies for preventing natural disasters.	Active
			2	Apply the guiding principles of plate tectonics and uniformitarianism to analyze and interpret basic geological patterns and processes.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2		Active
			3	Analyze geologic, topographic and geospatial data on maps, tables and graphs, and draw conclusions based on subsequent interpretations.	Active
			4	Construct simple maps and structural diagrams using baseline topographic, cross-section and stratigraphic data.	Active
			5	Use physical characteristics such as color, texture and hardness to identify common minerals and the rocks that they form.	Active
			6	Model the rock cycle and explain the endogenous and exogenous processes that drive change within this cycle.	Active
			7	Apply the Theory of Plate Tectonics to model sea floor spreading, subduction and continental drift, and the motions and interactions of Earth's lithospheric plates.	Active
			8	Apply relative and absolute dating methods to construct geologic histories of specific formations.	Active
			9	Describe the development and evolution of common landforms within the context of the geologic and geomorphic setting.	Active
SLO (MSE - S&E) - Oceanography (OCEA)	Introduction to Oceanography	OCEA 112	1	Apply fundamental principles of physical and biological science to the study of the ocean.	Active
			10	Discuss the interactions between marine organisms and their environment, emphasizing the special conditions imposed on life by the marine environment.	Active
			11	List the resources the ocean provides humanity and discuss the long-term implications of resource extraction on the ocean environment.	Active
			12	Describe the damage to the marine environment caused by pollution.	Active
			13	List the major historical developments in the field of oceanography and explain their significance.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			13		Active
			14	Examine the interdisciplinary relationships between physics, chemistry, geology, ecology and engineering in the context of marine studies.	Active
			2	Discuss the basic concepts of plate tectonics and explain how the ocean floor and continental margins have been shaped by the actions of seafloor spreading and continental drift.	Active
			3	Describe the major physical features of the seafloor and explain their origins.	Active
			4	Outline the fundamental principles of waves and tides and describe their influence in shaping the shoreline.	Active
			5	Relate seawater density to depth, salinity, and temperature and describe typical profiles of each.	Active
			6	List the major chemical components of seawater and explain why the water molecule is so remarkable.	Active
			7	Model atmospheric circulation patterns and discuss the interactions between the oceans and the atmosphere in producing global weather patterns.	Active
			8	Model surface and deep water circulation patterns, including the mechanisms of geostrophic balance and thermohaline circulation.	Active
			9	Classify the main forms of marine life and describe their relationships and interactions.	Active
	Oceanography Laboratory	OCEA 113	1	Design and perform laboratory and field experiments to test hypotheses.	Active
			10	Determine the relationship between settling rate of sediments and particle size, particle density and fluid viscosity.	Active
			11	Measure light attenuation in seawater and relate it to suspended particle density.	Active
			12	Identify marine organisms to the phylum level.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2	Analyze, interpret and organize data according to accepted methods in geology, physics, chemistry and biology.	Active
			3	Present scientific data in cogent and defensible ways.	Active
			4	Construct bathymetric profiles and contour charts.	Active
			5	Determine various aspects of waves including period, height, wavelength, speed.	Active
			6	Relate coastal sediments to wave conditions.	Active
			7	Measure current speeds at different depths.	Active
			8	Compute the volumetric exchange of seawater due to tidal flushing in an enclosed basin.	Active
			9	Measure seawater temperature, salinity and density, and use them to produce Temperature-Salinity (TS) diagrams.	Active
SLO (MSE - S&E) - Physical Science (PSC)	Analytic Geometry and Calculus I	MATH 180	1	Compute the limit of a function at a real number;	Active
			2	Determine if a function is continuous at a real number;	Active
			3	Find the derivative of a function as a limit;	Active
			4	Find the equation of a tangent line to a function;	Active
			5	Compute derivatives including implicit differentiation	Active
			6	Use differentiation to solve applications such as related rate problems and optimization problems	Active
			7	Graph functions using methods of calculus;	Active
			8	Evaluate definite and indefinite integrals	Active
