

Instructor: Dr. Pentecost

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Office: 330 PAD

Lecture 3:00 – 3:50; M, T, W, F LTT 103

Discussions *Please attend the discussion in which you are enrolled.*

CHM 115-21 – 3:00-3:50 R PAD 106 CHM 115-23 – 2:00-2:50 F PAD 209

CHM 115-22 – 11:00-11:50 F MAK A2105 CHM 115-24 – 4:00-4:50 R PAD 168

Office Hours M & W 4:00 – 5:00; T & R 2:00 – 2:50; & F 10:00 – 10:50 at Einstein's.

Course Prerequisite

The prerequisites for this course are a year of high school chemistry/CHM 109, and MTH 110. Students who have not completed MTH 110 (course or placement exam) will be dropped.

Course Materials (Required)

1. Tro, *Chemistry: A Molecular Approach, 2nd Edition* Prentice Hall, 2011
2. Laboratory Manual, "Chemistry 115: Principles of Chemistry I", 2010-2011.
3. Subscription to WebAssign for online homework — webassign.com. You must enroll by Sept. 10 for your homework to count.
4. A calculator capable of scientific notation, log/antilog, and $\ln/e^x$ functions. Calculators or devices with actual text keys or devices that can send messages are **NOT ALLOWED ON EXAMS. NO EXCEPTIONS. Graphing calculators are allowed.**
5. The Student Study Guide for Tro is **OPTIONAL**

MS³ (Academic Support)

MS³ is a learning center that offers academic support for students in the fields of Science and Mathematics. MS³ is located in **399 Padnos**. Please stop by and plan to avail yourself of the services of MS³. Our facilitators, upper-level students who have mastered content in various science and mathematics courses, provide academic support. MS³ is a **walk-in service** (no appointment needed) where facilitators provide one-on-one as well as group tutoring for students. Facilitators also visit classes, develop and assist study groups, and maintain contact with faculty, in order to better aid students with current course content. Other services that MS³ provides are: Test Banks, Current Texts for use in Learning Center, and Study Aids such as Learning Style Analysis & Study Skills.

What courses do we facilitate?

Chemistry: 109, 115, 116, 230, 231, 232, 241, and 242.

Physics: 200, 220, 221, 230, and 231.

Math: 097, 110, 122, 123, 201, and 202.

Biomedical Science: 208, 212, 250 and 290.

Biology: 120, 121, and 355/375.

For more information, contact the MS³ facilitator help-desk at 331-3695, or the Program Coordinator at 331-3267. You can also find up to date information on our website at www.gvsu.edu/ms3

*“Science learning is an active process, the teacher’s task necessarily involves more than the mere dissemination of information. ...the teacher’s fundamental task is to get students to engage in learning activities that are likely to result in their achieving these outcomes, ...it is helpful to remember that **what the student does is actually more important in determining what’s learned than what the teacher does.**”*

-Shuell, T. (1986). *Review of Educational Research*, 56(4), 411-436.

Course Expectations:

The quote above is a nice summary of my teaching philosophy. I will try to get establish an environment in the class that can maximize the potential for success – but remember the most important thing is what you do. **You must** decide what level of achievement you wish to achieve in the course. Once this decision has been made you will need plan to devote an appropriate amount time to the material out-of-class. Very few people can master the material without this out of class effort. We will cover most topics in class, but there will be times when you are expected to cover topics not discussed in lecture or lab.

I am happy to answer questions by email. So that I don't mistake your message for spam (I don't always recognize email addresses) please type CHM 115 (or something similar) in the subject line. I'll do the same if I email you or email the class.

The following are what I expect of you. These expectations have been established to help you achieve the learning objectives of the course. They will also allow me, and you, to evaluate your achievement of the objectives.

- **Lecture:** As you may have noticed this is not a small class. I will try my best to get to know each of you. You can help this by asking questions both during lecture and discussion as well as during office hours. Remember my goal is to help you learn. I cannot do it for you. So when you ask questions please do so after so effort on your part. Time in lecture will be spent taking notes and completing in-class activities. For most of these activities you will be encouraged to work together. My goal is to make the lecture more active than you simply listening to me drone on and on. You can help with this by paying attention, resisting the urge to surf the web, carry on non-class related conversations, etc... So, please no iPods, texting, Facebook, or whatever during class. Please turn off your cell phones. I understand that there are times when you may need to leave your cell phone on, sick children etc..., please let me know if this is the case.
- **Discussion:** Time in the discussion section will be spent working through activities designed to reinforce and expand upon topics covered in lecture. Many of these activities will be very similar to the types of questions I ask on exams so it is in your best interest to attend! Besides there are fewer students and I will be able to spend more individual time with you to answer your questions. When we have quizzes they will be given during discussion.

