



COURSE OUTLINE

Outline Status: Outline Update (ECD 9620); 2009-2010

Section I: BASIC COURSE INFORMATION

1. **COLLEGE:** L.A. SOUTHWEST COLLEGE
2. **SUBJECT:** CHEMISTRY
3. **COURSE NUMBER:** 101
4. **COURSE TITLE:** GENERAL CHEMISTRY I
5. **UNITS:** 5
6. **CATALOG COURSE DESCRIPTION:**

This course covers atomic theory and stoichiometry, states of matter, thermochemistry, and equilibrium. The study of gases, liquids and solutions, equilibria in gases and solutions, solubility, and chemical bonding are also included in this course of study.

7. **CLASS SCHEDULE COURSE DESCRIPTION:**

This course covers atomic theory and stoichiometry, states of matter, thermochemistry and equilibrium, gases, liquids and solutions, solubility and chemical bonding.

8. **INITIAL COLLEGE APPROVAL DATE:** before 2000
9. **LAST UPDATE DATE:** 12/15/09
10. **CLASS HOURS:**

	Standard Hrs Per Week (based On 18 weeks)	Total Hs per Term (hrs per week x 18)	Units
Lecture:	3	54	3
Lab/Activity (w / homework):	0	0	0
Lab/Activity (w /o homework):	6	108	2
Totals:	Lecture: 3	Lecture: 54	Lecture: 3
	Lab: 6	Lab: 108	Lab: 2
	Total: 9	Total: 162	Total: 5
<i>Totals In Protocol:</i>	Lecture: 3	Lecture: 54	
	Lab: 6	Lab: 108	
	Total: 9	Total: 162	Total: 5

11. PREREQUISITES, COREQUISITES, ADVISORIES ON RECOMMENDED PREPARATION, and LIMITATION ON ENROLLMENT:

Note: The LACCD's *Policy on Prerequisites, Corequisites and Advisories* requires that the curriculum committee take a separate action verifying that a course's prerequisite, corequisite or advisory is an 'appropriate and rational measure of a student's readiness to enter the course or program' and that the prerequisite, corequisite or advisory meets the level of scrutiny delineated in the policy.

PREREQUISITES: Yes

	Subject	Number	Course Title	Units	Validation Approval Date
	Chemistry &	051	Fundamentals of Chemistry	5	12/15/09
and	Math &	125	Intermediate Algebra* (Mandated by UCs)	5	12/15/09

COREQUISITES: No

	Subject	Number	Course Title	Units	Validation Approval Date
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ADVISORIES: No

	Subject	Number	Course Title	Units	Validation Approval Date
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12. OTHER LIMITATIONS ON ENROLLMENT: (See Title 5, Section 58106 and Board Rule 8603 for policy on allowable limitations. Other appropriate statutory or regulatory requirements may also apply):

None

Section II: COURSE CONTENT AND OBJECTIVES

1. COURSE CONTENT AND OBJECTIVES:

COURSE CONTENT AND SCOPE - Lecture: Outline the topics included in the lecture portion of the course (<i>Outline reflects course description, all topics covered in class</i>).	Hours per topic	COURSE OBJECTIVES - Lecture: Upon successful completion of this course, the student will be able to..(Use action verbs - see <u>Bloom's Taxonomy</u> for 'action verbs requiring cognitive outcomes.')
1. Chemistry: The Study of Change a. Properties and States of Matter b. Properties of Liquids and Solids c. Measurement--SI System	3	1. Relate pure mathematics to the applied math of chemical science.
2. Atoms, Molecules, and Ions a. Nomenclature b. Empirical Formulas	4	2. Extract information from the periodic table and predict periodic trends. 3. Prepare chemical formulas and names of chemical compounds.
3. Mass Relations in Chemical Reactions a. Stoichiometry and Balancing Equations b. Hess' Law c. Equilibrium involving gases, liquids and solids	6	4.. Write and balance equations for simple chemical reactions, including molecular and ionic reactions.
4. Reactions in Aqueous Solutions a. Study of solutions b. Concentrations c. Solubility	6	5. Solve problems related to properties and states of matter, atomic and molecular structure, chemical bonding, molecular geometry, polarity, hybridization and the nature of solids, liquids, and gases.
5. Gases a. Gas Behavior b. Stoichiometry and Gas Laws	6	6. Examine how energy is key for all chemical reactions involving thermochemistry.
6. Thermochemistry a. Energy	3	7. Solve problems related to properties of matter; atomic theory; solubility; mass relationships in chemical changes (stoichiometry); solution concentrations; gas behavior; solution and gas equilibria; thermochemistry; electron configurations in atoms and beginning quantum theory; and periodic table relationships
7. Quantum Theory and the Electron Configuration of Atoms a. Atomic Theory b. Quantum Numbers c. Atomic Orbitals	6	
8. Periodic Relationships Among the Elements a. Periodic Table and Trends	6	
9. Chemical Bonding I & II. a. Born Haber Cycle b. Writing Lewis Structures c. Ionic and Covalent Bonding d. Molecular Geometry, Shapes, and Polarity e. Theories of Bonding f. Hybridization	12	
10. Final Exam	2	
Total:	54	
Total Hrs In Protocol:	54	

