I. CATALOG INFORMATION
   A. Discipline: CHEMISTRY
   B. Subject Code and Number: CHEM M01B
   C. Course Title: General Chemistry II
   D. Credit Course units:
      Units: 5
      Lecture Hours per week: 4
      Lab Hours per week: 3
      Variable Units: No
   E. Student Learning Hours:
      Lecture Hours:
      Classroom hours: 70 - 70
      Laboratory/Activity Hours:
      Laboratory/Activity Hours 52.5 - 52.5
      Total Combined Hours in a 17.5 week term: 122.5 - 122.5
   F. Non-Credit Course hours per week ________
   G. May be taken a total of:  X 1 2 3 4 time(s) for credit
   H. Is the course co-designated (same as) another course:  No  X  Yes
      If YES, designate course Subject Code & Number: ________
   I. Course Description:
      Studies of chemical kinetics; phase equilibria; equilibria in gases and solutions; acids and bases; solubility and complex ions; thermodynamics; electrochemistry; qualitative and quantitative chemical analyses; and an overview of nuclear chemistry, coordination chemistry, and organic chemistry. Addresses, through laboratory activities, chemical kinetics; equilibria; thermodynamics; spontaneous oxidation-reduction reactions and electrolysis; selective precipitation; titrations; and exposure to ultraviolet, infrared, and nuclear magnetic resonance spectroscopy.
   J. Entrance Skills
      *Prerequisite:  X  Yes  No  Course(s)
      CHEM M01A and MATH M05 and equivalent with a C or higher or
      *Corequisite:  X  Yes  No  Course(s)
      Limitation on Enrollment:  X  Yes  No
      Recommended Preparation:  X  Yes  No  Course(s)
### COURSE OBJECTIVES

Upon successful completion of the course, a student will be able to:

<table>
<thead>
<tr>
<th></th>
<th>Methods of evaluation will be consistent with, but not limited by, the following types or examples.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>determine how rates of chemical reactions are measured, written, and used to deduce probable reaction mechanisms as well as describe the transition state and collision theory of reactions that produce effective collisions.</td>
</tr>
<tr>
<td>2</td>
<td>write and solve equilibrium constant expressions for chemical reactions, calculate final equilibrium values of a reaction from a variety of initial conditions, and apply Le Chatelier's Principle to various mixtures.</td>
</tr>
<tr>
<td>3</td>
<td>state the general principles of Arrhenius, Bronsted-Lowry, and Lewis acid/base theories, explain the nature of the pH scale as well as perform a multitude of pH calculations, plot and analyze titration curves, solve quantitative buffer solution problems using the Henderson-Hasselbalch equation, calculate the value of all equilibrium species for a polyprotic acid, and predict the relative strengths of binary and oxoacids.</td>
</tr>
<tr>
<td>4</td>
<td>define solubility equilibria and use the law of mass action to write equilibrium expressions, perform equilibrium calculations involving the solubility product constant, predict if precipitates will form upon mixing ionic solutions of various concentrations, identify complex ions, write equilibrium formation and dissociation reactions, calculate equilibrium values for complex ion solutions, and calculate the solubility of slightly soluble solutes in solutions involving the formation of complex ions.</td>
</tr>
<tr>
<td>5</td>
<td>apply the principles of acid/base and solubility equilibria in quantitative and qualitative chemical analyses.</td>
</tr>
<tr>
<td></td>
<td>state and apply the First, Second, and Third Laws of</td>
</tr>
</tbody>
</table>

Other: **No** [X] **Yes** [ ]

