

# SYLLABUS

# CHEMISTRY 101

Spring 2015

**LECTURES:** MWF 9:10AM in Fulmer 226

**INSTRUCTOR:** Dr. Kirk Peterson Fulmer 104B kipeters@wsu.edu

**OFFICE HOURS:** 11:10AM-Noon MWF and by appointment (make appointments by email only)

**COURSE WEB SITE:** Blackboard Learn: <http://learn.wsu.edu/blackboard>

<b>GRADING:</b>	3 "midterm" exams	300	<b>GRADE RANGES:</b> (minimum points to achieve)			
	10 tutorial quizzes (best 8)	160	900 points	A	730 points	C+
	Homework problem sets	90	870 points	A-	700 points	C
	Laboratory reports & worksheets	250	830 points	B+	670 points	C-
	Final Exam	<u>200</u>	800 points	B	630 points	D+
	TOTAL	1000	770 points	B-	600 points	D
					less than 600 points:	F

**MIDTERM EXAMS:** Thursday Feb. 12 6:00– 7:00 pm (Chapters 1-4 + Lab Wkst #1 & #2)  
Thursday March 12 6:00– 7:00 pm (Chapters 5 -7 + Expts 1, 2, 4, 5)  
Thursday April 16 6:00– 7:00 pm (Chapters 8-11 plus Experiments 6-8)

**FINAL EXAM** Monday May 4 7:00pm–10:00 pm (Comprehensive + all Expts/worksheets)

**TEXT** General, Organic and Biological Chemistry; McMurry, Ballantine, Hoeger & Peterson; 7<sup>th</sup> edition (2013). Pearson/Prentice Hall. This is a custom print of Chapters 1-13. Access for the Mastering Chemistry homework system is bundled with new copies of this. Both the text and Mastering Chemistry access are required for this course. Individual access codes for the Mastering Chemistry system can be purchased via the MasteringChemistry link on the course Blackboard website (see Homework).

**LAB TEXT:** *Chemistry 101 Laboratory Manual* by WSU Chemistry Department, Star Publishing (2014, required).

**LABORATORY NOTEBOOK:** Duplicating with numbered pages. (Sold in Fulmer 318 the 1<sup>st</sup> and 2<sup>nd</sup> week of class.)

**GOGGLES:** Required by State Law. (Sold in Fulmer 318 the 1<sup>st</sup> and 2<sup>nd</sup> week of class.)

**LABORATORY COAT:** Optional but recommended. A strict dress code is enforced in the laboratories. NO SHORTS, NO SHORT SKIRTS, NO SANDALS, NO BARE MIDRIFTS. (See laboratory dress code.)

**CALCULATORS:** You are expected to have and to be able to use a scientific calculator. Graphing calculators are allowed but not required. The use of any stored information/programs in a programmable calculator will be considered cheating. Calculators with a full QWERTY keyboard (such as the TI-92 or Voyage 200); PDAs; palmtops, laptops, handheld computers, and cell phone/calculator combinations may not be used during quizzes and examinations. You are responsible for bringing your calculator to all tutorials, lectures, labs and exams.

**ELECTRONIC COMMUNICATIONS:** We will be using Blackboard Learn course management system for the course website. Please access using the following URL: <http://learn.wsu.edu/blackboard>. Use your WSU network ID and password to log in. All official communications for this class will be through the Blackboard site. This includes lab schedules, lecture notes, exam information, announcements, etc. You are responsible for checking this site.

All e-mail communications to the course instructor and TAs should include "Chem 101" in the subject line. Emails that are not so labeled are likely to be deleted as spam without being read. Confidential information such as scores and grades may only be transmitted to your official WSU email address.

**LECTURES:** Lectures must be attended on a regular basis. You will be expected to read the textbook AHEAD of coming to class. Lectures will supplement and clarify the information from your text rather than reiterate it. Lectures will focus on problem solving and demonstrations of chemical reactions. There will be in-lecture problem assignments via the LearningCatalytics website (accessible via the course Blackboard site). These will be graded and counted towards your total point score. These in-lecture assignments will be unannounced, cannot be made up, and constitute the only possible 'extra credit' points in this course. *Bring a calculator and web-enabled device to all lectures.* You are encouraged to form collaborative study groups and to sit with your group members during lecture.