1. (cont'd) LAB:

COURSE CONTENT AND SCOPE - Lab: Outline the topics included in the laboratory portion of the course (<i>Outline reflects course description, all topics covered in class</i>).	Hours per topic	COURSE OBJECTIVES - Lab: Upon successful completion of this course, the student will be able to..(Use action verbs - see <i>Bloom's Taxonomy</i> for 'action verbs requiring cognitive outcomes.')
1. Safety, Data Handling, and Significant Figures	6	1. appraise lab safety features and demonstrate safe lab procedures.
2. Density Determination Techniques	6	2. prepare lab reports explaining the use of significant figures, scientific notation, and experimental errors.
3. Conservation of Matter	6	3. solve density problems using various methods and determine the % composition of a solution.
4. Atomic Mass of a Metal	6	4. plot data collected in the laboratory to illustrate relations between the variables.
5. Gravimetric Analysis of a Sulfate	6	5. solve problems related to the % of an unknown using gravimetric analysis.
6. Acid-Base Titration	6	6. solve problems related to concentration of an acid or base by titration.
7. Boyle's Law	6	7. solve problems related to Boyle's Law and the PV product in varying the pressure of a gas with volume.
8. Molar Volume of Oxygen	6	8. demonstrate the technique of determining the molar volume of a gas at room condition and calculate its value at standard temperature and pressure (STP).
9. Computer Computation (CAI)	9	9. calculate the apparent gram molecular weight of air.
10. Molecular Weight of a Condensable Vapor	6	10. calculate the molar mass of a condensable vapor, and the equivalent weight of a metal.
11. Equivalent Weight of a Metal	6	11. calculate the enthalpy of formation of a compound using Hess' law.
12. Enthalpy of Formation	6	12. conduct several titration experiments to develop techniques of the method.
13. Titration of Antacid	6	13. observe and analyze the emission spectra of selected gases with the use of the discharge tube and collect data which is used to crystallize the calculations done in the lecture.
14. Emission Spectra	6	14. inspect models to compare the structure of molecules.
15. Apparent Gram Molecular Weight of Air	6	
16. Molecular Geometry Using Models	9	
	6	
Total:	108	
Total Hrs In Protocol:	108	

1. (cont'd) SLO:

The student will.. (outcome)	As measured by the following method.. (assessment strategy)	And, if applicable, scored by the following learning rubric. (provide attachment)	Results are examined to determine if the outcome is achieved. Include planned or actual assessment date. (results & evaluation)	Recommendations to improve teaching and learning. (modifications)
(LECTURE) 1. demonstrate proficiency (70-80% meet expectation, >80% exceed expectation) in solving stoichiometry problems involving solutions, acids and bases, or gases.	1. embedded assessment in midterm exams and final exam.	NA	Fall 2010	
(LABORATORY) 1. calculate the apparent gram molecular weight of air. (at least 70% of students correctly solve problem)	1. embedded assessment in lab report.		Fall 2011	
SLO REVIEWED 12/12/09 GY				

2. REQUIRED TEXTS:

Provide a representative list of textbooks and other required reading; include author, title and date of publication:

Chemistry 10th ed., Chang, Raymond 2010; Customized Experimental General Chemistry, Marcus, Stanley T., 1999

3. READING ASSIGNMENTS:

Provide a representative list of textbooks and other required reading; include author, title and date of publication:

Additional reading assignments on spectra and molecular geometry are required.