K. Other Catalog Information:

C-ID: CHEM 120S
<table>
<thead>
<tr>
<th></th>
<th>Thermodynamics along with Hess’s Law, calculate heats of reactions using coffee-cup and bomb calorimeters, and quantitatively incorporate the concepts of work and internal energy.</th>
<th>applications (including written expression of results and conclusions), cumulative final exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>define entropy, Gibbs Free Energy, and calculate changes in entropy and Gibbs Free Energy in a chemical reaction for standard and nonstandard state conditions in order to determine overall spontaneity.</td>
<td>quizzes, examinations, laboratory-based applications (including written expression of results and conclusions), cumulative final exam</td>
</tr>
<tr>
<td>8</td>
<td>discuss the nature of standard reduction potentials and reference standard reduction potential tables to solve overall standard cell potentials for a galvanic cell; predict the effect of varying reactant and product concentrations and/or partial pressures on calculated cell voltages using the Nernst equation; define, describe, and diagram electrolytic cells, and apply Faraday’s law to calculate any unknown variable in a chemical change produced by a certain quantity of electrical charge.</td>
<td>quizzes, examinations, laboratory-based applications (including written expression of results and conclusions), cumulative final exam</td>
</tr>
<tr>
<td>9</td>
<td>correlate the combined concepts of equilibrium, free energy change, and cell potential.</td>
<td>quizzes, examinations, laboratory-based applications (including written expression of results and conclusions), cumulative final exam</td>
</tr>
<tr>
<td>10</td>
<td>distinguish between and note the properties of various organic compounds including functional group recognition, draw resonance structures for a molecule or ion and utilize the curved arrow formalism within a given mechanism, and identify major products in certain organic chemistry reactions.</td>
<td>quizzes, examinations, laboratory-based applications (including written expression of results and conclusions), cumulative final exam</td>
</tr>
<tr>
<td>11</td>
<td>describe the different types of nuclear radiation and decay, discuss and quantify radioactive decay rates and their half-life, calculate the energy associated with nuclear reactions, and compare and contrast the processes of nuclear fission and fusion.</td>
<td>quizzes, examinations, laboratory-based applications (including written expression of results and conclusions), cumulative final exam</td>
</tr>
<tr>
<td>12</td>
<td>conduct various quantitative and qualitative experiments with adherence to safety protocols, record observations and express numerical values appropriately, analyze acquired data, and formulate proper conclusions through written expression of results.</td>
<td>laboratory-based applications (including written expression of results and conclusions), cumulative final exam</td>
</tr>
</tbody>
</table>

http://www.curricunet.com/moorpark/reports/course_outline_html.cfm?courses_id=3219
# III. COURSE CONTENT

