



Lecture Syllabus, page 1 - Information - Updated 3/9/09

Chemistry 152 - Course Information

Main

Files

Prof

Instructor: Dr. David W. Lingner
M/T/W/Th 11:10-12:35 pm, Room I-106
dlingner at sdccd.edu

CRN 98447, 3.0 credits
March 23 - May 21, 2009 (8 weeks)
<http://lingnerchem.com/mesa/152/>

Office Hrs: M/W before class at tables.

Syllabus:

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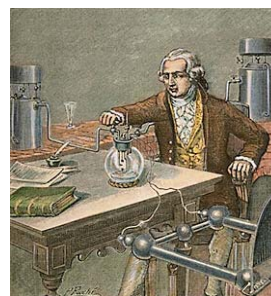
Grades

Hints

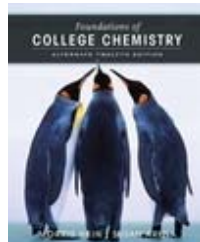
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Chemistry 152 is a one-semester preparatory course in chemistry consisting of an intensive study of some of the principles of inorganic and physical chemistry that are needed before taking Chemistry 200. Topics include but are not limited to atomic structure, chemical nomenclature, periodicity, chemical equations, stoichiometry, solutions, intermolecular forces, and gas laws. The course emphasizes problem solving and chemical calculations. It is intended for those students majoring in one of the natural sciences, engineering, or related curricula who do not meet the entrance requirements of Chemistry 200. Chemistry 152 and Chemistry 152L are co-requisite courses and I am assuming that you are taking both classes this semester at Mesa College, or have passed the lab already. If this is not the case, please inform me of your situation.



This syllabus is your contract with me regarding course policies. Please use this syllabus and the website above as information resources throughout the semester. Access the website often. Read the entire syllabus at least once, so that you know what to expect.



Textbook. Foundations of College Chemistry, 12th Alternate Edition, by Morris Hein & Susan Arena, Wiley, 2007. ISBN: 978-0-471-77991-9.

Calculator. You will need a calculator that can do basic arithmetic, logarithms, and scientific notation. (Recommended: TI-30XA, TI-25, or equivalent.) *Important: Programmable calculators, cell phones, iPods, etc., are not allowed on quizzes or exams. If you can enter words or letters into your calculator, or if the letters A-Z appear on the front of your calculator, then don't bring it to this class. You may not share calculators during exams.*

Corequisite. STUDENTS MUST ENROLL CONCURRENTLY IN CHEM 152 AND CHEM 152L. This course is not open to students with previous credit for CHEM 151.

Prerequisite. MATH 96 with a grade of "C" or better, or equivalent, or Assessment Skill Level M4.

Advisory. ENGL 51 & 56, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels W5/R5.

Follow-on. CHEM 152/152L, and MATH 100 are prerequisites for CHEM 200 (General Chemistry). You must pass both CHEM 152 and 152L to be admitted to CHEM 200. By passing CHEM 152 and 152L, you will be very well prepared for General Chemistry.

Students with Disabilities. Any student with a disability should discuss this with me and contact the DSPS office during the first two weeks of class, so that we can make accommodations to enhance the learning process. We will do our best to make the class workable for you.

Safety Note. Students who drop CHEM 152 must also drop CHEM 152L and check out of lab immediately and will be responsible for any missing equipment. Failure to check out by the end of the semester will result in a minimum fine of \$10.00.

*"Haec studia adolescentium alunt, senectutem oblectant, secundas res ornant, adversis perfugium ac solacium praebent."
"These studies fortify one's youth, delight one's old age; amid success they are an ornament, in failure they are a refuge and a comfort."*

– Marcus Tullius Cicero



Lecture Syllabus, page 2 - Policies - Updated 3/10/09

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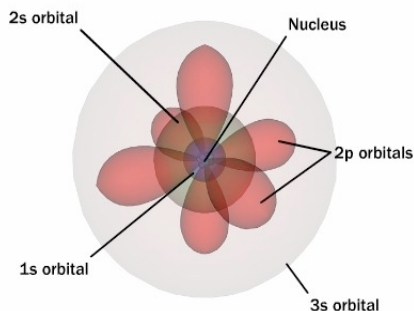
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You are responsible for everything that I cover during any class you miss, without exception.