**EXAMS:** There will be three midterm exams and a comprehensive final. All exams will be multiple-choice. You will be responsible for bringing a calculator and a pencil to all exams. A bubble-in answer sheet will be provided. No notes or books are allowed. Exams may be given in rooms other than the regular classroom. These rooms will be announced. No make-up exams will be given. If you are unable to take a scheduled midterm exam for academic reasons beyond your control, you will be allowed to schedule the exam at an earlier time. Midterm exams missed due to illness will be excused, with the other exams plus the final pro-rated to count for more.

**Evening exams take precedence over all other university activities.**

**HOMEWORK:** There will be weekly homework assignments consisting of a minimum of ten questions each. These assignments are administered by Mastering Chemistry and accessed through the course Blackboard site. You should have an access code for Mastering Chemistry bundled with your text. Please follow the attached instructions and use the access code to register for the system. If you purchased a text that did not include an access code, follow the attached instructions to purchase a code and register for the system.

A new homework assignment will be made available each week (no later than 5:00PM each Monday). Each assignment must be completed by 8:00PM the following Monday. The due date/time for each assignment will be listed with the assignment on the homework site. Each homework set will be pro-rated to have a value of 8 course points. Thus there will be 120 homework points available this semester. A maximum of 90 points from homework will count toward the final grade. Quiz and exam questions will be modeled on the homework, so it will be to your advantage to continue to complete the homework even after you have secured your 90 points.

**TUTORIALS:** These are small classroom meetings associated with your laboratory section and led by your TA. Students who miss tutorial will **not** be allowed into the lab. Quizzes are given in tutorial most weeks (see the course schedule). Tutorials are interactive problem solving sessions driven by your questions. Bring your text, lab manual and calculator to tutorial. Pre-labs and lab reports are due at the start of tutorial. Help with pre-labs and lab reports will not be available in tutorial as they must be completed before attending tutorial. **Tutorial sessions are never canceled!** If your TA fails to arrive for a tutorial section, send one person to contact Ryan Rice (Fulmer 309) or Dr. Peterson immediately. All others must remain in the tutorial room until the TA or a substitute arrives. Students who leave tutorial under these circumstances will forfeit all points associated with that tutorial/laboratory session (lab report, lab, and quiz).

**QUIZZES:** There will be ten 20-point quizzes of which the best 8 will count toward the final grade. Quizzes are given in tutorial. Quizzes will cover lecture, homework and laboratory material. You will be allowed to prepare a single 3" × 5" card containing your HAND-WRITTEN notes for use during each of the quizzes. No other handwritten material and no printed or photocopied material may be used during the quiz, except for an approved periodic table (the table that appears on the back of your lab manual). Quiz #11 will be given during closed week, is optional, and qualifies as a make-up quiz under academic regulation #79.

**LABORATORIES:** Your course section includes a lecture time and a laboratory time. This is a laboratory GER course, thus the laboratory must be completed in order to pass the course. Thus, obtaining a score of zero for 3 or more experiments will result in an F for the course.

**Make-up labs:** Labs missed for reasons beyond your control, may be made up, on a space available basis, in the same week that the lab is missed. You will be allowed to make up a maximum of two labs per semester in this manner. Permission for a make-up lab must be obtained, in writing, from the Chemistry Office, Fulmer 319A. The permission slip will be collected and signed by the make-up TA. **We cannot guarantee that make-up space will be available.** If you know in advance that you will miss a lab, visit Fulmer 319A as soon as possible in order to maximize the chance that make-up space will be available. **If make-up space is not available:** a report may be written from data supplied by the instructor. Such reports are due at the normal time (in tutorial one week after you should have attended lab) and will be worth no more than ½ credit.

