Syllabus *Chemistry 105* *Fall 2017*

Class Meetings: MWF 8:10AM, 1:10PM, and 3:10PM Fulmer 226.
Tutorial and Laboratory times are by section. Please consult your course schedule.

Important Contact Information:

Instructors: Dr. Paul Buckley Fulmer 120 335-8282 email: ptbuckley@wsu.edu
Office Hours: Wednesdays and Fridays 11-12, or by appointment

Dr. David Y. Lee Fulmer 104A 335-9773 email: d.y.lee@wsu.edu
Office Hours: Tuesdays and Thursdays, 4:30 – 5:30 or by appointment

General Chemistry Office:
Nikki Clark Fulmer 319A 335-1516 nikki_clark@wsu.edu

Laboratory Supervisor:
Ryan Rice Fulmer 309 335-6358 rwrice@wsu.edu

Assessments, Grading, and Points:

3 "midterm" exams	300 points
Tutorial Participation	35
14 Homework sets	140
~39 Learning Catalytics Sets (best 35)	175
11 laboratory experiments/worksheets (best 10)	200
Final Exam	150
TOTAL	**1000**

Grade Ranges: (minimum points to achieve)

900 points	A	740 points	C+
870 points	A-	700 points	C
840 points	B+	670 points	C-
800 points	B	640 points	D+
770 points	B-	600 points	D
Less than 600 points: F			

Midterm Exams	Thursday	Sep 21	6:00– 7:30 pm
	Thursday	Oct 19	6:00– 7:30 pm
	Thursday	Nov 16	6:00– 7:30 pm
Final Exam	Tuesday	Dec 12	7:00– 8:50 pm (Comprehensive)

Prerequisites

1. Enrollment in Math 106, or placement beyond Math 106. Students in Math 105 or lower cannot be enrolled for Chem 105. Credit for, or placement into, Math 140, Math 171, Math 172, or Math 202 meets this prerequisite.
2. One year of High School chemistry, credit for Chem 101, or one quarter of Chemistry from a community college.

Course Objectives, Learning Goals, and Expected Outcomes: Chemistry 105 fulfills three credits of Inquiry in the Physical Sciences [PSCI] and one credit of laboratory as part of the WSU Common Course Requirements (UCORE). As with all UCORE courses, Chemistry 105 is designed to advance students toward the WSU Learning Goals, especially Scientific Literacy, Critical and Creative Thinking, Quantitative Reasoning, and Information Literacy. In particular, students who successfully complete Chemistry 105 will be able to:

1. *Develop an understanding* of the concepts, models, and theories that form a foundation for the field of chemistry (the understanding of how the behavior of matter is determined by the properties of atoms and molecules).
2. *Be literate in the basic vocabulary of chemistry*, the metric prefixes and the names of the most common elements.
3. *Apply standard algorithmic calculation procedures*, individually and in combinations, that relate macroscopic properties, including mass, volume, pressure, and temperature of substances. Balance chemical reactions and relate amounts of reactants and products as well as associated energy changes. In addition, be able to relate macroscopic and atomic level properties of numbers of atoms and molecules, chemical formulas, and molecular structures.
4. *Apply models* of bonding to predict and describe the structure of molecules including their physical properties.
5. *Create procedures* to solve problems by applying single and multiple concepts to new situations.
6. *Apply chemical procedures* and evaluate experimental results to develop an appreciation for the experimental basis of chemical knowledge and experimental methods through laboratory work.
7. *Write effectively* about science, including descriptions of experiments, laboratory procedures and results, and then evaluate and present a discussion of these results in the manner of a scientific report.

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What Materials Do I Need For This Class?

Text: *Chemistry: A Molecular Approach* by Tro, 4th edition, Pearson (2016). ISBN: 978-1-323-45432-9 (hardcover) or 978-1-323-43344-9 (eText). (Required)

Mastering Chemistry Online: Mastering Chemistry access codes are bundled with new copies of the textbook, sold separately in the bookstores, or available for purchase through the Mastering Chemistry link on the course Blackboard page. Please do not purchase directly from the Pearson Mastering Chemistry website, as this creates severe complications. Purchase through the Blackboard link to Mastering Chemistry only.

Your **Mastering Chemistry** account allows you access to the online **homework**, the in-class **Learning Catalytics** sessions, and the laboratory experiment **pre-lab assignments.**

If you are not able to purchase access to Mastering Chemistry immediately, you may sign on for a 14 day free trial. This initial registration must be done through the Blackboard Learn course website link to Mastering Chemistry.