- **Homework:** The only way to succeed in chemistry is to work lots of problems and questions. I encourage you to work in study groups. Voluntary collaboration on homework is perfectly acceptable. There will be two types of homework assignments in this course.
 - The first will be suggested problems from the textbook. You should work these as we progress through the material. Note that if you have a previous edition of the textbook the end-of-chapter problem numbers won't be exactly the same. These will **not** be collected or graded. The textbook problems should serve as an assessment of your understanding. It is up to you to get the most out of this tool.
 - The second homework type will be *On-line Homework*. Graded homework problem sets will be available from WebAssign. A link to the WebAssign site and the tentative due dates are in the Assignments folder in Blackboard. Each homework set will be available for about a week, times announced in class and posted on BB. You have 30 submissions for each homework set. It is important for you to realize that if it takes you multiple attempts, then you might not be as prepared as you think! Your lowest homework grade will be dropped. Late homework is not accepted.

To access WebAssign, complete the following:

1. Go to webassign.net
 2. Select "login", then "I have a class key". Enter the following: **gvsu 7449 9600**
You should see a message for CHM 115, section 20, Pentecost after you hit submit.
 3. Select "Yes is this my class" and "I need to create a WebAssign account". Then continue.
 4. Complete the form. Please use your GVSU username and GNumber when completing this form.
- **Tests/Quizzes:** Quizzes in my class serve two functions: First they give me a way to assess how things are going. For me to gather this data we will have approximately four quizzes during discussion periods (25 points each). These will be announced ahead of time.
The course material is divided into four units. At the end of each unit we will have an in-class test to measure your understanding of the material. The format for these will be short answer, multiple choice, and problems. I should explain my philosophy for tests. I use exams to see what you can do. I work very hard to make the exams fair but challenging. I will keep track of the exam averages and if they are out of line I will adjust the grading scale accordingly. So the moral of the story is to do your best and show improvement over the semester.
The final exam will be a comprehensive part covering material from the first four units. The final exam for this course will be **Thursday, December 15th from 2:00 pm until 3:50 pm**. There will be no make-up exams and the final must be given during its scheduled time. Missed exams will be handled on a case-by-case basis.

- **Laboratory:** A grade of at least 60% is required in lab in order to pass the course; you cannot pass the course if you earn a failing lab grade. Due dates and formats will be discussed in lab. Turn lab reports in to your lab instructor. Late labs will lose 10% of their point value per day late; after a week, late labs will not be accepted. Absences must be accounted for to the lab instructor. **There are no make-up labs; see you lab manual for more information.**
- **Academic Honesty:** I expect you to abide by principles set forth in the student handbook. I strongly encourage you to study with other students and work problems together. This includes the Webassign and the textbook problems – these are designed to help you learn. However, you must realize that in this process you need to be a participant, not just an observer. During times when you are being evaluated (quizzes, tests, and the final exam) I trust that you realize the work **MUST** be your own. If you violate this trust, then you will face the consequences of failure on the assignment and/or failure for the course and referral to the appropriate university administration. The relevant guidelines from the student handbook are included below for your reference.

Section 223.00: INTEGRITY OF SCHOLARSHIPS AND GRADES.

Truth and Honesty. *The principles of truth and honesty are recognized as fundamental to a community of teachers and scholars. The University expects that both faculty and students will honor these principles, and in so doing protect the validity of University grades. This means that all academic work will be done by the student to whom it is assigned without unauthorized aid of any kind. Instructors, for their part, will exercise care in the planning and supervision of academic work, so that honest effort will be positively encouraged. Compliance shall include compliance with the following specific rules:*

- No student shall knowingly, without authorization, procure, provide or accept any materials, which contain questions or answers to any examination or assignment.*
- No student shall, without authorization, complete, in part or in total, any examination or assignment for another person.*
- No student shall, without authorization, allow any examination or assignment to be completed, in part or in total, by another person.*
- No student shall knowingly plagiarize or copy the work of another person and submit it as his/her own.*
- No student shall submit work that has been previously graded, or is being submitted concurrently to more than one course, without authorization from the instructor(s) of the class(es) to which the student wishes to submit it.*

Grades

Exams (4 total):	400 points (100 points per exam)
Final exam	150 points
Homework	50 points (Calculated using your HW average)
Quizzes:	100 points
Participation	15 points
Lab:	85 points (Calculated using your average lab grade)
Total	800 points

Final course grades will be based on your percentage of the possible points. The tentative scale is below. This may be adjusted slightly.