			9	Apply integration to find area.	Active
	Analytic Geometry and Calculus II	MATH 280	1	Evaluate definite and indefinite integrals using a variety of integration formulas and techniques	Active
			2	Apply integration to areas and volumes, and other applications such as work or length of a curve	Active
			3	Evaluate improper integrals	Active
			4	Apply convergence tests to sequences and series	Active
			5	Represent functions as power series	Active
			6	Graph, differentiate and integrate functions in polar and	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			6	parametric form.	Active
	Descriptive Astronomy	ASTR 110	1	Recognize and define the following terms: planet, Moon, comet, meteoroid, constellation, Celestial Sphere, precession, seasons, astronomical unit, parsec, light-year.	Active
			10 (formally 11)	Investigate and delineate the structure of the Universe consistent with scientific observations.	Active
			11 (formally 12)	Identify and evaluate the structure of the Universe as predicted by the Big Bang Theory.	Active
			2 (formally 3)	Describe and explain the phases of the Moon and how the Earth, Moon and Sun are positioned.	Active
			3 (formally 4)	Describe the structure of the Solar System.	Active
			4 (formally 5)	Analyze and evaluate the relationship between photons, atomic structure and spectral lines.	Active
			5 (formally 6))	Use the Hertzsprung-Russell diagram to explain the evolution of a star.	Active
			6 (formally 7)	Analyze and explain how stars evolve.	Active
			7 (formally 8)	Compare and contrast absolute and apparent magnitude.	Active
			8 (formally 9)	Analyze and evaluate parallax and distance indicators.	Active
			9 (formally 10)	Compare and contrast current models of galaxy types. (formally) Compare and contrast current models of galaxy types and of the evolution of galaxies.	Active
	Electricity and Magnetism	PHYC 200	1	Recognize the basic concepts concerning electric fields, electric potential, capacitance, resistance, current, DC circuits, magnetic fields, inductance, AC circuits, Maxwell's Equations, and use algebraic, trigonometric and advanced calculus expressions to represent physical situations involving these subjects.	Active
			2	Investigate and delineate the relationship between the	Active

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			2	theoretical principles of physics and their practical applications, and explain how this relationship affects real world problem solving.	Active
			3	Investigate, interpret and analyze the fundamental principles of physics based on reading assignments and in-class discussions.	Active
			4	Calculate solutions to physics problems using the fundamental principles of physics and symbolic logic skills.	Active
			5	Design experiments using the scientific method.	Active
			6	Demonstrate laboratory technique by collecting data using both traditional and computer data acquisition methods, using computers to interpret and analyze numerical data and to generate a visual representation of the data.	Active
			7	Evaluate the experimental results using techniques presented in class.	Active
	General Chemistry I	CHEM 141	1	Solve a wide variety of problems including those involving the topics of calorimetry, gases, thermodynamics, ionization energy, and lattice energy, among others.	Active
			2	Apply knowledge of a variety of theories of atomic structure and bonding.	Active
			3	Perform a variety of experimental analytical techniques in a laboratory setting to collect data: analyze data and make predictions about the nature of matter.	Active
	General Chemistry II	CHEM 142	1	Solve a wide variety of problems including those involving the topics of electrochemistry, kinetics, equilibrium, heat transfer, entropy and free energy, and lattice energy, among others. Analyze results to make predictions.	Active
			2	Apply knowledge of the bonding and intermolecular forces in solids, liquids and gases.	Active
			3	Perform a variety of experimental analytical techniques and qualitative analysis in a laboratory setting to collect data/observations, analyze data/observations and make predictions about the nature of matter.	Active
	Intermediate Multivariable Calculus	MATH 281	1	Perform vector operations.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			2	Determine equations of lines and planes.	Active
			3	Evaluate partial derivatives.	Active
			4	Find local extrema and test for saddle points.	Active
			5	Solve constraint problems using Lagrange multipliers.	Active
			6	Compute arc length.	Active
			7	Evaluate two and three dimensional integrals involving rectangular, polar, cylindrical and spherical coordinates.	Active
			8	Analyze multivariable function, equations, graphs, contour maps, vector fields, or tables of data.	Active
