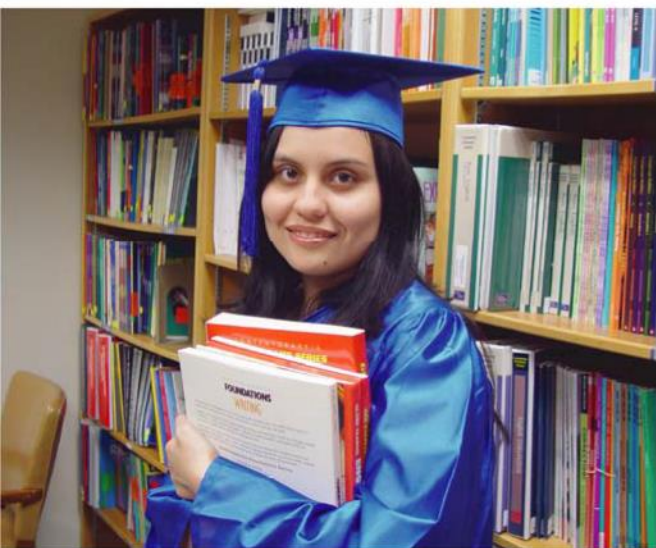


Course Outline

REVISED: July/2006



Program:
Adult Literacy/High School Diploma

Course of Study:
High School Diploma

Course:
1:2003 Science

36-10-53

General Science/Integrated 3

Course Description:

This competency-based course provides students with an introduction to the following scientific concepts and applications: scientific method, organic chemistry and biochemistry, cell structure and function, cell energy, genetics and molecular biology, conservation of matter and stoichiometry, and solutions. This course will give students an opportunity to develop skills using scientific equipment to collect, store, and analyze data. The competencies in this course are aligned with the Science Content Standards for California Public Schools. This course has been approved to satisfy the "g" (elective) subject area of the UC/CSU "a-g" requirements for freshman admission.

Credits: 5

Hours: 60

Prerequisites:

1. A minimum reading level of 9.0 as measured by the TABE D7/8 reading comprehension test
2. Successful completion of (31-02-70) Algebra 1/A
3. Recommendation of an instructor and/or a counselor

After a student has completed this course, he/she may not be allowed to re-enroll in the course.

A MESSAGE to COMPETENCY-BASED COURSE OUTLINE USERS

This competency-based course outline is for use by students, teachers, counselors and school administrators, advisory committees, and all others having interest in the course.

Before enrolling, students can read the course competencies listed to help them (students) decide whether or not the course will meet their needs. After enrolling, a copy of the competencies can help a student track his/her progress through the course.

Teachers can use competency-based areas and statements to gain an overview of the course. The competencies can be used to develop lesson plans and teaching strategies. The Instructional Materials and Other Resources page provides teachers with instructional support in the form of textbook titles, media and technology options, as well as the names of advisory personnel. Many course outlines provide sample lesson plans written by experienced teachers of the course.

Counselors can use the course outline to explain course purpose, goals and content to students. Sharing competency lists with students will make the students aware of the minimal skills and knowledge they need to demonstrate after taking the course. This process can identify potential candidates for a course.

Principals can scan the competency-areas and statements to decide if the content of a course should be offered at their school in order to meet the needs of the community which it serves.

Competencies can be used to generate relevant questions and items for tests. The writing of individualized instructional contracts also needs to reflect the competency-based course outline components.

Clearly defined competency-based areas, statements, and minimal competencies are the points upon which curriculum, instruction, and assessment focus.

THE DEVELOPMENT of a COMPETENCY-BASED COURSE OUTLINE

Every approved CBE course outline is written by Los Angeles Unified School teachers who teach the course. All teacher/writers have been inserviced and certified by the Adult Curriculum Office to learn about competency-based education and the outline format.

New courses and course revisions are initiated by school and/or central office subject area departments. The schools and the subject area departments share the responsibility for approving the subject content, hours, credits, etc. Teacher/writers submit their first draft to the appropriate central office subject area supervisor, specialist, consultant or adviser.

Course outline draft copies are next submitted to the curriculum office. There information required by the District and the State is verified. The outlines are edited and entered into the course outline computer data base. One formatted copy of an outline, with every page stamped "Draft Copy Only", is either approved by the curriculum office or returned for clarification or improvement.

Once signed off by the curriculum office an outline is routed back to the department that submitted it. When approved there, it is routed to the office of the Director of Instructional Services and finally to the Division's Assistant Superintendent for approval. The curriculum office then requests the required approvals by the LAUSD Board of Education.