<table>
<thead>
<tr>
<th>Estimated %</th>
<th>Topic</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lecture (must total 100%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.00%</td>
<td>Chemical Kinetics: Rates of Chemical Reactions; Factors that Affect Reaction Rates; Rate Law and Elementary Reactions; Integrated Rate Equations; Collision Theory and Transition State Theory; Temperature Effects; Activation Energy and the Arrhenius Equation; Reaction Mechanisms; Effect of Catalysts</td>
<td>1, 12</td>
</tr>
<tr>
<td>10.00%</td>
<td>Principles of Chemical Equilibrium: Process of Dynamic Equilibrium; Mass Action Expression; Equilibrium Constant and Reaction Quotient; $K_c$ and $K_p$; Le Chatelier's Principle</td>
<td>2, 12</td>
</tr>
<tr>
<td>16.00%</td>
<td>Acid-Base Equilibrium: Arrhenius, Bronsted-Lowry, and Lewis Theories; Ionization of Water and the pH Scale; Strong and Weak Electrolytes; Molecular Structure and Acid-Base Properties; Weak Acid and Base Equilibria; Acid-Base Properties of Salt Solutions; Common-Ion Effect; Buffer Solutions and the Henderson-Hasselbalch Equation; Acid-Base Indicators; Titration Curves; Polyprotic Acids</td>
<td>3, 12</td>
</tr>
<tr>
<td>8.00%</td>
<td>Solubility and Complex Ion Equilibria: Solubility and the Solubility Product; Common-Ion Effect and Solubility; Solubility and pH; Complex Ion Equilibria; Solubility and Complex Ions; Selective Precipitation and Qualitative Analysis</td>
<td>4, 5, 12</td>
</tr>
<tr>
<td>14.00%</td>
<td>Chemical Thermodynamics: Review of the First Law of Thermodynamics; Hess's Law; Spontaneous Processes; Entropy; Second Law of Thermodynamics; Third Law of Thermodynamics; Gibbs Free Energy and its Applications to Equilibrium and Nonstandard Conditions.</td>
<td>6, 7, 9, 12</td>
</tr>
<tr>
<td>14.00%</td>
<td>Electrochemistry: Review Oxidation-Reduction Reactions and Concepts; Voltaic or Galvanic Cells; Standard Half-Cell and Cell Potentials; Concentration Effects and the Nerst Equation; Faraday's Law and Electrolysis; Batteries and Fuel Cells; Corrosion</td>
<td>7, 8, 9, 12</td>
</tr>
<tr>
<td>8.00%</td>
<td>Nuclear Chemistry: Radioactivity; Patterns of Nuclear Stability; Types and Rates of Decay; Energy Changes in Nuclear Reactions; Fission and Fusion.</td>
<td>11</td>
</tr>
<tr>
<td>6.00%</td>
<td>Coordination Compounds: Nomenclature and Properties</td>
<td>13</td>
</tr>
<tr>
<td>6.00%</td>
<td>Introduction to Organic Chemistry: Structure and Nomenclature of Alkanes, Alkenes, Alkynes, Cyclic, and Aromatic Compounds; Functional Group Recognition; Reactions</td>
<td>10, 12</td>
</tr>
<tr>
<td><strong>Lab (must total 100%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00%</td>
<td>Safety in the laboratory</td>
<td>12</td>
</tr>
<tr>
<td>Percent</td>
<td>Topic</td>
<td>Subtopics</td>
</tr>
<tr>
<td>---------</td>
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<td>-----------</td>
</tr>
<tr>
<td>14.00%</td>
<td>Kinetics experiments such as: Iodination of Acetone; Iodine Clock Reaction.</td>
<td></td>
</tr>
<tr>
<td>16.00%</td>
<td>Equilibrium experiments such as: Equilibrium constant of FeSCN2+; Solubility Constant of PbI2; Determination of Ka of an Unknown Acid</td>
<td></td>
</tr>
<tr>
<td>14.00%</td>
<td>Thermodynamics experiments such as: Calorimetry; Hess's Law; Bomb Calorimetry</td>
<td></td>
</tr>
<tr>
<td>14.00%</td>
<td>Electrochemistry experiment labs such as: Electrochemical Cells; Determination of Equivalent Mass by Electrolysis</td>
<td></td>
</tr>
<tr>
<td>18.00%</td>
<td>Qualitative analysis Labs such as: Identification of unknown Group I cations; Identification of Main Group and Transition Metal Cations; Identification of Common Anions</td>
<td></td>
</tr>
<tr>
<td>5.00%</td>
<td>Graphing and statistics in such labs as: Iodine Clock Reaction; Colorimetric Determination of [Co+2]; Graphing and Statistics Workshop</td>
<td></td>
</tr>
<tr>
<td>6.00%</td>
<td>Synthesis and characterization of an organic compound in such labs as: Synthesis and Characterization of Aspirin</td>
<td></td>
</tr>
<tr>
<td>8.00%</td>
<td>Spectroscopy: spectrophotometer, IR, NMR in such labs as: Introduction to IR and NMR Spectroscopy</td>
<td></td>
</tr>
</tbody>
</table>

**IV. TYPICAL ASSIGNMENTS**

**A. Writing assignments**

Writing assignments are required. Possible assignments may include, but are not limited to:

1. problem solving exam questions.
2. essay and short exam questions.
3. describe observations and answer questions from laboratory experiments.
4. write formal laboratory reports.
5. reflect on readings from the newspaper, journal articles, and/or Internet sources.

**B. Appropriate outside assignments**

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:

1. read material from the textbook and laboratory manual.
2. homework problems selected from the textbook.
3. additional problem sets provided by the instructor.
readings from the newspaper, journal articles, and/or Internet sources.

C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:

1. class discussions on select example and homework problems.