	Mechanics and Heat	PHYC 190	1	Recognize the basic concepts concerning kinematics, dynamics, energy, momentum, gravitation, oscillations and thermodynamics, and use algebraic, trigonometric and advanced calculus expressions to represent physical situations involving these subjects.	Active
			2	Investigate and delineate the relationship between the theoretical principles of physics and their practical applications, and explain how this relationship affects real world problem solving.	Active
			3	Investigate, interpret and analyze the fundamental principles of physics based on reading assignments and in-class discussions.	Active
			4	Calculate solutions to physics problems using the fundamental principles of physics and symbolic logic skills.	Active
			5	During the lab students will: Design experiments using the scientific method.	Active
			6	During the lab students will: Demonstrate laboratory technique by collecting data using both traditional and computer data acquisition methods, using computers to interpret and analyze numerical data and to generate a visual representation of the data.	Active
			7	During the lab students will: Evaluate the experimental results using techniques presented in class.	Active

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	Organic Chemistry I	CHEM 231	1	Distinguish among the numerous classes of organic compounds and predict their properties and reactivity.	Active
			10	In the laboratory, characterize compounds based on modern spectrometric data including FTIR and NMR.	Active
			11	Determine the structure of molecules from their FTIR and NMR spectra.	Active
			12	Synthesize, isolate, purify and characterize both solid and liquid organic compounds.	Active
			13	Analyze and evaluate observations acquired in the laboratory by applying the theoretical principles being studied.	Active
			14	Determine the structure of molecules from their FTIR and NMR spectra.	Active
			2	Deduce the structures of the constitutional isomers corresponding to a given molecular formula.	Active
			3	Write a systematic name for an organic compound given its structure and vice-versa.	Active
			4	Deduce the principal conformations of open chain molecules and cyclohexane derivatives and determine their relative potential energies.	Active
			5	Deduce the structures of the stereoisomers possible for molecules with stereogenic centers.	Active
			6	Predict the operative mechanisms and the structures of the products in nucleophilic substitution, elimination, electrophilic addition, nucleophilic addition, radical substitution and addition, oxidation, and reduction reactions.	Active
			7	Design the synthesis and identify intermediates for an organic compound requiring multiple reaction steps.	Active
			8	In the laboratory, determine physical properties of organic compounds such as melting point and boiling point.	Active
			9	In the laboratory, perform simple qualitative tests for detection of the different types of functional groups on compounds.	Active
	Planet Earth	GEOL 110	1	Identify and utilize the guiding principles of plate tectonics and uniformitarianism to analyze and interpret the geological	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
	Planet Earth	GEOL 110	1	patterns and processes of planet Earth.	Active
			10	Identify geologic hazards for a given landscape, evaluate their potential for causing damage, and assess the effectiveness of mitigation strategies for preventing natural disasters.	Active
			11	Outline the geologic history of planet Earth and describe the significance of organic and inorganic evolution within this time frame.	Active
			12	Describe the geologic methods for exploring and developing water, mineral and energy resources, and evaluate their impact on the surrounding environment.	Active
			2	Outline the scientific method, describe its applications to the field of geology, and explain its relevance to real world problem solving.	Active
			3	Analyze geologic, topographic and geospatial data on maps, tables and graphs, and draw conclusions based on subsequent interpretations.	Active
			4	Identify the most common elements in the Earth's crust, describe how they chemically bond to form the major rock-forming minerals, and use physical characteristics such as color, texture and hardness to identify the igneous, sedimentary and metamorphic rocks that they form.	Active
			5	Compare and contrast the origin of the three rock families (igneous, sedimentary, metamorphic), describe the physical characteristics of each, and explain the relationships within and between each family.	Active
			6	Model the composition and characteristics of Earth's interior and describe how flows of heat and energy affect the Earth's internal structure.	Active
			7	Describe the Theory of Plate Tectonics, evaluate the evidence for sea floor spreading, subduction and continental drift, and model the motions and interactions of Earth's lithospheric plates.	Active