The curriculum office sends master file copies of every approved CBE outline to principals of all Community Adult Schools and Employment Preparation Centers. These masters are used to reproduce copies for counselors and teachers. Students, community members, and other interested parties may also request copies. The curriculum office maintains a limited inventory of all outlines for additional distribution.

Changing needs are reflected in the constant development and revision of course outlines. It is an ongoing process designed to support the various demands of students, teachers, and the communities we serve.

TOM CALDERON
Adult Curriculum Office
Instructional and Counseling Services

CBE *COMPETENCYBASED EDUCATION*

Course Outline Competency-Based Component Definitions

Course descriptions state the major emphasis and content of the course.

Competency areas are units of instruction based on related competencies.

Competency statements are competency area goals that together define the framework and purpose of the course.

Competencies fall on a continuum between goals and performance objectives and denote outcome of instruction.

Competency-Based Philosophy Overview

Competency-based instruction tells a student before instruction what skills, or knowledge he/she will demonstrate after instruction.

A competency is stated as a minimum. This is the least a student has to demonstrate or know to be judged as competent. Stating competencies as minimums does not mean minimum instruction. Activities and opportunities should be provided for students to achieve maximum potential.

Competency-based education provides instruction that enables each student to attain individual goals as measured against pre-stated standards.

CBE instruction provides immediate and continual repetition and remediation. A student repeats tasks until achieving competence.

In competency-based education the curriculum, instruction, and assessment share common characteristics based on clearly stated competencies.

Curriculum, instruction and assessment in CBE are: explicit, known, agreed upon, integrated, performance-oriented, and adaptive.

COURSE OUTLINE COMPETENCY-BASED COMPONENTS

A course outline reflects the essential intent and content of the course described. Acceptable course outlines have six components. (Education Code Section 52506). Course outlines for all apportionment classes, including those in jails, state hospitals, and convalescent hospitals, contain the six required elements:

(EC 52504; 5CCR 10508 [b]; Adult Education Handbook for California [1977], Section 100)

Course Outline Components

Location

GOALS AND PURPOSES

Cover

The educational goals or purposes of every course are clearly stated and the class periods are devoted to instruction. The course should be broad enough in scope and should have sufficient educational worth to justify the expenditure of public funds.

The goals and purpose of a course are stated in the COURSE DESCRIPTION. Course descriptions state the major emphasis and content of a course, and are written to be understandable by a prospective student.

PERFORMANCE OBJECTIVES OR COMPETENCIES

pp. 7-11

Objectives should be delineated and described in terms of measurable results for the student and include the possible ways in which the objectives contribute to the student's acquisition of skills and competencies.

Performance Objectives are sequentially listed in the COMPETENCY-BASED COMPONENTS section of the course outline. Competency Areas are units of instruction based on related competencies. Competency Statements are competency area goals that together define the framework and purpose of a course. Competencies fall on a continuum between goals and performance objectives and denote the outcome of instruction.

Competency-based instruction tells a student before instruction what skills or knowledge they will demonstrate after instruction. Competency-based education provides instruction which enables each student to attain individual goals as measured against pre-stated standards.

Competency-based instruction provides immediate and continual repetition and In competency-based education the curriculum, instruction, and assessment share common characteristics based on clearly stated competencies. Curriculum, instruction and assessment in competency-based education are: explicit, known, agreed upon, integrated, performance oriented, and adaptive.

COURSE OUTLINE COMPETENCY-BASED COMPONENTS

(continued)

Course Outline Components Location

INSTRUCTIONAL STRATEGIES

p. 15

Instructional techniques or methods could include laboratory techniques, lecture method, small-group discussion, grouping plans, and other strategies used in the classroom.

Instructional strategies for this course are listed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructional strategies and activities for a course should be selected so that the overall teaching approach takes into account the instructional standards of a particular program, i.e., English as a Second Language, Programs for Older Adults, Programs for Adults with Disabilities.

UNITS OF STUDY, WITH APPROXIMATE HOURS ALLOTTED FOR EACH UNIT

Cover

The approximate time devoted to each instructional unit within the course, as well as the total hours for the course, is indicated. The time in class is consistent with the needs of the student, and the length of the class should be that it ensures the student will/earn at an optimum level.

pp. 7-11

Units of study, with approximate hours allotted for each unit are listed in the COMPETENCY AREA STATEMENT(S) of the course outline. The total hours of the course, including work-based learning hours (community classroom and cooperative vocational education) is listed on the cover of every CBE course outline. Each Competency Area listed within a CBE outline is assigned hours of instruction per unit.