2. describe and apply a series of steps for obtaining the solution to quantitative chemical problems.

3. compare and contrast different methods of solution to a particular problem.

4. apply chemical principles to discuss various environmental and consumer issues such as air pollution, toxic wastes, energy sources, etc.

V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

- Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)
- Lecture/Discussion
- Laboratory/Activity
- Other (Specify) student group work, online tutorials, homework, and study aids, oral presentations by students

Optional Field Trips
- Required Field Trips

VI. METHODS OF EVALUATION

Methods of evaluation may include, but are not limited to:

- Essay Exam
- Problem Solving Exam
- Objective Exams
- Classroom Discussion
- Reports/Papers/ Journals
- Other (Specify) Participation
- Skill Demonstration
- Projects
- Online homework and assignments such as through the publisher website MasteringChemistry.
VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS


VIII. STUDENT MATERIALS FEES

☐ No  ☐ Yes

IX. PARALLEL COURSES

<table>
<thead>
<tr>
<th>College</th>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>UC Berkeley</td>
<td>CHEM 1B</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>UC Santa Barbara</td>
<td>CHEM 1B&amp;1BL and 1C&amp;1CL</td>
<td>General Chemistry and General Chemistry Laboratory</td>
<td>3/2 and 3/2</td>
</tr>
<tr>
<td>CSU Northridge</td>
<td>CHEM 102 &amp; 102L</td>
<td>General Chemistry II and General Chemistry II Lab</td>
<td>4 &amp; 1</td>
</tr>
<tr>
<td>San Diego State Univ.</td>
<td>CHEM 201</td>
<td>General Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>CSU Long Beach</td>
<td>CHEM 111B</td>
<td>General Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>CSU Channel Islands</td>
<td>CHEM 122</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
</tbody>
</table>

X. MINIMUM QUALIFICATIONS

Courses Requiring a Masters Degree:
Master’s in chemistry OR Bachelor’s in chemistry or biochemistry AND Master’s in biochemistry, chemical engineering, chemical physics, physics, molecular biology, or geochemistry OR the equivalent.

XI. ARTICULATION INFORMATION

A. Title V Course Classification:
   1. This course is designed to be taken either:
      ☐ Pass/No Pass only (no letter grade possible); or
      ☒ Letter grade (P/NP possible at student option)

   2. Degree status:
      Either ☒ Associate Degree Applicable; or ☐ Non-associate Degree Applicable

B. Moorpark College General Education:
   1. Do you recommend this course for inclusion on the Associate Degree General Education list?
      Yes: ☒ No: ☐ If YES, what section(s)?
      ☐ A1 - Natural Sciences - Biological Science
      ☒ A2 - Natural Sciences - Physical Science
      ☐ B1 - Social and Behavioral Sciences - American History/Institutions
C. California State University (CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU? Yes: [X] No: 

2. If YES do you recommend this course for inclusion on the CSU General Education list?
   Yes: [X] No: 
   If YES, which area(s)?
   C1 [ ] C2 [ ] D1 [ ] D2 [ ] D3 [ ] D4 [ ] D5 [ ]
   D6 [ ] D7 [ ] D8 [ ] D9 [ ] D10 [ ] E [ ]

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC? Yes: [X] No: 

2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)? Yes: [X] No: 

   IGETC Area 1: English Communication
   - [ ] English Composition
   - [ ] Critical Thinking-English Composition
   - [ ] Oral Communication

   IGETC Area 2: Mathematical Concepts and Quantitative Reasoning
   - [ ] Mathematical Concepts

   IGETC Area 3: Arts and Humanities
   - [ ] Fine Arts
   - [ ] Humanities

   IGETC Area 4: Social and Behavioral Sciences
   - [ ] Anthropology and Archaeology
   - [ ] Economics
   - [ ] Ethnic Studies
   - [ ] Gender Studies
   - [ ] Geography
A. Sequential course within a discipline.