**Pre-laboratory assignments:** Pre-laboratory assignments are due at the start of the tutorial. Students who fail to submit a complete pre-lab assignment at this time will be assessed a late penalty on the full report and be required to complete the pre-lab assignment before they are admitted to lab. The student will not be given extra time in the laboratory to make up for laboratory time spent completing the pre-lab. Students who attend tutorial without a completed pre-lab assignment will not be allowed to arrange a make-up lab for that experiment.

**Laboratory procedure:** Students are to perform the experiments individually unless the laboratory manual specifically requires partners for the experiment being performed. Each student is expected to record all data and observations for each experiment directly into their own laboratory notebook. Data may not be recorded on loose, 'scratch' paper then transferred to the notebook. Submission of identical data by two or more students who are not assigned to be laboratory partners will be considered cheating. Appropriate penalties will be applied to all parties. You are required to get your TA's signature on your data and observations and submit the original data/observation pages before you leave lab. Failure to do so will result in zero credit for that experiment.

**Laboratory dress code:** For your safety, a strict dress code will be enforced in the laboratory. Failure to comply with the dress code will result in expulsion from the laboratory and a consequent score of zero for that experiment. The dress code requires that you be fully clothed from shoulder to toe. No shorts, short skirts, sandals or shoes that expose any part of the foot are permitted. It is recommended that you purchase and use a full-length lab coat. This will adequately cover the upper body, but your legs, ankles and feet must be covered by your 'street clothing'.

**Laboratory reports:** Post-laboratory assignments will be due at the start of the tutorial in the week shown on the course schedule. Post-lab assignments are to be handwritten in the laboratory notebook. Failure to submit a post-lab assignment for an experiment will result in zero credit for that experiment (no credit will be given for the pre-lab or data & observations parts in the absence of a full report.) There will be one formal (typed, word-processed) report that will be worth 10 of your total 250 lab points. Some details on this report are in the laboratory manual, but it will be explained more thoroughly by your TA in tutorial.

**Adjustments to laboratory scores:** The instructor will make every effort ensure that the grading of laboratory reports is consistent and fair. To this end, the instructor reserves the right to normalize the laboratory scores from the different laboratory instructors to the same average. Any such adjustment will be made at the end of the semester after all scores have been submitted. TA performance will be assessed throughout the semester with the goal of eliminating any necessity for these adjustments. Students are encouraged to bring any concerns about the equity of the grading process to the attention of the course instructor.

#### **CLASS POLICY ON LATE (OR EARLY) ASSIGNMENTS:**

**Laboratory reports:** Late laboratory reports will be penalized by the loss of 20% of the total points per day (or portion thereof) that they are late. *Reports submitted after the start of tutorial are a day late!* This penalty is applied after the normal grading of the report. Reports submitted more than one week late will receive zero points. No reports will be accepted after 5:00 pm on the last day of classes (Friday, May 1, 2015) even if they are not yet one week late.

**Homework assignments:** Late homework assignments will not be accepted for any reason.

**Early submission:** If you know that you will not be present at the time a laboratory report is due, they may be submitted early without penalty. Homework assignments may be completed on the Mastering Chemistry as soon as the homework assignment is posted.

**Method of submission:** It is best to personally deliver late or early submissions to the instructor or TA. Note that, outside of class/laboratory times and posted office hours, we make no pledge to be present or available for this purpose. If you are submitting work at other than the specified time, it is your responsibility to find us. Material may be submitted to Fulmer 319A during normal office hours. Assignments delivered in any other way (slid under the instructor's office door, for example) will be considered to have been submitted at the time they are found, if they are found.

**ACADEMIC INTEGRITY:** Cheating or plagiarism in any form will not be tolerated. Cheating includes, but is not limited to: copying work or allowing your work to be copied; use of unauthorized material at quizzes and exams, any communication between students during a quiz or exam, and actively looking at another student's paper during a quiz or exam. Students repeating the course must rework and rewrite all assignments. Plagiarism includes resubmitting previously graded homework or lab reports from a previous semester, even if they were your own work. Plagiarism also includes using laboratory data from another person or a previous semester. Obtaining information about quizzes taken in other sections is considered cheating. Use of any electronic device other than an approved calculator during a quiz or examination is cheating. All incidences of cheating will be reported to the Office of Student Affairs. The first incidence of cheating will result in a score of zero for that assignment, quiz or exam. A second incident of cheating will result in an F for the course and possible dismissal from the University.

