Enrollment: Waitlisted students or others enroll through add codes given by the instructor during the second week of classes if seats become available. Priority is given to those attending from the waitlist. Use the add code quickly, it will expire. Keep checking online for a spot on a waitlist during the first week of classes. Pay for classes the day you enroll to avoid being dropped.

Class meets:
- Lecture 10:00 am- 11:50 am Mon/Wed PS-110
- Lab CRN 30706 12:00noon-2:50pm Mon PS-104
- Lab CRN 39582 12:00noon-2:50pm Wed PS-104

Office Hours: Mon, Wed; 8:30-9:50 am, Tues, Thurs; 8-8:50 am, office location PS 125. Feel free to ask for help or schedule other times.

Contacts:
- Instructor: Deanna Franke, 805-553-4646, PS 125, dfranke@vcccd.edu
- Department Chair: Robert Keil rkeil@vcccd.edu
- Dean: Howard Davis, HSS 114, mcscistuengmt@vcccd.edu

Description:
Study 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. Laboratory activities address chemical kinetics; equilibria; thermodynamics; spontaneous oxidation-reduction reactions and electrolysis; selective precipitation; titrations; and exposure to ultraviolet, infrared, and nuclear magnetic resonance spectroscopy.

Prerequisite:
Course(s) CHEM M01A and MATH M05 or equivalent

Materials:
Chemistry: A Molecular Approach, Tro, 4th edition, Pearson, Prentice Hall, with MasteringChemistry access code or you may purchase the MasteringChemistry directly through the publisher’s website. Chem 1B Lab Manual, Dept. of Chemistry at Moorpark College, Safety Glasses, and Scientific Calculator with exponential and logarithmic functions (no cell phones, graphing, programmable calculators allowed during tests/quizzes

Class Rules:
Turn off/silence cell phones during lecture. Use of a computer during lecture is discouraged as it distracts those behind you. Phones, graphing or programmable calculators are not allowed during tests and quizzes (use scientific calculator). Be attentive in class. Appropriate participation is expected and encouraged. Disruptive behavior may result in losing points, being asked to leave for the day and/or a BIT form to add to your college record. All smoking is banned on campus, this ban covers all forms of smoking including e-cigarettes.

Academic Dishonesty: “Moorpark College takes academic honesty very seriously. Instructors accordingly, have the responsibility and authority for dealing with instances of cheating or plagiarism that may occur in their classes…. Academic dishonesty, in any form, is a violation of the Moorpark College Student Code of Conduct…. and, as such, is subject to investigation, charges of misconduct, and disciplinary consequences.”(Moorpark College Catalog). Students who are caught cheating will receive a score of zero (0) on that specific assignment or exam. The student may also be suspended from class until he or she has met with the Division Dean. The instance may also be reported to the Dean of Student Conduct. The Student Code of Conduct is available online at www.moorparkcollege.edu/catalog.
ACCESS: Students with a disability, whether physical, learning, or psychological, who believe they will need accommodations in this class, are encouraged to contact ACCESS as soon as possible so accommodations can be set up in a timely fashion. Accommodations are based on eligibility and can only be provided if you have submitted verification from ACCESS in the form of a Confidential Memo. The ACCESS office can be reached at (805) 378-1461 and is located in the LMC.

TLC: Students are encouraged to use The Math and Writing Centers to support academic efforts, located on the third floor of the Library Learning Resources building. mcmc@vcccd.edu. Additionally, tutors are needed for lower chemistry/math courses and you are encouraged to apply to become a tutor.

Emergencies: During this semester there may be an emergency drill or disaster. Take a few moments to inspect the disaster plan map in the classroom. Follow the instructions of your instructor. Do not leave the class group or campus until you get the OK to do so.

Honors: Students above 3.25 High School GPA or 3.00 College GPA with 12 units of transferable courses, and are highly motivated, and intrigued with academic challenge, are encouraged to join the Moorpark College Honors Program. To learn more go to http://www.moorparkcollege.edu/departments/student-services/honors-program

More: Moorpark College has a great deal to offer: Clubs, Transfer and Scholarship information, Veterans and Foster Youth liaisons, FoodShare, Health Center, Wellness and Mental Health, Honors Program, Title IX, Clery act, and much more. Please take time to learn more.

Websites: Both www.moorparkcollege.edu/dfranke and the course D2L have the class notes www.masteringchemistry.com Chemistry homework assignments and support www.moorparkcollege.edu/departments/academic/chemistry. Chemistry department website has information: course objectives, student learning outcomes, our chemistry department and instructors, and links.