1. analyze and apply the scientific method to chemistry problems, including developing a hypothesis, hypothesis testing, evaluation, and modeling; list the basic units of measurement in the metric and English systems, perform unit conversions within and between systems, and express results appropriately with significant figures and in scientific notation; classify matter, distinguish between physical/chemical changes and properties, and comprehend the principles of chemical

XII. REVIEW OF LIBRARY RESOURCES

A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:
Periodical readings and journal article research using the Library's print and online resources.

B. Are the currently held library resources sufficient to support the course assignment?

YES: ☑ NO: 

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

Requisite Justification for CHEM M01A

X A. Sequential course within a discipline.

1. analyze and apply the scientific method to chemistry problems, including developing a hypothesis, hypothesis testing, evaluation, and modeling; list the basic units of measurement in the metric and English systems, perform unit conversions within and between systems, and express results appropriately with significant figures and in scientific notation; classify matter, distinguish between physical/chemical changes and properties, and comprehend the principles of chemical
reactions and energy relationships.

2. use dimensional analysis to perform mathematical conversions and solve problems involving stoichiometry, thermochemistry, quantum mechanics, solids, liquids, gases, and solutions.

3. identify the symbols of common elements, the structures of molecules and ions; name/write formulas for various elements, acids, salts, bases and inorganic compounds as well as simple organic compounds.

4. write balanced molecular, ionic, and net-ionic equations for synthesis, decomposition, combustion, single-replacement, double-replacement, and oxidation-reduction reactions; identify the various types of electrolytes and their behavior in chemical reactions.

5. solve stoichiometry and solution concentration problems involving limiting reactants, theoretical and percent yields, dilutions, titrations, gases, liquids, solids, and colligative properties.

6. state the various gas laws, their historical development and applications, the postulates and mathematical relationships of the kinetic molecular theory of gases, why real gases differ from ideal gases; quantify real gas behavior via the van der Waals equation.

7. explain and solve thermochemistry problems by considering potential and kinetic energies, internal energy, specific heat and specific heat capacity, calorimetry, the First Law of Thermodynamics, and Hess's Law.

8. describe the quantum mechanical model and construct the historical development of the nuclear atom; explain the nature of atomic spectra and Bohr's model; conceptualize and utilize the Planck-Einstein equation, Rydberg equation, de Broglie equation, and the Heisenberg Uncertainty Principle; state and apply the quantum numbers to wave mechanics; apply the Aufbau principle to writing electron configurations; account for trends in chemical periodicity involving atomic and ionic radii, ionization energy, metallic character, electron affinity, and electronegativity.

9. identify the different types of chemical bonding; apply Lewis and VSEPR theories to draw structures and shapes, label electronic geometries, molecular geometries, and bond angles, and predict polarities for molecules and ions including resonance and structural isomers; understand and incorporate the use of Valence Bond Theory to explain and identify various hybridizations; explain the fundamental basis of Molecular Orbital Theory for diatomic species to predict electron configurations, bond orders, and magnetic properties.

10. list and describe the distinguishing characteristics of solids, liquids, gases, and solutions.

11. conduct various quantitative and qualitative experiments with adherence to safety protocols, record observations and express numerical values using appropriate significant figures, analyze acquired data, apply statistical analysis and formulate proper conclusions through written expression of results.
12. define and describe the different types of intermolecular forces and their effects on matter; calculate the energy involved with temperature and phase changes; construct and interpret phase diagrams for different substances; identify unit cells for crystalline solids.

13. perform calculations using concentration terms that include molarity, molality, normality, parts per million, and percent by mass; understand what affects solubilities and the concepts of colligative properties, perform quantitative calculations, and make qualitative comparisons; explain the liquid-vapor equilibrium and its effect on colligative properties; describe the behavior of electrolytes and nonelectrolytes in solution.

☐ B. Standard Prerequisite or Corequisite required by universities.

☐ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation. Code Section: __________

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

☐ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

and

Requisite Justification for MATH M05

☐ A. Sequential course within a discipline.

☒ B. Standard Prerequisite or Corequisite required by universities.