4. WRITING ASSIGNMENTS:

Writing assignments, as required by Title 5, in this course may include, but are not limited to the following:

Laboratory Experimental Reports e.g., students determine % sulfate in a soluble sulfate unknown sample and write their results and conclusions and an explanation of possible errors.

5. REPRESENTATIVE OUTSIDE ASSIGNMENTS (HOMEWORK):

Out of class assignments (Homework) may include, but are not limited to the following:

Homework Assignments e.g., students answer word problems at the end of each chapter or problem set handouts.

6. REPRESENTATIVE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING:

Provide examples of assignments, as required by Title 5, that demonstrate critical thinking.

Homework Assignments and Laboratory Reports: using data obtained from lab experiments and chemical principles, students will assemble results and formulate conclusions in organized lab reports.

7. METHODS OF EVALUATION:

Title 5, section 55002 requires grades to be 'based on demonstrated proficiency in subject matter and the ability to demonstrate that proficiency, at least in part, by means of essays, or, in courses where the curriculum committee deems them to be appropriate, by problem solving exercises or skills demonstrations by students.' Methods of evaluation may include, but are not limited to the following (please note that evaluation should measure the outcomes detailed 'Course Objectives' at the beginning of Section II):

Quizzes, Pre-final Examinations, Laboratory Reports, Computer Assisted Instruction, Lecture and Laboratory Final Examination.

8. METHODS OF INSTRUCTION:

Please Check All That Apply

- Lecture
- Discussion
- Laboratory
- Activity
- Field Experience
- Independent Study
- Other (Please Explain)

9. SUPPLIES:

List the supplies the student must provide.

1. Bound Lab notebook with quadrille (graph) paper. 2. Scientific Calculator 3. Safety Goggles

10. COMPUTER COMPETENCY:

If applicable, explain how computer competency is included in the course.

Students will utilize computers for computer assisted instruction (CAI).

11. INFORMATION COMPETENCY:

If applicable, explain how information competency is included in the course.

Students will locate and evaluate appropriate information as needed for lab reports.

12. DIVERSITY:

If applicable, explain how diversity (e.g., cultural, gender, etc.) is included in the course.

13. SCANS COMPETENCIES:

(required for all courses with vocational TOP Codes; recommended for all courses)

SCANS (Secretary's Commission on Necessary Skills) are skills the Department of Labor identified, in consultation with business and industry leaders, which reflect the skills necessary for success in the workplace. Check the appropriate boxes to indicate the areas where students will develop the following skills (please note that all SCANS competencies do not apply to all courses):

RESOURCES

- Managing Time:** Selecting relevant goal-related activities, ranking them in order of importance, allocating time to activities, and understanding, preparing and following schedules.
- Managing Money:** Using or preparing budgets, including making cost and revenue forecasts; keeping detailed records to track budget performance, and making appropriate adjustments.
- Managing Material and Facility Resources:** Acquiring, storing, allocating, and distributing materials, supplies, parts, equipment, space or final products in order to make the best use of them.

INTERPERSONAL

- Participating as Member of a Team:** Working cooperatively with others and contributing to group's efforts with ideas, suggestions and effort.
- Teaching Others New Skills:** Helping others learn needed knowledge and skills.
- Exercising Leadership:** Communicating thoughts, feelings, and ideas to justify a position, encouraging, persuading, convincing or otherwise motivating an individual or group, including responsibly challenging existing procedures, policies or authority.

Negotiating: Working toward agreement that may involve exchanging specific resources or resolving divergent interests.

Working with Cultural Diversity: Working well with men and women and with people from a variety of ethnic, social, or educational backgrounds.

INFORMATION

Acquiring and Evaluating Information: Identifying a need for data, obtaining the data from existing sources or creating them, and evaluating their relevance and accuracy.

Organizing and Maintaining Information: Organizing, processing and maintaining written or computerized records and other forms of information in a systematic fashion.

Interpreting and Communicating Information: Selecting and analyzing information and communicating the results of others, using oral, written, graphic, pictorial, or multimedia methods.