IMPORTANT DATES
Jan 9-13; Week 1: program adjustment; waitlist still available
Jan 16; Martin Luther King Jr. Holiday: campus closed
Jan 16-20; Week 2: program adjustment; waitlists are closed, use add codes
Jan 20; Last day to drop with refund or credit and use add codes
Jan 27; Last day to drop without a W
Feb 17-20; President’s Day Holiday: campus closed
Mar 9 @ noon; Graduation and certificate petition deadline
Mar 13-19; Spring Break: no classes
Apr 20-21; Faculty self-assigned flex day: no classes
Apr 21; Last day to drop without a "W" appearing on your transcript
May 15-19; Final Exams; May 15, Monday 10:15am
May 18 @ 6:00pm; Moorpark College Graduation Ceremony
**College Attendance policy:** “When a student’s absence exceeds in number 1/9 of the total class contact hours for the session (e.g., absence from a semester-long class equal to twice the number of hours the class meeting in one week), the instructor may, after due warning, drop the student from the class.” (Moorpark College Catalog 2014-2015, p. 24). It is your responsibility to regularly come to class. You may be dropped after missing the first day or the equivalent of two weeks, but remember it is your responsibility to officially drop any class you stop attending.

**LECTURE TOPICS**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
<th>Test Day</th>
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</thead>
<tbody>
<tr>
<td><strong>Unit I</strong></td>
<td>Ch. 14 Chemical Kinetics</td>
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<tr>
<td></td>
<td>Ch. 15 Chemical Equilibrium</td>
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<td></td>
<td>Ch. 16 Acids and Bases (Ch. 4 Review Section 4.4-4.8)</td>
<td>Feb 13 (130 pts)</td>
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<tr>
<td><strong>Unit II</strong></td>
<td>Ch. 17 Aqueous Ionic Equilibria</td>
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<td></td>
<td>Ch. 6 Thermochemistry</td>
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<td>Ch. 18 Free Energy and Thermodynamics</td>
<td>Apr 3 (130 pts)</td>
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<tr>
<td><strong>Unit III</strong></td>
<td>Ch. 19 Electrochemistry (Ch. 4 Review Section 4.9)</td>
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<td>Ch. 20 Radioactivity and Nuclear Chemistry</td>
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<td></td>
<td>Ch. 21 Organic Chemistry</td>
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<tr>
<td></td>
<td>Ch. 25 Transition Metals and Coordination Compounds</td>
<td>May 8 (130 pts)</td>
</tr>
</tbody>
</table>

**Cumulative final exam:** May 15, Monday 10:15 am (160 pts)

**GRADING POLICY:** *There is only one grade that includes lecture and lab, you must attend both.*

Your grade in Chemistry 1B will be determined by your performance on:

- Quizzes ............................................................ (15%)
- MasteringChemistry online assignments ................................ (10%)
- Laboratory ........................................................... (20%)
- Exams ................................................................. (39%)
- Cumulative Final................................................... (16%)

**GRADE SCALE**

The grade is based on the total 1000 scaled points: 90-100% = A; 80-89.5% = B; 70-79.5% = C; 60-69.5% = D; less than 60% = F.

**QUIZZES 15% (150 points)**

Two quizzes will be given in each of the three units (6 quizzes overall, 30 points each). There are no make-ups on quizzes. *Your lowest quiz score is dropped.* The purpose for quizzes is to identify weak areas, prepare you for exams, and ensure you keep up with the class information and assignments.

**MASTERINGCHEMISTRY ONLINE ASSIGNMENTS 10% (scaled to 100 points)**

Mastering Chemistry online assignments earn points and have specific due dates that you must watch. Recommended homework and unit reviews also assist your learning.

**LAB GRADE, FORMAL LAB REPORT 20% (200 points)**

Eye Protection is mandatory in lab. Labs are required to get a passing grade in the course. Arrangements to make-up labs are not guaranteed but are possible if available in another class. Safe laboratory work and the hands on learning is an important part of chemistry, **missing three regular labs or not writing a formal lab report is unacceptable and will drop your final class grade by one letter** (an A for the class will become a B).
UNIT EXAMS 39% (390 points)
Problem exams add up to 390 points during the semester. Work must be shown to support answers. An alternative exam time will be allowed only for great reasons with pre-approved requests before the time of the test. Contact the instructor before the test time: make prior arrangements or leave a message through email (dfranke@vcccd.edu) or voice mail (378-553-4646) ASAP if you must miss an exam period.
If you fail or skip a test, the grade of only one test may be raised up to 60%, by working out all the questions missed on the exam and scheduling a one on one office appointment with the instructor to go over the exam BEFORE the next test. Chemistry is a cumulative science and everything is important therefore, ALL THREE EXAMS ARE USED TO DETERMINE YOUR FINAL GRADE.