**ACCOMODATIONS:** Reasonable accommodations are available for students who have a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit or call the Access Center (Washington Bldg, Room 217, 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations **MUST** be approved through the Access Center. Accommodations are available for students for whom examinations fall on days objectionable due to religious beliefs. Requests for such accommodation must be presented, in writing, to the course instructor at least one week prior to the examination.

**EMERGENCY NOTIFICATION SYSTEM:** "Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (<http://safetyplan.wsu.edu/>) and visit the Office of Emergency Management web site (<http://oem.wsu.edu/>) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community."

**STUDENT LEARNING OUTCOMES:** At the end of the course the student should

1. Have an understanding of the concepts, models, and theories that form the foundation of the field of chemistry
2. Apply the standard algorithmic calculation procedures, individually and in combination, associated with these concepts, models, and theories.
3. Be able to describe, explain, and predict the behavior and interactions of substances on the atomic, molecular and macroscopic levels.
4. Be able to communicate in the basic vocabulary of chemistry including the ability to transition between chemical names and chemical formula in a facile manner and the ability to describe reactions using balanced chemical equations.
5. Understand the relationship between molecular structure the physical and chemical properties of a substance.
6. Create procedures to solve problems by applying single and multiple concepts to new situations.
7. Apply chemical procedures and evaluate experimental results to develop an appreciation for the experimental basis of chemical knowledge and experimental methods through laboratory work, with special emphasis on qualitative analysis.
8. Write effectively about scientific experiments by describing laboratory procedures and results from both the student's laboratory experience and articles from the scientific literature. Be able to evaluate and present a discussion of these results in the manner of a scientific report.

**ASSESSMENT:** SLO #s 1-7 will be assessed using examinations, tutorial quizzes, laboratory experiments and reports , homework, in-lecture assignments, and a research paper. SLO #8 will be assessed using the quizzes, lab reports, and the formal report.

**SCHEDULE****CHEMISTRY 101****SPRING 2015**

	Date	Chapter	Topic	Lab Expt / Topic	Lab report due	Quiz/ Exam	
1	Jan 12-16	1.1-1.6 2.1-2.3	Physical states, elements, compounds, chemical formulae, atoms, atomic nuclei	Tutorial <i>only</i>	none	none	
2	Jan 19* - 23	1.7-1.14	Measurements, units, calculations, uncertainty, density energy, specific heat	Worksheet 1: <i>Calculations and units</i>	Worksheet 1	Quiz 1	
3	Jan 26 - 30	2.6-2.9 3 4.11	Electron configurations, ions & ionic bonds Ionic compounds, chemical nomenclature, acids & bases	Worksheet 2: <i>Inorganic nomenclature</i>	Worksheet 2	Quiz 2	
4	Feb 2 – 6	4.1-4.7	Covalent bonds, bond polarity, molecular compounds, Lewis structures	Experiment 4: <i>Laboratory techniques</i>	none	Quiz 3	
5	Feb 9 - 13	4.8-4.10 2.4-2.5	VSEPR, shapes, geometry, molecular polarity, the periodic table	Tutorial plus Exam 1 practice	Experiment 4	<b>Exam 1</b>	
6	Feb 16* - 20	5	Chemical equations, reaction classes, oxidation numbers, net ionic equations	Experiment 1: <i>Shapes of molecules using models</i>	none	Quiz 4	
7	Feb 23 - 27	6	The mole, stoichiometry	Experiment 5: <i>Spectrophotometry</i>	Experiment 1	Quiz 5	
8	Mar 2 - 6	7	Heat of reaction, entropy, free energy, reaction rates, chemical equilibrium	Experiment 2 <i>Reactions &amp; equations</i>	Experiment 5	Quiz 6	
9	Mar 9 - 13	8	The gas laws, intermolecular forces, physical phases and phase changes	Tutorial plus Exam 2 practice	Experiment 2	<b>Exam 2</b>	
	Mar 16 - 20	SPRING BREAK					
10	Mar 23 - 27	9	Solutions, solubility, concentration units, electrolytes, colligative properties, osmosis	Experiment 6 <i>Heat of reaction</i>	none	Quiz 7	
11	Mar 30 - Apr 3	10.1-10.5 10.12-10.14	Acids and bases, conjugate acid/base pairs, acid/base reactions, titrations	Experiment 7: <i>The molecular mass of a volatile liquid</i>	Experiment 6 +formal report	Quiz 8	
12	Apr 6 - 10	10.6-10.10	Acid/base equilibrium, the pH scale, buffers	Experiment 8 <i>Gravimetric analysis</i>	Experiment 7	Quiz 9	
13	Apr 13 - 17	11	Nuclear decay, nuclear reactions, half-life, radiation	Tutorial plus Exam 3 practice	Experiment 8	<b>Exam 3</b>	
14	Apr 20 - 24	12.	Organic molecules, functional groups, isomers. Properties of hydrocarbons	Experiment 9: <i>Acid - base titrations</i>	none	Quiz 10	
15	Apr 27 - May 1	13	Unsaturated and aromatic hydrocarbons, cis-trans isomers. addition reactions	Tutorial <i>only</i>	Experiment 9	Quiz 11 (Optional)	
	May 4 (Mon.)	<b>FINAL EXAM 7 P M - 1 0 P M</b>					