I expect you to be on time and present at all class meetings.

Adding the Course. Students wishing to add the course will be accepted in the following order, as long as there is space available. (1) Previous arrangement, (2) Wait list, (3) Random crasher list. This lecture is capped at 24 students.

Drops by Student. Please note that you will receive a grade if you remain on the course roster after **March 30**. A grade of W may be assigned to students who withdraw after **March 30** and until **May 1**. After **May 1**, a grade of A, B, C, D, or F must be assigned. It is your responsibility to drop the course if you decide to stop attending.

Drops by Professor. *The College requires me to drop any student who does not attend or have an excused absence for the first class meeting.* College policy also allows me to drop any student with six total hours of unexcused absences (6% of class time), and requires me to drop any student with 12 total hours of unexcused absences (12% of class time).

Excused Absence. Absences are "excused" by prior permission of your instructor only. No make-ups exist for exams, quizzes, or in-class activities. Absences, excused or unexcused, do not relieve you of assignment due dates. If you don't notify me of your absence according to the following guidelines, your absence will be unexcused.

Professional or personal reasons, including non-emergency illness: You must notify me before the start time of the class you will miss. See below for a list of acceptable ways to notify me.

Emergency absences: Contact me (or arrange for a friend or family member to contact me) as soon as possible, but no later one day after the class you miss.

Acceptable Notice, in order of preference:

1. E-mail to dlingner-at-sdccd.net
- e-mail is strongly preferred.
2. Written note given directly to me.
3. Written note in my faculty mailbox.
4. Contact by phone is not recommended; I don't use my SDCCD-assigned voice mail box.

Absences, tardiness, and early exits will be noted and recorded, and may affect your grade in borderline situations. Mesa College policy allows me to treat late arrivals and early departures as unexcused absences. Exams & quizzes will have fixed ending times, regardless of your arrival time.

Be courteous. If you do not want to listen and take notes during class, please be courteous to those who do. You may nosh during lecture, but not lab, if you are polite and do not disturb others.

"Eighty percent of success is showing up." – Woody Allen



Lecture Syllabus, page 3 - Grades - Updated 3/10/09

Chemistry 152 - Grading

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Grades for CHEM 152 are earned according to the following scale.

Grade	Points Earned
A	90% or higher
B	80-89%
C	65-79%
D	50-64%
F	< 50%

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The grades for Chem 152 and Chem 152L are completely independent of each other.

Graded Items	
Item	Value
Exam 1	25%
Exam 2	25%
Exam 3	25%
Exam 4	25%
Activity Avg	25%
Drop lowest from above	-25%
Total	100%

The 100% points is the sum of your four highest scores out of five categories, including four exams and one average "activities" score. The activities will consist of quizzes, in-class activities, and occasional take-home activities. The activity average will be calculated after removing the top and bottom 10% of scores.

Solutions and explanations should be clear enough so that one of your peers could easily follow what you did if they had not worked the problem before. When a quiz, exam, in-class or take-home exercise calls for a calculated answer, no matter how simple, you increase your chances of arriving at the correct answer (and receiving partial credit) if you show a clear, step-by-step solution using dimensional analysis (unit conversions). This means that you need to show the units (dimensions) on each number and the conversion factor or equation used in each calculation.

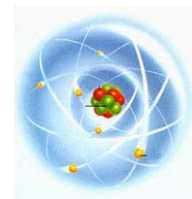


Originality. All work must be original and your own. Penalties, such as automatic grades of zero, will result from cheating, copying, plagiarism, or deceit of any kind (SDCCD Policy 3100). Plagiarism on an in-class quiz or exam includes use of pre-written hints or notes, looking at another student's paper, allowing (or not preventing) another student to copy your answers, or use of a programmable calculator (see page 1).