FINAL EXAM 16% (160 points)
The final exam is comprehensive and multiple choice using a special feedback scantron sheet provided by the instructor. You may bring in one 8 1/2 x 11 inch sheet of paper with formulas/notes. This page cannot have anything stapled, glued or otherwise attached to it or it will be confiscated. A periodic table will be provided for you during the final.

BONUS Up to 3%: Attend a science lecture (a guest speaker at Moorpark, CSUN, UCLA, CLU etc) or science field trip (Griffith Observatory, California Science Center, etc.) and write about what you learned; 10 pts, can be done two times. Work on textbook chapter bonus problems and turn in the work the day of the test for each unit. (1 point per chapter completed, 10 pts)

Studying Chemistry:
If you registered for this class you met the background prerequisites in chemistry and math. During this semester, you, the student, should take responsibility for your learning by doing the following:

(a) Begin: Read the textbook chapter outline, skim the pages to get a general idea of the material, look over the terms, summary & skills.
(b) Read the textbook before the lecture on the material and a second time after the lecture.
(c) Take notes and participate during class. Read, correct, work out examples & expand notes using the book or other people in class. Print current notes from website www.moorparkcollege.edu/dfranke
(d) Work example problems in the chapter. Try it first covering the solution, if you are stuck look over the strategy and solution and try again. Do not assume you can do the problem just because you have read the answer. Write out and calculate the answer.
(e) Keep up with online MasteringChemistry assignments.
(f) Ask questions when you are unclear on a concept or problem.
(g) Work fairly independently in lab. Find the relationships between lecture concepts and lab experiments. It is fine to talk to other students in lab, but the experiments should be your own. Lab partners should work equally and be aware and involved in all parts of each experiment.
(h) Form study groups. Discuss concepts and problems with others to assist and encourage learning.
(i) Work out on paper chapter problems until you feel comfortable with the material.
(j) You are responsible for material that is covered even when you miss class. Talk with the instructor, or a fellow student to catch up.
(k) Seek help early, free tutoring and learning skills are available.
Online Homework

1. Register for MasteringChemistry  Choose the correct textbook, 4th ed Tro, Chemistry: A Molecular Approach

Go to www.masteringchemistry.com and click New Students under Register.

- To register using the Student Access Code located inside the MasteringChemistry Student Access Kit, click Yes, I have an access code. – OR –
  - Purchase access online: Click No, I need to purchase access online now and follow the on-screen instructions to purchase access using a credit card or other method.

Do you have a Pearson Education account?

- Yes - Enter your established Login Name and Password, even if your access to another Pearson Education website has expired. If you provide this, you may be asked to create a more secure password later.
- No - You will be asked to specify a Login Name and Password, and then to confirm your password by retyping it.
- Not Sure - Enter the email address associated with your Pearson Education student account and click Search.

Access Code

- Type your six-part student access code, one part in each box. Don’t type the dashes. Once you register for this site, you will not need this access code any longer.

Personal Information and Security Information

- Enter your first and last name, as well as a valid email address that you check regularly. Your registration confirmation will be sent to the email address you provide.
- Enter the requested information to help identify your school location.
- Select a security question and enter the answer. This question is used in the event that you contact us and your identity must be confirmed.

Click Next (only once!) to submit your registration for processing, which takes just a few moments.

Confirmation & Summary

A confirmation page informs you of the site(s) you have access to and that you will be receiving a confirmation email. The confirmation email contains your login name and password for your reference. Your subscription to MasteringChemistry is good for 24 months from the time you first register.

2. Log in to MasteringChemistry

Log in to MasteringChemistry as follows:

- If you are continuing from the Confirmation & Summary page (from last step in previous section): Click Log In Now.
- If you have left the Confirmation & Summary page, you can log in later: Go to www.masteringchemistry.com, enter your login name and password, and then click Log In.

3. Enroll in your instructor’s MasteringChemistry course. Course ID: MCFRANKE1BSPRING17

Log in to MasteringChemistry and enter your instructor specified Course ID and Student ID. Doing so enrolls you in your instructor’s MasteringChemistry course so that you can view class assignments.