EVALUATION PROCEDURES

p. 15

The evaluation describes measurable evaluation criteria clearly within the reach of the student. The evaluation indicates anticipated improvement in performances as well as anticipated skills and competencies to be achieved.

Evaluation procedures are detailed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructors monitor students' progress on a continuing basis, assessing students on attainment of objectives identified in the course outline through a variety of formal and informal tests (applied performance procedures, observations, simulations), paper and pencil exams, and standardized tests.

REPETITION POLICY THAT PREVENTS PERPETUATION OF STUDENT ENROLLMENT

Cover

After a student has completed all the objectives of the course, he or she should not be allowed to reenroll in the course. There is, therefore, a need for a statement about the conditions for possible repetition of a course to prevent perpetuation of students in a particular program for an indefinite period of time.

ACKNOWLEDGMENTS

Acknowledgement is given to DUANE COBB for revising this course outline.

Thanks to TOM CALDERON for editing and preparing this course outline as competency-based.

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APPROVED:

SANTIAGO JACKSON
Assistant Superintendent
Division of Adult and Career Education

*CALIFORNIA SCIENCE CONTENT STANDARDS
for the General Science/Integrated 3 Course*

INVESTIGATION AND EXPERIMENTATION:

- 1.0 Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing this content in the other four strands, students should develop their own questions and perform investigations.
(a, b, c, d, e, f, g, h, i, j, k, l, m, n)

BIOLOGY /LIFE SCIENCES:

Cell Biology

- 1.0 The fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism's cells. (a, b, c, d, e, f, g, h, i, j)

Genetics

- 2.0 Mutations and sexual reproduction lead to genetic variation in a population. (a, b, c, d, e, f, g)
- 3.0 A multicellular organism develops from a single zygote, and its phenotype depends on its genotype, which is established at fertilization. (a, b, c)
- 4.0 Genes are a set of instructions encoded in the DNA sequence of each organism that specify the sequence of amino acids in proteins characteristic of that organism. (a, b, c, d, e)
- 5.0 The genetic composition of cells can be altered by incorporation of exogenous DNA into the cells.
(a, b)

CHEMISTRY:

Conservation of Matter and Stoichiometry

- 3.0 The conservation of atoms in chemical reactions leads to the principle of conservation of matter and the ability to calculate the mass of products and reactants. (a)

Solutions

- 6.0 Solutions are homogenous mixtures of two or more substances. (a, b, c)

Organic Chemistry and Biochemistry

- 10.0 The bonding characteristics of carbon allow the formation of many different organic molecules of varied sizes, shapes, and chemical properties and provide the biochemical basis of life. (a, b, c)

CBE
Competency-Based Education

COMPETENCY-BASED COMPONENTS
for the General Science/Integrated 3 Course

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES
<p>A. INTRODUCTION</p> <p>Understand how personal skill development-including positive attitude, honesty, self-confidence, time management, and other positive traits-contribute to academic success.</p> <p>(1 hour)</p>	<ol style="list-style-type: none"> 1. Demonstrate an understanding of classroom policies and procedures. 2. Discuss competency area and minimal competencies for the course. 3. Discuss assignment grading and scoring policy. 4. Discuss importance of the following personal skills in the classroom/lab environment: <ol style="list-style-type: none"> a. positive attitude b. self-confidence c. honesty d. self-management/work ethic e. pride in product/work f. dependability 5. Prioritize tasks and meet deadlines. 6. Describe the importance of initiative and leadership. <p>COMPETENCIES</p> <p>Resources: Allocates Time</p> <p>Interpersonal: Participates as Member of a Team</p> <p>Information: Acquires and Evaluates Information/ Organizes and Maintains Information</p> <p>FOUNDATION</p> <p>Basic Skills: Reading/ Listening/ Speaking</p> <p>Thinking Skills: Knowing How to Learn</p> <p>Personal Qualities: Self-Management</p>