Collaboration. I expect and encourage collaboration among you and your peers while working on in-class and take-home activities, but not on quizzes or exams. In any case, the work you submit to me must be your own, not a copy from another student. The guideline is that you should have no trouble explaining or repeating work that you turn in.

Plagiarism. If you look at someone else's paper during an exam or quiz, or copy directly from another student on any assignment, then you and the person from whom you copied will both earn a zero on the assignment without notice or exception. Mesa College may also wish to pursue academic sanctions, expulsion, and/or legal proceedings. **Please be fair.**

Make-Up Work. Make-ups are not available for exams, quizzes, and in-class activities, whether or not your absence is excused. Fortunately, you can drop an exam if your activities total is higher.



Take-home activities must be turned in at the beginning of class on the due date. If you will be absent the day that a take-home assignment is due, you may submit your work on time via scan/email, fax, or by dropping it off at my faculty mailbox. You may submit late take-home activities after the due date/time, with grade reduction of 50% per class day starting at the time it is due (i.e., 11:10 am on the due date).

*"You have brains in your head.
You have feet in your shoes.
You can steer yourself in any direction you choose.
You're on your own.
And you know what you know.
You are the guy who'll decide where to go."
~Dr. Seuss*



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Exam Preparation. I expect each of you to take responsibility for your own learning both in class and while you're doing the homework. You'll soon realize that actively doing the problems during class and practicing them at home (in that order) are the best ways to figure out what I want you to know and get ready for my exams.

Read the book. Skim each chapter before I cover it, then you will have some idea of which questions to ask. You'll also be more aware of what I am skipping. After lecture, re-read the parts of the chapter that I talk about in class. Do the homework.

Learn now, during the class period. Don't put it off until you get home. You'll get best results if you listen carefully while you're in class. Try to act interested (it may be habit-forming). If you focus on learning only from the book, you'll probably be misdirecting your time and effort. Figure things out **during class** and you'll enjoy the semester more.

Take excellent notes. ...on everything I say and write in class. You're here to listen, ask questions, and learn actively. This is your chance. Scribble quickly now, then go home and neatly copy your notes while you look through the text. Add notes in your own words. Copying and paraphrasing your notes is one of the best ways to review and internalize the material we cover in class, which is directly related to what you'll see on the exams and quizzes.

Office Hours.

M/W, 10:00-11:00 am at the tables outside the chemistry building or in the Library Cafe. These meetings are not required. Other convenient opportunities to ask questions include email (anytime), and instant messenger (anytime that I'm online).

Ask questions! It is my job to answer them. Scientists are curious characters! People either know all of the answers or they ask. I usually assume people understand me. If you are so lost that you don't know what to ask, then ask me what to ask! Yes, try it. I have never heard an unnecessary question, and I am not one of those people who judges students negatively based on the questions that they ask. On the contrary, I admire those of you who are smart enough and brave enough to clarify things before you need to take an exam and before an assignment is due. Don't ever think that you don't deserve to ask a question, or that you're going to "drag the rest of the class down" if you ask a "simple" question during class. Those are the lamest excuses I know. The best time to ask questions is during class. The second best time is anytime via email. I've had email for more than 25 years now, and I've never been bothered by a message from someone I know. Those of you who ask questions eventually become the smartest people in the class. Those who neither know nor ask will find this course very difficult to pass. **Okay, now read this paragraph again.**

A Few Suggestions: An understanding of chemical concepts and calculations requires thought and practice. Don't expect to fully comprehend everything. And don't just give up when you don't "get it" immediately. Expect to study hard; strive to study effectively; figure out what I want you to know.