Join Course

- Enter the Student ID according to instructions from your instructor.
- Enter your instructor–provided Course ID. The Course ID field is not case-sensitive, so you can enter either lowercase or uppercase characters. Make sure you type in the exact Course ID the professor gave you so that you enroll in the correct online course. If you get an error message, please confirm with your instructor that he or she has enabled student enrollment for this course.
  - Course ID for Spring 2017 Chemistry 1B is MCFRANKE1BSPRING17
- Click Save and OK to view your MasteringChemistry course home page, welcoming you to the online course. The next time you log in, you will go directly to your home page for the course.

4. Go to www.masteringchemistry.com for information on… System Requirements and Support
### Chem 1B Lab Schedule (Franke)  PS104  Spring 2017

**Sections**: 12:00noon-2:50pm  30706 Mon/39582 Wed  PS-104  
**Supplies**:  *Required* - Eye Protection, Calculator and Chemistry 1B Lab Manual / *Optional* - lab coat  
**Come Prepared**: Read the Lab and Work on advanced study assignment before class  
200 pts total/ 20% of overall grade as shown below

<table>
<thead>
<tr>
<th>Mon 30706</th>
<th>Wed 39582</th>
<th>Lab</th>
<th>Title</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 9</td>
<td>Jan 11</td>
<td>Error analysis</td>
<td>Check in, Safety, Orientation, Error Analysis, Statistics and Graphing Workshop</td>
<td>5</td>
</tr>
<tr>
<td>Jan 16*</td>
<td>Jan 18</td>
<td>Ex. 4</td>
<td>Chemical Kinetics: Iodination of Acetone (*Mon lab, paper data given)</td>
<td>10</td>
</tr>
<tr>
<td>Jan 23</td>
<td>Jan 25</td>
<td>Ex. 5</td>
<td>Chemical Kinetics: Iodine Clock Reaction</td>
<td>10</td>
</tr>
</tbody>
</table>
| Jan 30    | Feb 1     | Ex 6 Paper | Colorimetric Determination of Co^{2+}  
*How Do Scientists Report Data? Review two formal lab reports* | 10 |
| Feb 6     | Feb 8     | Ex 7 | Determ. of Equilibrium Constant for the formation of FeSCN^{2+}  
*Monday additionally assigned part 2 of expt 9 to prepare for test 2/13* | 10 |
| Feb 13    | Feb 15    | Ex 9a +Mon10 | pH Measurements, Determination of the Equivalent Mass and Ka, salts (parts 1 & 2) and Mon lab...Qual analysis: Group 1 Cations | 10 |
| Feb 13    | Feb 20*   | Feb 22 Ex 10 | Qual analysis: Group I Cations  
Feb 20* is a holiday. | 8 |
| Feb 27    | Mar 1     | Ex 9b | pH Measurements, Determination of the Equivalent Mass and Ka (parts 3,4 & 5) | 10 |
| Mar 6     | Mar 8     | Ex 1 Ex 2 | Calorimetry: Heat of Solution  
Hess’ Law: Heat of Formation MgO | 8 |
| Mar 13    | Mar 15    | Spring Break; No Classes | | |
Qualitative Analysis of Common Anions | 8 |
| Mar 27    | Mar 29    | Ex 8 | Solubility, K_p, Common Ion Effect and \( \Delta H_{solv} \) of KHP  
*Write a Complete Formal Report*  
*Due April 12* | 10 |
| Apr 3     | Apr 5     | Ex 11 | Qual Analysis: Main Group & Transition Metal Cations: known  
*Discuss formal lab report expectations on Ex 8* | 6 |
| Apr 10    | Apr 12    | Ex 11 | Qual Analysis: Main Group & Transition Metal Cations: unknown | 9 |
| Apr 17    | Apr 19    | Ex 13 | Electrochemical Cells | 10 |
| Apr 24    | Apr 26    | Ex 14 | Determination of Equivalent Mass by Electrolysis | 10 |
| May 1     | May 3     | Ex 15 | Synthesis and Characterization of Aspirin Lab and check out | 9 |
| May 8     | May 10    | Ex 16 | Introduction to IR and NMR Spectroscopy | 8 |
Student Learning Outcomes for ChemM01B:

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

1) 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.

2) 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.

3) 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.

4) 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.

5) apply the principles of acid/base and solubility equilibria in quantitative and qualitative chemical analyses.

6) state and apply the First, Second, and Third Laws of 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.

7) 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.

8) 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.

9) correlate the combined concepts of equilibrium, free energy change, and cell potential.

10) 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.

11) 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.

12) 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.

13) identify coordination compounds, assign nomenclature, and properties.

Disclaimer: This syllabus is a guide for what is expected in Chemistry 1B this Fall 2016. Alterations at the instructor's discretion may be necessary.