<p>B. THE SCIENTIFIC METHOD (INVESTIGATION AND EXPERIMENTATION 1.0)</p> <p>Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations.</p> <p>(5 hours)</p>	<ol style="list-style-type: none"> 1. Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data. (1a) 2. Identify and communicate sources of unavoidable experimental error. (1b) 3. Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions. (1c) 4. Formulate explanations by using logic and evidence. (1d) 5. Solve scientific problems by using quadratic equations and simple trigonometric, exponential, and logarithmic functions. (1e) 6. Distinguish between hypothesis and theory as scientific terms. (1f) 7. Recognize the usefulness and limitations of model and theories as scientific representations of reality. (1g) 8. Read and interpret topographic and geological maps. (1h) 9. Analyze the locations, sequences, or time intervals that are characteristic of natural phenomena (e.g., relative ages of rocks, locations of planets over time, and succession of species in an ecosystem) (1i) 10. Recognize the issues of statistical variability and the need for controlled tests. (1j) 11. Recognize the cumulative nature of scientific evidence. (1k) 12. Analyze situations and solve problems that require combining and applying concepts from more than one area of science. (1l) 13. Investigate a science-based societal issue by researching the literature, analyze data, and communicate the findings. Examples of issues include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California. (1m) 14. Know that when an observation does not agree with an accepted scientific theory, the observation is sometimes mistaken or fraudulent (e.g., the Piltdown Man fossil or unidentified flying objects) and that the theory is sometimes wrong (e.g., the Ptolemaic model of the movement of the Sun, Moon, and planets). (1n)
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<p>C. ORGANIC AND BIOCHEMISTRY (CHEMISTRY: Organic Chemistry and Biochemistry 10.0)</p> <p>The bonding characteristics of carbon allow the formation of many different organic molecules of varied sizes, shapes, and chemical properties, and provide the biochemical basis of life.</p> <p>(8 hours)</p>	<ol style="list-style-type: none"> 1. Know how large molecules (polymers) such as proteins, nucleic acids, and starch are formed by repetitive combinations of simple sub-units. (10a) 2. Know how the bonding characteristics of carbon lead to a large variety of structures ranging from simple hydrocarbons to complex polymers and biological molecules. (10b) 3. Know that amino acids are the building blocks of proteins. (10c)
<p>D. CELL STRUCTURE AND FUNCTION (BIOLOGY/LIFE SCIENCES: Cell Biology 1.0)</p> <p>The fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism's cell.</p> <p>(10 hours)</p>	<ol style="list-style-type: none"> 1. Know that cells are enclosed within semipermeable membranes that regulate their interaction with their surroundings. (1a) 2. Know that enzymes are proteins that catalyze biochemical reactions without altering the reaction equilibrium and the activities of enzymes depend on the temperature, ionic conditions, and the pH of the surroundings. (1b) 3. Know that how prokaryotic cells, eukaryotic cells (including those from plants and animals), and viruses differ in complexity and general structure. (1c) 4. Know that the central dogma of molecular biology outlines the flow of information from transcription of ribonucleic acid (RNA) in the nucleus to translation of proteins on ribosomes in the cytoplasm. (1d) 5. Know the roles of endoplasmic reticulum and Golgi apparatus in secretion of protein. (1e)
<p>E. CELL ENERGY (BIOLOGY/LIFE SCIENCES: Cell Biology 1.0)</p> <p>The fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism's cell.</p> <p>(8 hours)</p>	<ol style="list-style-type: none"> 1. Know that usable energy is captured from sunlight by chloroplasts and is stored through the synthesis of sugar from carbon dioxide. (1f) 2. Know that the role of the mitochondria in making stored chemical-bond energy available to cells by completing the breakdown of glucose to carbon dioxide. (1g) 3. Know that most macromolecules (polysaccharides, nucleic acids, proteins, lipids) in cells and organisms are synthesized from a small collection of simple precursors. (1h) 4. Know that how chemiosmotic gradients in the mitochondria and chloroplast store energy for ATP production. (1i) 5. Know that how eukaryotic cells are given shape and internal organization by a cytoskeleton or cell wall or both. (1j)