If you pay attention, follow directions, ask questions, and figure out what I'm going to ask you, then you'll do well. If you don't ask questions, have no interest in the course, don't pay attention during class, and don't bother doing the homework, then I can't be much help. *Start now.*

"In every job that must be done, there is an element of fun." - Mary Poppins



Lecture Syllabus, page 5 - Calendar - Updated 3/9/09

Chemistry 152 - Calendar - Spring 2009

Classes meet M/T/W/Th in Room I-106 from 11:10 am to 12:35 pm.
Office Hours M/W 10-11 am, and 24/7 via email or Internet.

Monday Lecture	Tuesday Lecture	Wednesday Lecture	Thursday Lecture
March 23 Intro, Chapter 1 and 3	March 24 Measurements, Ch 2	March 25 Problem solving, Ch 2	March 26 Problem solving, Ch 2
March 30 Matter, Ch 3 and 4	March 31 Matter/Energy, Ch 4	April 1 Atomic Theory, Ch 5	April 2 Exam 1 (Ch 1, 2, 3, 4)
April 6 Spring Break	April 7 Spring Break	April 8 Spring Break	April 9 Spring Break
April 13 Chem formulas, Ch 7	April 14 Moles, Ch 7	April 15 Modern Atoms, Ch 10	April 16 Electrons/Ions, Ch 10
April 20 Chemical names, Ch 6	April 21 Chemical names, Ch 6	April 22 Reactions, Ch 8	April 23 Exam 2 (Ch 5, 6, 7, 10)
April 27 Stoichiometry, Ch 9	April 28 Stoichiometry, Ch 9	April 29 Stoichiometry, Ch 9	April 30 Gases, Ch 12
May 4 Gas Laws, Ch 12	May 5 Solutions, Ch 14	May 6 Solutions, Ch 14	May 7 Exam 3 (Ch 8,9,12,14)
May 11 Acids/Bases, Ch 15	May 12 Acids/Bases, Ch 15	May 13 Chemical Cmpds, Ch 11	May 14 Chemical Cmpds, Ch 11
May 18 Chemical Cmpds, Ch 11	May 19 Intermol Forces, Ch 13	May 20 Liquids, Ch 13	May 21 Exam 4 (Ch 11,13,15)

Chemistry is a cumulative subject, with each chapter depending on knowledge gained from previous chapters. Therefore, all exams are comprehensive, meaning that they cover some old and mostly new material. The amount of old material on an exam will increase for later exams, with Exam 4 including more old than new.

Alterations to this schedule, if any, will be announced in class.

"If you're not part of the solution, you're part of the precipitate." - Anonymous chemist



Lecture Syllabus - page 6 - Homework - Updated: 3/10/09

Chemistry 152 - Suggested Practice Problems

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Homework. Although these homework assignments are **not to be turned in**, are **not for credit**, and will not directly affect your grade in terms of points or percentage, completing them in a timely manner will benefit you in many ways. First, these problems will provide practice for concepts we've covered in class. Second, these problems will be similar to those that you'll encounter on the exams and quizzes.

Homework Correlations: During many past semesters, I compare student's test scores against their homework effort. Every time, I find a direct relationship. Students who didn't do their homework on time tend to have lower scores than the students who take the time to work through their homework and submit it on time. (Note: There is a similar correlation between attendance and good grades.) This semester, you'll soon find that doing the homework and in-class activities is a very good way to study for the exams. If you try the problems before you sit for the exam, you won't have many surprises. Most importantly, ask questions. Find me (email, instant messenger, facebook, or office hours) or find someone else to help you if you get stuck or want to make sure you understand each problem.

Note: The rather odd sequence of chapters is meant to correlate as well as possible to your schedule of labs.