\*Monday Holiday. No lecture on January 19, February 16.

## Get started with Modified MasteringChemistry and Blackboard Learn

### First, make certain that you have these 2 things...

**Email address:** You'll get important emails from your instructor at this address.

**Access code or credit card:** The required access code is part of the textbook bundle purchased at the bookstores. If you did not purchase the bundle, you can buy instant access with a credit card or a PayPal account during registration.

### Next, register!

1. Log in to Blackboard Learn, <http://learn.wsu.edu/blackboard>, using your WSU network ID and password. Click on the link to our course: "Introduction to Chemistry (2015 Spring Pullman Chem 101)". Click the "Mastering Chemistry" link on the left hand menu. Then click on the link to **MyLab and Mastering Course Home** to begin the registration process.
2. The registration page will appear in a new window or tab. It will start with the Mastering user agreement. Click the "I accept" button.
3. Sign into or create your Pearson account:  
You will be prompted to login with your Pearson account. If you have a Pearson account, enter the username and password. If you don't have a Pearson account, select the option to Create a new Pearson account. If you have ever used a Pearson Publishing on-line product before, you have a Pearson account. If you are not certain, select "Create" and enter the email address and username you want to use. The system will tell you if there is already an account associated with that email/user name.
4. The next page will offer you four options:
  - If you purchased the text bundle from the bookstore, click the button labeled "Access Code". Your access code is in a cardboard insert wrapped with the text book. Enter your **Access Code** in the spaces provided on the page that appears.  
-OR-
  - Purchase Mastering Chemistry access with the e-book text by clicking on the upper button in the **Use a Credit Card or PayPal** section (the right column). The cost is listed on the button. Follow the instructions to complete your purchase.  
-OR-
  - Purchase Mastering Chemistry access without the e-book by clicking on the lower button in the **Use a Credit Card or PayPal** section (the right column). The cost is less than for the homework/e-book combination. But, if you choose this option, you will be required to pay separately for access to LearningCatalytics (\$12 at the LearningCatalytics site). Follow the instructions to complete your purchase.  
-OR-
  - If you are not yet ready to purchase homework access, you may select the "Get temporary access without payment for 14 days". If you choose to do this, keep in mind that you will lose access to and credit for the homework if you do not actually purchase a code before the fourteen days are up.
5. You are now registered! Click on the "Go to your course" button to access your Modified Mastering product.