			8	Model geologic and geomorphic processes in order to explain the development and evolution of common landforms.	Active

Unit Name	Course Name	Course ID	Course SLO Name	Course SLO	Course SLO Status
			8		Active
			9	Compare and contrast competing scientific interpretations of geologic and geomorphic phenomena, and explain how divergent conclusions can be drawn from the analysis of similar evidence.	Active
	Wave Motion and Modern Physics	PHYC 210	1	Analyze basic physical situations involving reflection and refraction, and use this analysis to predict the path of a light ray.	Active
			2	Analyze situations involving interference and diffraction of light waves, and apply these to situations including double slits, diffraction gratings, and wide slits.	Active
			3	Apply concepts from special relativity to analyze physical situations.	Active
			4	Apply basic concepts of quantum mechanics to analyze basic physical setups.	Active
			5	LAB: Collect and analyze experimental data using graphical representation, including appropriate use of units and significant figures.	Active
			6	LAB: Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
SLO (MSE - S&E) - Physics (PHYC)	Analytic Geometry and Calculus I	MATH 180	1	Compute the limit of a function at a real number;	Active
			2	Determine if a function is continuous at a real number;	Active
			3	Find the derivative of a function as a limit;	Active
			4	Find the equation of a tangent line to a function;	Active
			5	Compute derivatives including implicit differentiation	Active
			6	Use differentiation to solve applications such as related rate problems and optimization problems	Active
			7	Graph functions using methods of calculus;	Active
			8	Evaluate definite and indefinite integrals	Active
			9	Apply integration to find area.	Active
	Analytic Geometry and Calculus II	MATH 280	1	Evaluate definite and indefinite integrals using a variety of integration formulas and techniques	Active
			2	Apply integration to areas and volumes, and other applications such as work or length of a curve	Active
			3	Evaluate improper integrals	Active
			4	Apply convergence tests to sequences and series	Active

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			5	Represent functions as power series	Active
			6	Graph, differentiate and integrate functions in polar and parametric form.	Active
	Electricity and Magnetism	PHYC 200	1	Recognize the basic concepts concerning electric fields, electric potential, capacitance, resistance, current, DC circuits, magnetic fields, inductance, AC circuits, Maxwell's Equations, and use algebraic, trigonometric and advanced calculus expressions to represent physical situations involving these subjects.	Active
			2	Investigate and delineate the relationship between the theoretical principles of physics and their practical applications, and explain how this relationship affects real world problem solving.	Active
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			7	Evaluate the experimental results using techniques presented in class.	Active
	Fundamentals of Physics	PHYC 130	1	Solve problems using a conceptual understanding of kinematics and dynamics with linear or rotational applications.	Active
			2	Apply gravitation, or material behavior problems involving thermal equilibrium, heat transfer and heat engines.	Active
			3	Understand the concepts of heat, thermodynamics and ideal gasses, and be able to use them in solving problems involving thermal equilibrium, heat transfer, and heat engines.	Active
			4	Lab a. Analyze experimental data, including appropriate use of units and significant figures	Active

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			4	b. Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
			Inactive_6 (2016)	LAB: Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
		PHYC 131	1	Solve problems using a conceptual understanding of electric and magnetic fields.	Active
			2	Apply knowledge of potential and inductance to analyze systems AC and DC circuits.	Active
			3	Interpret and apply fundamental physics concepts such as electromagnetic waves, optics, and interference.	Active
			4	Understand the basics of modern physics concepts including special relativity, quantum mechanics, and nuclear physics.	Active
			5	During the lab students will: a. Analyze experimental data, including appropriate use of units and significant figures. b. Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.	Active
			Inactive_5 (2016)	LAB: Collect and analyze experimental data using graphical representation, including appropriate use of units and significant figures.	Active
	General Chemistry I	CHEM 141	1	Solve a wide variety of problems including those involving the topics of calorimetry, gases, thermodynamics, ionization energy, and lattice energy, among others.	Active
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