Chapter 1 , Introduction	p. 13	3, 4, 5, 6
Chapter 2 , Measurement	p. 42,43, 44,45	8, 10, 13, 14, 21, 25, 27, 33, 35, 41, 53, 63, 65, 77
Chapter 3 , Elements & Compounds	p. 62,63,64	1, 9, 11, 13, 15, 19, 23, 24, 31, 32
Chapter 4 , Matter	p. 77,78,79	1, 5, 7, 15, 19, 29, 33
Putting it Together (Chs 1-4)	p. 81,82,83	1-11, 19, 20, 24, 25, 26, 29, 31, 34, 35, 36, 38.
<i>Exam 1 covers Chapters 1-4.</i>		
Chapter 7 , Quantitative Composition	p. 146-149	13, 17, 19, 23, 25, 33, 37, 48, 51, 63, 65
Putting It Together (Ch 7)	p. 199	3, 5, 6, 11, 12, 15, 16, 17, 22
Chapter 5 , Early Atomic Theory	p. 100-102	7, 9, 15, 17, 19, 23, 36
Putting It Together (Chs 5)	p. 125, 126	1-15 (p. 125) and 9 (p. 126)
Chapter 10 , Modern Atomic Theory	p. 220-223	1, 3, 13, 23, 25, 29, 35, 44, 45, 46, 47, 50, 52
Putting It Together (Ch 10)	p. 262	1, 2, 3, 4, 6, 11, 12, 14
Chapter 6 , Nomenclature	p. 122-126	1, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 34
Putting It Together (Chs	p. 125	

Putting It Together (Chs 6)
p. 125, 126 **1-40 (names and formulas)**

Exam 2 focuses on Chapters 5, 6, 7, 10, and includes previously-covered chapters.

Chapter 8, Chemical Equations p. 172-174 **1, 3, 7, 9, 11, 13, 31, 35, 38**

Chapter 9, Stoichiometry p. 193-197 Review Question 4
Exercises **1, 17, 25, 29, 31, 39, 45**

Putting It Together (Ch 8,9) p. 199-201 **23, 25, 26, 32, 33, 35, 39, 40, 41, 42, 43, 44, 45**

Putting It Together (Ch 8,9) p. 201 **3, 5**

Chapter 12, Gases p. 301-302 **17, 18, 19, 23, 25, 31, 35, 43, 47, 57, 60, 82**
Exercises 3, 7, 9, 15, 17

Chapter 14, Solutions p. 363-371 **Questions 1**
Exercises 5, 19, 21, 27, 29, 52, 61, 70, 71

Putting It Together (Ch 12,14) p. 369-371 **3, 4, 7, 16, 18, 20, 32, 39, 42, 45, 46, 47, 51, 54, 55, 57**

Exam 3 focuses on Chapters 8, 9, 12, 14, and includes previously-covered chapters.

Chapter 15, Acids & Bases p. 401- **Questions 5, 6, 7, 14, 27**
Exercises 1, 3, 7, 13, 23, 25, 29, 31, 49, 58

Putting It Together (Ch 15) p. 464- **3, 6, 11, 12, 15**

Chapter 11, Chemical Bonds p. 257-260 **Questions 3, 4, 8, 21**
Exercises 1, 4, 11, 17, 25, 29, 30, 33, 37, 38, 39, 40, 44, 45, 51, 59, 63, 64

Putting It Together (Ch 11) p. 262-264 **15, 19, 20, 21, 26, 28, 29, 35, 38, 39, 40, 41, 42, 43, 44**

Chapter 13, Liquids p. 331-335 **Questions: 5, 6, 7, 17, 40**
Exercises: 40, 53, 56

Putting It Together (Ch 13) p. 369-372 **28, 33**

Exam 4 focuses on Chapters 11, 13, 15, and includes previously-covered chapters.

Check [here](#) for HW answer keys.