Using Computers to Process Information: Employing computers to acquire, organize, analyze and communicate information.

SYSTEMS

Understanding Systems: Knowing how social, organizational and technological systems work and operating effectively with them.

Monitoring and Correcting Performance: Distinguishing trends, predicting impacts of actions on system operations, diagnosing deviations in the functioning of a system/organization, and taking necessary steps to correct performance.

Improving or Designs Systems: Making suggestions to modify existing systems in order to improve the quality of products or services and developing new or alternative systems.

TECHNOLOGY

Selecting Technology: Judging which sets of procedures, tools or machines, including computers and their programs, will produce the desired results.

Applying Technology to Tasks: Understanding overall intent and proper procedures for setting up and operating machines, including computers and their reprogramming systems.

Maintaining and Troubleshooting Equipment: Preventing, identifying, or solving problems with equipment, including computers and other technologies.

Section III: RELATIONSHIP TO COLLEGE PROGRAMS

1. THIS COURSE WILL BE AN APPROVED REQUIREMENT FOR AN APPROVED ASSOCIATE DEGREE OR CERTIFICATE PROGRAM: Yes

a. If yes, the course will be a **requirement** portion of the 'approved program' listed on the State Chancellor's Inventory of Approved Programs (approved programs can be found on the State Chancellor's Office website at <https://misweb.cccco.edu/webproginv/prod/invmenu.htm>)

Required for 'Associate in Science in Mathematics' (Program ID: 02882) Required for 'Associate in Science in Physics' (Program ID: 02883)

2. GENERAL EDUCATION REQUIREMENTS FOR THE ASSOCIATE DEGREE STATUS:

a. Area Requested: A. Natural Science

Approval Date:

If applicable, provide an explanation of how the course meets the General Education parameters for one of the five general education areas - Natural Sciences, Social and Behavioral Sciences, Humanities, Language and Rationality, Health and Physical Education -- contained in Board Rule 6201.14 -General Education Requirements. http://marlin.laccd.edu/district/BoardRules_AdmRegs/boardrules.htm

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b. Area Requested: None

Approval Date:

If applicable, provide an explanation of how the course meets the General Education parameters for one of the five general education areas - Natural Sciences, Social and Behavioral Sciences, Humanities, Language and Rationality, Health and Physical Education -- contained in Board Rule 6201.14 -General Education Requirements. http://marlin.laccd.edu/district/BoardRules_AdmRegs/boardrules.htm

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Section IV: ARTICULATION INFORMATION

(Complete in consultation with College Articulation Officer)

1. TRANSFER STATUS:

a. Transferable to the University of California: Yes b. UC Approval Date: 10/7/05	c. Transferable to the California State University: Yes d. College Approval Date: before 2000
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2. GENERAL EDUCATION FOR TRANSFER:

<p><i>IGETC Certification</i></p> <p>a. Area Requested: 5A : Physical Science b. Date Requested: 1/1/91 c. IGETC Approval Date: 1/1/91</p> <p>If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in IGETC Certification Guidelines.</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 10px;"></div>	<p><i>CSU Certification</i></p> <p>a. Area Requested: B1 : Physical Science b. Date Requested: 1/1/94 c. CSU Approval Date: 1/1/94</p> <p>If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in CSU Certification Guidelines.</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 10px;"></div>
<p>a. 2nd Area Requested: b. Date Requested: c. IGETC Approval Date:</p> <p>If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in IGETC Certification Guidelines.</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 10px;"></div>	<p>a. 2nd Area Requested: B3 : Laboratory Activity b. Date Requested: c. CSU Approval Date:</p> <p>If applicable, provide an explanation of how the course meets the appropriate General Education parameters, as defined in CSU Certification Guidelines.</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 10px;"></div>

3. MAJOR REQUIREMENT FOR TRANSFER:

Will this course be articulated to meet lower division major requirements?: Yes

List college/university and the majors:

CSUN, CSUDH Chemistry

CAN NUMBER: **CAN SEQUENCE #:**

CAN Approval -

Date requested: Date approved:

Section V: SUPPLEMENTAL COURSE INFORMATION

1. **DEPT/DIVISION NAME:** Natural Sciences, Health and Physical Ed

2. **DEPT/DIVISION CODE:** 07

3. **SUBJECT CODE:** 183

4. **SUBJECT ABBREVIATION:** CHEM

5. **RECOMMENDED MINIMUM QUALIFICATION AREA:**

6. **ABBREVIATION FOR TRANSCRIPTS:** GENERAL CHEMISTRY I

7. **DEGREE CREDIT:**

Indicate whether the course meet the 'standards for approval' for degree credit course set forth in Title 5, section 55002(a)(2), which requires the course to have a degree of intensity, difficulty, and vocabulary that the curriculum committee has determined to be at the college level: **Degree Applicable**

8. **GRADING METHOD:** LETTER GRADE

9. **REPETITIONS:** # of times repeated for credit: **0**

If this course is repeatable, explain how repetition of this course meets Title 5, section 55041(c)(2)(B):

10. **PRIOR TO TRANSFERABLE LEVEL:**

This course attribute applies to **English, Writing, ESL, reading and mathematics** courses ONLY. If applicable, indicate how many levels below the transferable level this course should be placed: **Not applicable**

11. **CREDIT BASIC SKILLS:**

Title 5, section 55000(j) defines basic skills as 'courses in reading, writing, computation, and English as a Second Language, which are designated as non-degree credit courses pursuant to Title 5, section 55002(b).': **No**

12. **CROSS REFERENCE:**

Is this course listed as equivalent in content to existing College/District courses in another discipline?: **No**

If Yes, list courses (documentation of cross-discipline agreement must be provided):

13. **COURSE SPECIFICALLY DESIGNED FOR STUDENTS W/ DISABILITIES:**

Title 5, section 56029 allows a course to be repeatable when continuing success of the students with disabilities is dependent on additional repetitions of a specific class. Is this course designated as an 'approved special class' for students with disabilities?: **No**

If yes, provide an explanation of how this course meets the requirements of Title 5, section 56029:

14. COOPERATIVE EDUCATION STATUS:

Title 5, section 55252 allows for two types of Cooperative Education: 1) General Work Experience Education -- i.e., supervised employment, which is intended to assist students in acquiring desirable work habits, attitudes and career awareness, which need not be related to the students' educational goals; or 2) Occupational Work Experience Education - - i.e., supervised employment, extending classroom based occupational learning at an on-the-job learning station, which is related to the students' educational or occupational goal. Is this course part of the college's approved cooperative work experience education program?: **No**

15. COURSE CLASSIFICATION: Liberal Arts and Sciences

Note: A course's Classification, TOP Code and SAM code must be aligned e.g., Courses with an 'Occupational' Course Classification must have an 'Occupational' TOP Code and a SAM Code of A, B, C, or D; courses that do not have an 'Occupational' Course Classification cannot have an Occupational TOP Code and must have an 'E' SAM Code. Courses coded as 'basic skills' in #11 should be coded 'Adult and Secondary Basic Skills.'

16. TOP CODE - (6 digits XXXX.XX): **1905.00**

Course content should match discipline description in Taxonomy of Programs found at <http://ecd.laccd.edu/TaxonomyOfPrograms.doccurriculum.htm>

17. SAM CODE (Student Accountability Model): **E**

18. FUNDING AGENCY CODE:

19. STATE COURSE ID:

Section VI: APPROVAL STATUS

1. APPROVAL STATUS:

		Approval Date Of	Board Date	Requested Effective Semester	Approved Effective Semester
a.	<input type="checkbox"/> New Course	College:	Board: 4/9/93	Effective Semester:	Effective Semester:
b.	<input type="checkbox"/> Addition of Existing District Course	College:	Board:	Effective Semester:	Effective Semester:
c.	<input type="checkbox"/> Course Change*	College:		Effective Semester:	Effective Semester:
d.	<input checked="" type="checkbox"/> Outline Update	College: 12/15/09			Effective Semester:
e.	<input type="checkbox"/> New Course	College:		Effective Semester:	Effective Semester:
f.	<input type="checkbox"/> New Course	College:	Board:	Effective Semester:	Effective Semester:

* Changes to a course require the completion of a 'Course Change Request' form and approval by the college's Curriculum Committee. In some cases districtwide approval is also required; see, Administrative Regulation E-65, section 3(c) for details.