<p>F. GENETICS AND MOLECULAR BIOLOGY (BIOLOGY/LIFE SCIENCES: Genetics 2.0, 3.0, 4.0, 5.0)</p> <p>Mutations and sexual reproduction lead to genetic variation in population.</p> <p>A multicellular organism develops from a single zygote, and its phenotype depends on its genotype, which is established at fertilization.</p> <p>Genes are a set of instructions encoded in the DNA sequence of each organism that specify the sequence of amino acids in proteins characteristics of that organism.</p> <p>The genetic composition of cells can be altered by incorporation of exogenous DNA into the cells.</p> <p>(12 hours)</p>	<ol style="list-style-type: none"> 1. Know that meiosis is an early step in sexual reproduction in which the pairs of chromosomes separate and segregate randomly during cell division to produce gametes containing one chromosome of each type. (2a) 2. Know that only certain cells in a multicellular organism undergo meiosis. (2b) 3. Know that how random chromosome segregation explains the probability that a particular allele will be in a gamete. (2c) 4. Know that new combinations of alleles may be generated in a zygote through the fusion of male and female gametes (fertilization). (2d) 5. Know that why approximately half of an individual's DNA sequence comes from each parent. (2e) 6. Know that the role of chromosomes in determining an individual's sex. (2f) 7. Know that how to predict possible combinations of alleles in a zygote from the genetic makeup of the parents. (2g) 8. Know that how to predict the probable outcome of phenotypes in a genetic cross from the genotypes of the parents and mode of inheritance (autosomal or X-linked, dominant or recessive). (3a) 9. Know that the genetic basis for Mendel's laws of segregation and independent assortment. (3b) 10. Know how to predict the probable mode of inheritance from a pedigree diagram showing phenotypes. (3c) 11. Know that the general pathway by which ribosomes synthesize proteins, using tRNAs to translate genetic information in mRNA. (4a) 12. Know to apply the genetic coding rules to predict the sequence of amino acids from a sequence of codons in RNA. (4b) 13. Identify how mutations in the DNA sequence of a gene may or may not affect the expression of the gene, or the sequence of amino acids in an encoded protein. (4c) 14. Explain how specialization of cells in multicellular organisms is usually due to different patterns of gene expression rather than to differences among the genes themselves. (4d) 15. Explain how proteins can differ from one another in the number and sequence of amino acids. (4e) 16. Know how the general structures and functions of DNA, RNA, and protein. (5a) 17. Know how to apply base-pairing rules to explain precise copying of DNA during semiconservative replication and transcription of information from DNA into mRNA. (5b)
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<p>G. CONSERVATION OF MATTER AND STOICHIOMETRY (CHEMISTRY: Conservation of Matter and Stoichiometry 3.0)</p> <p>The conservation of atoms in chemical reactions leads to the principle of conservation of matter and the ability to calculate the mass of products and reactants.</p> <p>(8 hours)</p>	<p>1. Know how to describe chemical reactions by writing balanced equations. (3a)</p>
<p>H. SOLUTIONS (CHEMISTRY: Solutions 6.0)</p> <p>Solutions are homogenous mixtures of two or more substances.</p> <p>(8 hours)</p>	<p>1. Know that the definitions of solute and solvent. (6a)</p> <p>2. Know how to describe the dissolving process at the molecular level by using the concept of random molecular motion. (6b)</p> <p>3. Know that temperature, pressure, and surface area affect the dissolving process. (6c)</p>

DEFINITIONS of SCANS COMPETENCIES and FOUNDATION SKILLS

- Resources**
- Allocates Time: Selects goal-related tasks; prioritizes tasks; schedules work to meet deadlines.
 - Allocates Money: Uses or prepares budgets; forecasts costs; keeps records to track budget performance.
 - Allocates Material and Facility Resources: Acquires, stores, and distributes materials, supplies, equipment, parts, or products.
 - Allocates Human Resources: Assesses knowledge and skills and distributes work accordingly; evaluates performance; provides feedback.
- Information**
- Acquires and Evaluates Information: Identifies need for data, acquires data or creates data sources, and evaluates relevance of information.
 - Organizes and Maintains Information: Organizes, processes, and maintains written or computerized records; sorts, classifies or reformats information.
 - Interprets and Communicates Information: Selects and analyzes information; communicates the results to others using oral, written, graphic, or multi-media.
 - Uses Computers to Process Information: Uses computers to acquire, analyze, organize, and communicate information, including entering, modifying, storing, retrieving, and verifying data.
- Interpersonal**
- Participates as a Member of a Team: Works cooperatively with others; contributes ideas, suggestions and effort; encourages team members; listens and responds to contributions of others; resolves differences for the benefit of the team; takes responsibility for achieving goals and for doing own share of the work.
 - Teaches Others: Helps others learn by coaching or other means; conveys job information to others; provides constructive feedback.
 - Serves Clients/Customers: Works and communicates with clients and customers to satisfy their expectations; listens actively to determine needs; communicates in a positive manner; obtains additional resources to satisfy client or customer needs.
 - Exercises Leadership: Communicates to justify a position; encourages, persuades or motivates others; establishes credibility through competence and integrity; takes minority viewpoints into consideration.
 - Negotiates to Arrive at a Decision: Works toward agreement; clarifies problems and resolves conflicts; proposes and examines options; sets realistic goals; resolves divergent interests.
 - Works with Cultural Diversity: Works well with men and women and with a variety of ethnic and social groups; respects the rights of others; bases impressions on individual performance, not on stereotypes.
- Systems**
- Understands Systems: Knows how social, organizational, and technological systems work and operates effectively within them; knows who to ask for information and how to get resources.
 - Monitors and Corrects Performance: Monitors how procedures are working; predicts trends; diagnoses problems; takes action to maintain system performance.
 - Improves and Designs Systems: Makes suggestions for improving products or services; recommends alternatives; responsibly challenges the status quo.