A 100 – 94 %	B+ 89 – 87 %	C+ 79 – 77 %	D+ 69 – 67 %
A- 93 – 90 %	B 86 – 83 %	C 76 – 73 %	D 66 – 60 %
	B- 82 – 80 %	C- 72 – 70 %	F below 60 %

Incomplete

A grade of “I” may be granted if a student is temporarily unable to complete course requirements because of unusual circumstances beyond the control of the student. This grade is NEVER given as a substitute for a failing grade or a withdrawal. An “I” will not be assigned for work that was due before the 8th week of the semester. Written requests for an “I” must be submitted PRIOR to the final exam.

Accommodations

If you need academic accommodations because of a learning, physical, or other disability, please contact Disability Support Services (DSS) at 331-2490. Furthermore, if you have a physical disability and you think you will need assistance evacuating this classroom and/or building in an emergency situation, please make me aware so I can develop a plan to assist you.

Introduction/General Education

The physical sciences explore and seek to explain the behavior of the physical universe. They seek to understand the fundamental workings of nature, from the behavior of particles of matter to the functioning of the galaxies. Study of the concepts, history, contexts, and methodologies of the physical sciences assists students in becoming scientifically literate. Each course in this category is a broad introduction to one or more of the physical sciences. Courses contribute to the development of critical thinking and problem-solving skills, and help students apply an understanding of scientific ways of thinking to their own lives and careers.

All courses in the Physical Sciences Category include the following content:
(1) The introduction of the physical sciences as a “way of knowing”; an examination of principles and questions that define the field.

- (2) An understanding of how scientists use information and theory to explain the phenomena observed in the physical universe.
- (3) The unifying concepts of the physical sciences including the forces of nature, the structure of materials, and the role of energy in the physical universe.

All courses in the Physical Sciences Category use teaching methods that help students become more proficient in the following skills:

- (1) To engage in articulate expression through effective speaking or writing.
- (2) To think critically and creatively.
- (3) To locate, evaluate, and use information effectively.

Important Dates

Last day to register/drop/add	September 2 nd
Last day to drop with W grade	October 28 th
Final Exam – Comprehensive	December 15 th

CHM 115 Fall 2010 Lab Calendar

Dates	Lab Title
Aug 28 – Sept 2	Reactions to Avoid
Sept. 5 – 9	No Lab – Labor Day
Sept. 12 – 16	Construction and Calibration of a Spectroscope
Sept. 19 – 23	Emission and Absorbance Spectra
Sept. 26 – Sept. 30	Solution Preparation
Oct. 3 – 7	Extraction of β -carotene from Carrots
Oct. 10 – 14	Variations on the Energy Theme
Oct. 17 – 21	Synthesis of Malachite
Oct. 24 – 28	Analysis of Malachite
Oct. 31 – Nov. 4	Electronic Geometries and Molecular Shapes
Nov. 7 – 11	Intermolecular Forces
Nov. 14 – 18	Isolation and Identification of Spinach Pigments
Nov. 21 – 25	No Lab – Thanksgiving Break
Nov. 28 – Dec. 2	Who Sabotaged Dr. O.R. Ganic's Lab?
Dec. 5 – 9	Lab Practical
Dec. 12 – 16	Finals Week – No Labs

TENTATIVE Lecture Schedule

Week	Dates	Topic (See specific objective sheet for text references)
1	8/29 – 9/2	Energy & Development of the Atomic Theory
2	9/7 – 9/9	Problems with the Classical Model Quiz 1 in Discussion
3	9/12 – 9/16	Quantum Mechanics
4	9/19 – 9/23	Results of Quantum Mechanics
5	9/26 – 9/30	Test 1 – 9/26 Evidence for Compounds & Classification of Chemical Compounds
6	10/3 – 10/7	Lewis Theory of Bonding
7	10/10 – 10/14	Lewis Structures & Molecular Shape. Quiz 2 in Discussion
8	10/17 – 10/21	Molecular Shape & Bonding Test 2 – 10/21
9	10/24 – 10/28	Kinetic Molecular Theory & Intermolecular Forces
10	10/31 – 11/4	Intermolecular Forces & Phase Changes
11	11/7 – 11/11	Solutions in Chemistry Quiz 3 in Discussion
12	11/14 – 11/18	Quantitative Descriptions of Solutions Test 3 – 11/18
13	11/21 – 11/22	Stoichiometry Thanksgiving Break (11/23 – 11/25)
14	11/28 – 12/2	Enthalpy & Chemical Changes Quiz 4 in Discussion
15	12/5 – 12/9	Chemical Reactions Test 4 – 12/9

Cumulative final exam: Thursday, December 15th from 2:00-3:50 pm in 103 LTT