CSU Long Beach

☐ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation. Code Section: __________

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.
and safety.

☐ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

and

Requisite Justification for equivalent with a C or higher

☐ A. Sequential course within a discipline.

☐ B. Standard Prerequisite or Corequisite required by universities.

☐ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation.
   Code Section: _________

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

☒ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

or

XIV. WORKPLACE PREPARATION

CHEM M01B: Not Applicable

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

1. Mode of Delivery
   □ Online (course will be delivered 100% online)
   □ Online with onsite examinations (100% of the instruction will occur online, but examinations and an orientation will be scheduled onsite)
   ☒ Online/Hybrid (a percentage of instruction will be held online and the remaining percentage of instruction will be held onsite)
   ☒ Lab activities will be conducted onsite
   □ Televideo (Examinations and an orientation will be held onsite)
   □ Teleconference
2. Need/Justification

Improve general student access.

3. Describe how instructors teaching this course will ensure regular, effective contact with and among students.

Onsite (40%) - Students will require an online orientation as well as introduction to the course; three to four written examinations plus cumulative final exam will be administered; hands-on laboratory and discussion activities.

Online (60%) - Instructor homepage will contain all lecture notes and supplementary handouts along with practice quiz/exam problems, course discussion board and/or chatroom, and class-wide emails as well as emails to individual students.

4. Describe how instructors teaching this course will involve students in active learning.

Instructors will have regular contact with students through onsite laboratory and discussion activities to monitor student progress, address student questions, and guide student learning in person. Instructor will also take advantage of online resources (email, discussion boards, etc.) to maintain direct contact with enrolled students when not in the classroom, answer student questions, and provide feedback to students.

5. Explain how instructors teaching this course will provide multiple methods of content representation.

In addition to online contact, instructors will have regular contact in the laboratory and discussion sections. As such, students will be given hands-on access to material in addition to visual access online. Instructors may also choose to include audio and video files to supplement lecture material online.

6. Describe how instructors teaching this course will evaluate student performance.

Student grades will be evaluated similar to a traditionally taught course including quizzes (15%), online participation and discussion questions (10%), examinations (50%), laboratories (20%), and reports/papers (5%).

XVI. General Education Course Outline Addendum

General Education Division of Learning [check all applicable boxes]:

- [X] Natural Sciences
- [ ] Biological Science
- [X] Physical Science
- [ ] Social and Behavioral Sciences
- [ ] American History/Institutions
- [ ] Other Social Science
- [ ] Humanities
- [ ] Fine or Performing Arts
Check either Option 1 or Option 2

X Option #1: Moorpark College has already received approval from the CSU and/or UC systems for this course to fulfill a GE requirement. Note: This option applies only to technical revisions and updated courses.

☐ Option #2: Moorpark College has not received approval from the CSU and/or UC systems for this course to fulfill a GE requirement. This option applies to all new and substantively revised courses.

XVII. Student Materials Fee Addendum
CHEM M01B: Not Applicable

XVIII. Repeatability Justification Title 5, Section 55041
CHEM M01B: Not Applicable

XIX. CURRICULUM APPROVAL
A. Course Information:
   1. Discipline: CHEMISTRY
   2. Discipline Code and Number: CHEM M01B
   3. Course Revision Category: Outline Update

B. Course Proposed By:
   1. Originating Faculty: Deanna Franke 10/30/2012
   2. Faculty Peer: Robert Keil 10/31/2012
   4. Department Chair: Robert Keil 10/31/2012
   5. Division Dean: Lisa Miller 10/31/2012

C. Approved By:
   Curriculum Chair: Mary Rees 12/07/2012
   Executive Vice President: Jane Harmon 11/20/2012
   Articulation Officer: Letrisha Mai 11/13/2012
   Librarian: Mary LaBarge 11/13/2012

D. Implementation Term and Year: Fall 2013
E. Approval Dates:
   1. Approved by Moorpark College Curriculum Committee: 12/04/2012
   2. Approved by Board of Trustees (if applicable): _________
   3. Approved by State (if applicable): _________