Laboratory Notebook: You will need to purchase a laboratory notebook. These are available in the Bookie, and in Fulmer 318 the first two weeks of class. Laboratory experiments are posted on the class Bb site, in the "Content" folder, under "Lab Docs". You can print a hard copy ahead of time, or bring your laptop/tablet to lab.

Goggles: Required by State Law. (Sold in Fulmer 318 the 1st and 2nd week of class and at the bookstores.)

Lab Coat: Optional, but will be required for Chem 106. Sold in Fulmer 318 the 1st and 2nd week of class and at the bookstore.

Calculators: A scientific calculator, which you are responsible for bringing to all tutorials, lectures, labs, and exams. Any programmable or web-enabled calculator, or one with the capacity to store information such as the TI N-spire, or calculators with a full keyboard (such as the TI-92 or Voyage 200); tablets, laptops and cell phone/calculator combinations may not be used during exams. Apple watches may not be worn during exams.

Course Structure:

Lectures: Lectures **must be** attended on a regular basis, and you are expected to read the textbook BEFORE coming to class. Lectures will supplement and clarify the information from your text rather than reiterate it, and provide group-based problem solving sessions.

Learning Catalytics: There is a Learning Catalytics session during the first 10-15 minutes of each lecture. These sessions are interactive and require a WiFi-enabled device, such as a smartphone, laptop, or tablet. You will log in to each session through the Blackboard link, or www.learningcatalytics.com, and answer the questions posed to you by the instructor throughout the class period. This system also allows you to submit questions to the instructor or indicate you do not understand the material, giving real-time feedback to your instructor. Each Learning Catalytics session is worth 5 points. Each assignment is graded on both participation (75%) and correctness of answers (25%), and pro-rated to a maximum value of 5 points. Electronic devices must be turned off and put away afterwards, and their use is not tolerated during class time.

Homework: We will use the Mastering Chemistry homework assignment system, and there will be a new assignment each week. The due date/time for each assignment will be listed with the assignment on the homework site, but is typically 7:00 AM on Tuesdays. Each homework set is pro-rated to a maximum value of 10 points.

Tutorials: These are small classroom meetings associated with your laboratory section and led by your TA. They feature group-based, guided inquiry exercises and worksheets. There are 35 course points associated with tutorial participation. Attendance is mandatory.

Exams: Exam questions may be multiple choice, short answer, "show your work" calculations, or combinations of these. Appeals about grading on hand-written questions will be first through your TA. If your TA cannot resolve the issue, the TA will present the appeal to the professor.

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Laboratories:
Pre-laboratory assignments: Pre-laboratory assignments are completed online through Mastering Chemistry and are due at 7:00AM Tuesday the week of that experiment, regardless of your lab section. They are typically worth 2-4 points, included as part of the overall lab report score.

Laboratory procedure: Each student will record all data and observations for each experiment directly into their own on-line laboratory notebook (Lab Archives). You are required to get your TA's approval on your data entries before you leave lab, or risk receiving no credit for your lab report.

Laboratory reports: You must submit an electronic copy of your lab report through *Writing Space* within Mastering Chemistry as a plagiarism check. In most cases, the laboratory reports are due for online submission by 11:59 pm on the Wednesday following your lab experiment, regardless of your lab section. Consult the schedule at the end of this syllabus for exceptions.

Laboratory dress code: For your safety, a strict dress code is enforced in the laboratory. The dress code requires that you be fully clothed from shoulder to toe. No shorts, short skirts, or shoes that do not entirely cover your legs, ankles, and feet are permitted. Students not complying with the dress code are not allowed to perform the lab experiment.

Keeping the Lab Safe and Orderly: Goggles must be worn at all times when in the lab. It is also your responsibility to maintain an orderly workspace, to clean up spills at your bench and near balances immediately, and to clean your work station before you leave. TAs may deduct up to five points from your lab report scores for violations of these rules.

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 Policies on Late and Missed Exams, Assignments, and Lab Experiments (The Rules):

Exams: 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. A midterm exam missed due to documented illness will be excused, with the average score from your other exams used as the missed exam score. Exams end precisely at the designated time, regardless of when you arrive to the exam. Exam scores may be reduced by 10% of the maximum possible score for unauthorized in-class use of electronic devices. For questions requiring hand-written answers, only permanent-ink writing instruments can be used (no pencils). The exam graders reserve the rights to deduct partial or all points if the answers are not written in a clear and readable fashion.