DEFINITIONS of SCANS COMPETENCIES and FOUNDATION SKILLS
(continued)

- Technology
- **Selects Technology:** Chooses procedures, equipment, or computer programs to produce desired results.
 - **Applies Technology to Task:** Understands purpose and procedures for setting up and operating machines, including computers and their programs.
 - **Maintains and Troubleshoots Technology:** Prevents, identifies, or solves problems in machines, computers, and other technologies.

Definitions of SCANS Foundation Skills

- Basic Skills
- **Reading:** Locates, understands, and interprets written information in prose and documents - including manuals, graphs, and schedules -to perform tasks.
 - **Writing:** Communicates thoughts, ideas, information, and messages in writing; records information completely and accurately; checks, edits, and revises written material.
 - **Arithmetic:** Performs computations; uses numerical concepts in practical situations; uses tables, graphs, and diagrams to obtain or convey numerical information.
 - **Mathematics:** Approaches practical problems by choosing from a variety of mathematical techniques.
 - **Listening:** Receives, attends to, interprets, and responds to verbal and non-verbal messages.
 - **Speaking:** Organizes ideas and communicates oral messages appropriately in conversation, discussion, and group presentations; asks questions when needed.
- Thinking Skills
- **Creative Thinking:** Uses imagination; combines ideas or information in new ways; reshapes goals in ways that that reveal new possibilities.
 - **Decision Making:** Specifies goals and constraints, generates alternatives, considers risks, evaluates and chooses best alternative.
 - **Problem Solving:** Recognizes that a problem exists, devises and implements a plan to resolve it, evaluates and monitors progress, and revises plan as needed.
 - **Seeing Things in the Mind's Eye:** Organizes and processes symbols, pictures, graphs; visualizes outcomes from blueprints, diagrams, flow charts, recipes, etc.
 - **Knowing How to Learn:** Can use learning techniques to apply and adapt new knowledge and skills in both familiar and changing situations.
 - **Reasoning:** Uses underlying principles to solve problems; uses logic to draw conclusions.

SUGGESTED INSTRUCTIONAL MATERIALS and OTHER RESOURCES

TEXTBOOKS

Biggs, Alton, et al. Biology: The Dynamics of Life. New York, New York: Glencoe McGraw-Hill Publishing Company, 2000. (Student text and teacher's wrap-around edition)

Biggs, Alton, et al. Biology: The Dynamics of Life/Content Mastery. New York, New York: Glencoe McGraw-Hill Publishing Company, 2000.

Dobson, Ken, et al. Holt Science Spectrum: A Physical Approach. Austin, Texas: Holt, Rhinehart and Winston Publishing Company, 2001. (Student text and teacher's annotated edition).

Dobson, Ken, et al. Holt Science Spectrum: A Physical Approach/Basic Skills Worksheets. Austin, Texas: Holt, Rhinehart and Winston Publishing Company, 2001.

Dobson, Ken, et al. Holt Science Spectrum: A Physical Approach/Answer Keys. Austin, Texas: Holt, Rhinehart and Winston Publishing Company, 2001.

Assessments and Answer Keys- Adult Secondary Education Catalog #36-10-53.AK

RESOURCE PERSONS

Academic Supervisor

Subject area advisors

Mentor teachers

TEACHING STRATEGIES and EVALUATION

METHODS AND PROCEDURES

- A. Lecture
- B. Group discussion
- C. Class readings
- D. Independent reading/research
- E. Laboratory observation/experiment
- F. Written assignments
- G. Written/oral class reports
- H. Films
- I. Fieldtrips
- J. Individualized instruction
- K. Simulated laboratory experiments

EVALUATION

- A. Oral/written assignments
- B. Teacher observation
- C. Group/individual report
- D. Teacher/Division-made tests or quizzes developed from the competencies in this course outline

Statement for Civil Rights

All educational and vocational opportunities are offered without regard to race, color, national origin, gender, or physical disability.