Section VII: APPROVAL INFORMATION FOR NEW OR ADDED COURSES

(complete in consultation with Department Chair and the appropriate Academic Administrator)

1. **ORIGINATOR:** Toure, Pogban

2. **DEPARTMENT:** 07

3. **IF THIS IS A NEW COURSE, INDICATE HOW THE COLLEGE PLANS TO MEET THE EXPENSE OF THIS COURSE:**

By additional funds. Describe:

By deleting courses from the college catalog and course database. List specific courses to be deleted:

By deleting sections of existing course. List courses and number of sections to be deleted:

FIRST YEAR: SECOND YEAR: THIRD YEAR:

By rotating sections of existing courses. List courses and number of sections to be rotated, as well as the semesters in which they will be offered:

4. **IMPACT**

IMPACT -- Will this course directly impact other course offerings and/or associate degree or certificate programs on campus? No (If yes, briefly explain how)

5. **METHOD OF SUPPORT**

-- Indicate how the college plans to support the proposed course:

A. Additional staff -- List additional staff needed:

B. Classroom -- List classroom type needed:

C. Equipment -- List new equipment needed and indicate funding source for any new equipment:

D. Supplies- List supplies and indicate dollar value:

E. Library/Learning Resources- The course initiator shall consult with the College Librarian and review the college library, book, periodical, and electronic resource collections relevant to this course. List additional titles and resources to be considered for purchase as funding permits:

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CERTIFICATION AND RECOMMENDATION

- This course meets Title 5 requirements for Associate Degree applicable college credit towards an Associate Degree.
- This course meets Title 5 requirements but does not satisfy the requirements for an Associate Degree applicable course.

We certify that the information and answers above properly represent this course.

Originator	Date
Department/Cluster Chairperson	Date
Articulation Officer	Date
Librarian	Date
Dean (if applicable)	Date
Curriculum Committee Chairperson	Date
Academic Senate President	Date
Vice President, Academic Affairs	Date

Section VIII: ADDENDA

(Uploaded Documents)

Prerequisite Document	Content review for Chemistry 101.	<u>Chem101ContentReview09.doc</u>
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Addendum: PREREQUISITE, COREQUISITE OR ADVISORY CONTENT REVIEW**Prerequisite****All courses: Content Review Validation**

Provide evidence that skills and knowledge acquired in the proposed prerequisite course are necessary for student success in the course by completing the **Content Validation Table** below.

- List the skills or knowledge contained in the prerequisite course. (These items should be incorporated into the learning objectives of this course).
- List skills or knowledge necessary for students to succeed in the requisite course for which the Prerequisite is proposed.

Certified by:

Course Subject, Number, and Title: CHEM 51 AND MATH 125	Target Course Subject, Number, and Title: CHEM 101	
COLUMN 1: COURSE OBJECTIVES - EXIT SKILLS (List all exit skills, repeat if needed)	COLUMN 2: TARGET COURSE - ENTRY SKILLS (List all entry skills, repeat if needed)	Check box where match occurs or list the number(s) of the matching exit skills on the left
CHEM 51	CHEM 101	<input type="checkbox"/>
1. Perform conversions within the metric or English system, or between the metric and English systems.	1. Solve equations with one unknown	<input checked="" type="checkbox"/> 1, 6
2. Explain basic concepts of radioactivity	2. Be able to balance a chemical reaction equation.	<input checked="" type="checkbox"/> 6, 4
3. Identify factors affecting accuracy in a measurement	3. Use balanced reaction equations to determine quantities of reactants and products.	<input checked="" type="checkbox"/> 3,4, 6
4. Describe the atomic structure and the organization of the periodic table of the elements, and understand basic concepts of chemical bonding .	4. Be able to report data obtained from a measurement with the correct accuracy.	<input checked="" type="checkbox"/> 3
5. Demonstrate an understanding of gas behavior by solving problems relating P, V, T and n	5. Graph linear equations	<input checked="" type="checkbox"/> 10, 12
6. Perform calculations on solution concentrations and dilution.		<input type="checkbox"/>
7. Have a basic understanding of introductory organic chemistry		<input type="checkbox"/>
MATH 125		<input type="checkbox"/>
8. Set up and solve mathematical equations involving linear, quadratic, exponential, radical, and logarithmic		<input type="checkbox"/>