Tutorials: Students who arrive late or miss the tutorial will **not** be allowed into the lab. **Tutorial sessions are <u>never</u> canceled!** If your TA fails to arrive for a tutorial section, send one person to contact the General Chemistry office (335-1516, Fulmer 319A) immediately. Leaving a tutorial under these circumstances is considered equivalent to not attending tutorial.

Pre-lab Assignments:
Students who fail to submit a complete pre-lab assignment by the start of tutorial will lose the pre-lab points, and are required to complete the pre-lab assignment before they are admitted to lab. If you are sent by your TA to complete the pre-lab, you may do so in Fulmer 401, and will need to get a verification slip from Nikki Clark (Fulmer 319A). You will not be given extra time in the laboratory to make up for laboratory time spent completing the pre-lab.

Laboratory reports: Late laboratory reports are not accepted. Instead, your lowest lab report score is dropped, allowing you one "missed" report. Failure to submit a laboratory report for an experiment will result in zero credit for that experiment (no credit will be given for the pre-lab or data & observations sections in the absence of a full report.)

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

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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**: Ensure your pre-lab assignment is complete and see Ryan Rice (Fulmer 309) to be supplied with make-up data for the scheduled experiment. Do this as soon as you can! Reports based on make-up data are due at the normal time (in tutorial one week after you should have attended lab) and will be worth no more than half credit.

This is a laboratory UCORE course, thus the laboratory must be completed by submission of at least 8 complete laboratory reports based on your own work or approved make-up data in order to pass the course. Thus, obtaining a score of zero for more than 3 experiments will result in an F for the course.

Homework: No late homework assignments will be accepted. Your homework assignment will be scored according to the portion of the assignment you have completed by the due date.

How Do I Get Help?

Professor's Office Hours: The hours are listed on the first page of this syllabus. You are encouraged to visit office hours for help, or to simply introduce yourself and let us know how the course is going for you. The more specific you are with your questions, the more we are able to help you.

TA Office Hours: All chemistry TAs hold their office hours in Fulmer 318. The schedule will be posted on Blackboard. You may ask any Chem TA for help in this course, regardless of the course they are associated with.

Electronic Communications: E-mail communications with Faculty and TAs are welcomed, but you MUST send email from your WSU email account, and start with **Chem 105** in the subject line, otherwise you risk no response.

Free Tutoring: Available at Lighty Student Services: https://tutoring.ascc.wsu.edu/CampusTutoringList.aspx

Discussion Forums: (Blackboard and Facebook): The Discussion section of Blackboard is open to everyone involved in the course. Through it you can post questions and get answers from other students as well as the instructors and TAs, and you can see the questions and answers posed by others. There is also a Facebook Community page for Chem 105, located at www.facebook.com/WSUChem105 that will serve as an additional resource.

Classroom Safety Statement

*Classroom and campus safety are of paramount importance at Washington State University, and are the shared responsibility of the entire campus population. WSU urges students to follow the "***Alert, Assess, Act***," protocol for all types of emergencies and the "Run, Hide, Fight" response for an active shooter incident.*
Remain **ALERT** *(through direct observation or emergency notification),* **ASSESS** *your specific situation, and* **ACT** *in the most appropriate way to assure your own safety (and the safety of others if you are able).*
Please sign up for emergency alerts on your account at MyWSU. For more information on this subject, campus safety, and related topics, please view the FBI's Run, Hide, Fight video and visit the WSU safety portal.

Academic Integrity:

Academic integrity is the cornerstone of higher education. As such, all members of the university community share responsibility for maintaining and promoting the principles of integrity in all activities, including academic integrity and honest scholarship. Academic integrity will be strongly enforced in this course. Students who violate WSU's Academic Integrity Policy (identified in Washington Administrative Code (WAC) 504-26-010(3) and -404 will receive a score of zero for that assignment or exam for the first instance. A second incident of cheating will result in an F for the course, without the option to withdraw from the course pending an appeal. All violations of the WSU Academic Integrity Policy will be reported to the Office of Student Conduct.

Cheating includes, but is not limited to, plagiarism and unauthorized collaboration as defined in the Standards of Conduct for Student: Washington Administrative Code (WAC) 504-26-010(3), found here: **http://app.leg.wa.gov/WAC/default.aspx?cite=504-26-010**. If you have any questions about what is and is not allowed in this course, ask the course instructors before proceeding.

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- 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 exams, any communication between students during an exam, and actively looking at another student's paper during an exam.
- 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.
- 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.
- Use of any electronic device other than an approved calculator during an examination is cheating.