“Success is not the key to happiness. Happiness is the key to success. If you love what you are doing, you will be successful.”
– Albert Schweitzer

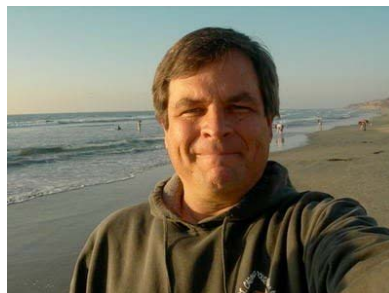


Professor - Updated 3/10/09

Chemistry 152 - Professor

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Name: David Lingner
E-mail: dlingner @ sdccd.edu
Instant Messages: SeaMistDWL (AIM, MSN, Yahoo)



I have great respect for students at Mesa College. Each of you has your own reason that you have made chemistry a priority this semester. I want to help you excel in your next chemistry course, CHEM 200.

[Syllabus:](#)

How to contact me: [E-mail](#) is the best way to contact me. Or, leave me a written note in the Mesa Chem Stockroom or Faculty Mailboxes.

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Office Hrs. See syllabus.

[Grades](#)

My Background: Lived in ME, MA, PA, IN, and CA. Married 25 years. 2 sons (at UCI & PLNU). Volunteer of the Year, PUSD. Hobbies: disc golf, photography, web design, politics, music, ecology, nature, birding, biking, running.

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B.S. Chemistry + Math, Bates, 1978.
Ph.D. Chemistry, Purdue, 1985
Radiochemical trace elemental analysis of meteorites & history of the solar system.)
Chemistry TA 1977-1984.
Post-Doc: UCSD/SIO Climate Change research on CO₂ with CD Keeling; remote sensing of the ocean at the California Space Institute.

[Photo Album](#)

Environmental Scientist/Consultant at SAIC 1990-2007 and ENSR 2007-2008, now at [ICF Jones & Stokes](#). Air, climate change, policy, regulations, water, hazmat, etc.

Adjunct Professor since 1988. Chemistry and oceanography. Miramar, Mesa, Grossmont, Palomar, MiraCosta Colleges, National University, and Point Loma Nazarene University.

Activities: Climate Change Focus Group, Point Loma Sports Associates; Rancho Penasquitos Basketball. Former Board memberships: Air & Waste Management Association (San Diego Chapter Chair); American Chemical Society; American Geophysical Union; Mt Carmel High School Band Boosters, Basketball Boosters, and Volleyball Boosters; Newsletter Editor for Canyon View Elementary, Mesa Verde Middle School, and the MCHS Band; Recycling Coordinator for Canyon View Elementary School.

What should you call me? Dave, David, or something more formal ... whatever feels right, as long as you do **talk to me**. I teach because I like helping students learn this stuff, but you have to take responsibility for your own learning, make sure you either understand what I'm expecting you to know. Don't just sit there and try to learn from the book. You wouldn't be here if that was the best way to learn chemistry. Make sure you know it and can work the problems and examples that I've presented in class.

Why Do I Teach Chemistry? - I come from a family of teachers. My dad just retired from 50+ years of teaching geology and geography back in Massachusetts and my mom has experience in elementary and preschool education. Teaching has always seemed like a natural thing to do. I love to see the moment when students "get it." Sometimes it takes a while, but with persistence from both of us, you and I will both know when it happens.

I've always been somewhat of an idealist, and it frustrates me to see the propoganda and scare tactics regarding scientific issues from politicians, policymakers, businesses, advocacy groups, and the media these days. People should not be afraid or ignorant of science; they should have the confidence to be able to make their own decisions and question ideas when they feel a problem exists or information is being held back or twisted. The beauty of science is that it is constantly changing and growing. Knowledge is tentative and current theories depend on their applicability and adaptability to observations and facts.

I like teaching at a community college because I can focus on teaching basic skills to students who want to learn from a real teacher, rather than a graduate student. I enjoy bringing confidence to students who start out scared or uncertain about chemistry and science, and raising the level of all students so they can have an easier time later on. I'm happy when a former student thanks me for challenging them and giving them the tools to meet this and future challenges, and always glad when a student, who thought chemistry was hopelessly difficult at the start of the semester, ends up moving on to Chem 200 with a new sense of confidence.