WSU Reasonable Accommodation Statement

"Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center [Pullman] or Disability Services at [name of campus] address on your campus] to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center or Disability Services. For more information contact a Disability Specialist on your home campus."

Pullman or WSU Online: 509-335-3417, Washington Building 217; http://accesscenter.wsu.edu, Access.Center@wsu.edu

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SCHEDULE (Subject to Modification) *CHEMISTRY 105* *FALL 2017*

	Date	Chapter	Topic	Lab Experiment / Topic	Lab report due	Exam
1	Aug 21-25	1	Matter, Measurement, and Problem Solving	*Introduction to Excel*	*Intro to Excel*	
2	Aug 28-Sep 1	1, 2	Atoms and Elements	*Laboratory Techniques and Measurements*		
3*	Sep 4-8	2, 3	Molecules, Compounds, and Chemical Reactions	Worksheet: *Inorganic Nomenclature*	*Lab Techniques and Worksheet*	
4	Sep 11-15	3, 4	Molecules, Compounds, Equations, and Chemical Quantities	*Limiting Reactants*		
5	Sep 18-22	4	Chemical Quantities	Tutorial only – no lab		**Exam 1**
6	Sep 25-29	4, 5	Aqueous Reactions, Gases	*Aqueous Solubilities of Ionic Compounds*	*Limiting Reactants*	
7	Oct 2-6	5	Gases continued	*Density of Air*	*Aqueous Solubilities*	
8	Oct 9-13	6	Thermochemistry	*Enthalpy of Formation of Ammonium Chloride*	*Density of Air*	
9	Oct 16-20	6, 7	Thermochemistry, Quantum Model of the Atom	Tutorial only – no lab		**Exam 2**
10	Oct 23-27	7	The Quantum Mechanical Model of the Atom	*Molar mass of a known and unknown acid*	*Enthalpy of Formation*	
11	Oct 30-Nov 3	7, 8	The Quantum Mechanical Model of the Atom continued, Periodic Properties of the Elements	*Analysis of Iron by Redox Titration*	*Molar Mass*	
12#	Nov 6-10	8	Periodic Properties of the Elements continued	*Preparation of an Iron Oxalate Complex*	*Iron Redox Titration*	
13	Nov 13-17	9	Chemical Bonding I: The Lewis Model	Tutorial only – no lab		**Exam 3**
	Nov 20-24	*THANKSGIVING BREAK*				
14	Nov 27-Dec 1	9, 10	Chemical Bonding I: The Lewis Model continued, Chemical Bonding II: Molecular Shapes, etc.	*The shapes of molecules and Ions*	*Iron Oxalate Complex*	
15	Dec 4-8	10	Chemical Bonding II: Molecular Shapes, etc. continued	Tutorial only: Final Exam Practice	*Shapes of Molecules*	
	Dec 12		FINAL EXAM*: Thursday, 7-8:50pm*			**Final**

*Monday Holiday: No lecture on September 7th. #Friday Holiday: No lecture on November 10th.

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Getting Started with Modified Mastering Chemistry and Blackboard

1. Log in to Blackboard Learn learning management system (https://learn.wsu.edu), using your Network ID and password.
2. Select the course "**Principles of Chemistry I**."
3. Find the Mastering Chemistry link in the left-hand menu and click. This will bring up three links in the right-hand area.
4. Click on the "**Mastering Course Home**" text. This will start the registration process.
5. Accept the user agreement with Pearson Publishing.
6. You will be prompted to log in with your Pearson account information.
    a. If you already have a Pearson account, log in.
    b. If you have a Pearson account but do not remember it, use the help provided through Pearson's website. If you try to establish a new account, you will have to pay again.
    c. If you have **never** had a Pearson account, create one. Be sure to record your username and password, as you most likely will need it again.
7. If you purchased the textbook bundle from the bookstore, or otherwise purchased a **Modified Mastering Chemistry** access code, click the button "**Access Code**" and follow the directions on the next screen by replacing the example code with your code. Keep a record of this code, as well.
8. If you **have not** purchased the textbook bundle or the access code in any other form, click "**Use a Credit Card or Paypal.**" You may also choose to get a temporary access code, good for 14 days, but this only works once, so if you have previously used the same textbook and used the temporary access option then, you will be unable to do so again.
9. You should now be registered. Click on the "**Go to your course**" button to access the Mastering Chemistry course home and Learning Catalytics link.
10. If you have any issues with the registration process, please use the Pearson online support, or come in and see Dr. Krista Nishida in Fulmer 317A.

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