2015

Chemistry 102-001 General Chemistry II Fall 2015

C. Britt Carlson
Parkland College, bcarlson@parkland.edu

Parkland College Mission Statement: To engage the community in learning.

Fall 2015: CHE 102-001: General Chemistry II

Instructor: C. Britt Carlson, PhD ***Email (preferred): bcarlson@parkland.edu***

Student Office Hours (drop-ins welcome): M 11-12, W 11-1, R 1-2, F 1-2

Office: L133 ***Phone: 217-353-2132***

Course Information	***CHE 101 – 007***	
	Class Meetings: MW 9-10:50	Rm. L-239
	Lab Meetings: R 9-11:50	Rm. M-232
	Final Exam: W 12/16 8-10:00	Rm. L-239

Required Materials:	**Textbook:** Burdge, Atom's First Chemistry (2nd Edition, McGraw-Hill 2015), with Connect Plus homework system. **Lab Manual**: All labs are available on Cobra **Others**: Scientific Calculator (with log function), safety goggles, lab notebook (Student Lab Notebook with Spiral Binding).
Prerequisites:	CHE 101 and MAT 098, or equivalent, with a grade of C or higher

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Attendance:

On **8/31** I am required to assess your attendance. If you have not attended to that point, you will be dropped with no refund of tuition and fees. After this census date, you should not plan on an instructor withdrawal if you want to withdraw from the course. You are ultimately responsible for your own withdrawal by the withdrawal date. Non-attendance after the census date will result in an F if you don't withdraw yourself. Attendance at all laboratory sessions, including the first week of class, is required and absences can lead to failing the course. You are responsible for all material and announcements that you may miss if you are absent. You can expect to invest *at least* 8-12 hrs/week outside of class. **Few people will do well in this class if they do not study and spend the time.**

Attendance at all laboratory sessions is required. Failure to attend the first laboratory session will result in students being dropped from the course unless they attend one of the makeup labs offered *before* their second lab period. **If you miss more than two labs, including the first lab, you will fail the course regardless of your performance in the non-lab portion.** There are NO laboratory make ups. If a student is more than 30min late, that student will not be allowed to participate, will be given an automatic 0% for that lab and this will be counted as a missed lab. If a student is less than 30min late, this student will be allowed entry, but the student will receive a 0% on the pre-lab quiz (no make-up). If a student is more than 5 min late on more than 2 occasions, that student will receive a point penalty. If you do not dress appropriately or have not fully completed the prelab you will NOT participate in lab that day. Even if you miss a lab you will still be responsible for the concepts that were covered in the lab. Anything covered in lab can be included in quizzes, homework, and exams.

Mass Notification System:

In the event of a significant campus emergency, Parkland College will activate the mass notification system. We encourage you to sign up for this free service and select how you would like to be notified: text message, audio message, or email message. Sign up at http://www.parkland.edu/police/emergency-alert.aspx

Cell Phone Policy:
Cell phones should be set to vibrate mode during all class periods. Cell phones should not be used in lieu of a watch, stop watch, calculator, and/or reference guide.

Disabilities:
If you believe you have a disability for which you may need an academic accommodation (e.g. an alternate testing environment, use of assistive technology or other classroom assistance), please contact: Cathy Robinson, Room U-260, 217-353-2338, crobinson@parkland.edu

Center for Academic Success:
If you find yourself needing assistance of any kind to complete assignments, stay on top of readings, study for tests, or just to stay in school, please contact the Center for Academic Success in D120 at 353-2005 or 351-2441. You may also email the CAS at CenterForAcademicSuccess@parkland.edu. CAS provides free chemistry tutors.

Writing Lab:
The Writing Lab is a free service in which English instructors will review your writing projects, offer feedback, and answer your questions. The Writing Lab is located in the Center for Academic Success in Room D120. Go to the Writing Lab website <http://www.parkland.edu/cas/writing-lab.html> for more details.

Academic Honesty:
It is the student's responsibility to read and understand the Academic Honesty section of the Parkland College Student Policies and Procedures Manual. A portion of this section reads, "Depending upon the nature of the case, [the resolution of the incident] could carry the penalty of a failing grade for that assignment or for the course." See http://www2.parkland.edu/studentpolicy/honesty.html

Core Values:
We believe strongly in the Core Values espoused by Parkland College: **Honesty and Integrity, Fairness and Just Treatment, Responsibility, Multiculturalism, Education and Public Trust**

Essentially, these values set guidelines for how we should treat you and how you should treat each other (and us). Failure to be respectful of one another or to maintain ethical behavior will not be tolerated.

Course Assessments and Schedule

Contents:
The course covers the following topics. Refer to the *Chemistry 102 Learning Outcomes and HW Problems* document on Cobra for more details.

Unit	Chapter	Topic
1	8-10, 14-15	Thermodynamics, Chemical Reactions, and Equilibrium Review
	16	Acids and Bases
	17	Aqueous Equilibria
2	18	Electrochemistry
	19	Kinetics
	20	Nuclear Chemistry
3	3-7	Bonding Theories Review
	22	Coordination Chemistry
	23	Organic Chemistry: basic reactions
	24	Organic Chemistry: polymers

Exams:
Four exams will be given: three unit exams and one cumulative final exam. The unit exams will be given on-campus at the Testing Center for Natural Sciences (L-161). The class on that day will be canceled and you will have any time during the Testing Center hours to take the test that day and the next day (typically a Monday and a Tuesday). Refer to my.parkland.edu for Testing Center regulations (bring your ID and know your course information: **CHE102-001, Carlson**). Since you are given 2 days to take the exam, there are **no make-up exams.** You must use the Testing Center's calculator.

Testing Center Hours:
9:00 am – 3:45 pm Monday through Thursday
9:00 am – 2:45 pm Friday

Quizzes:
7 quizzes will be given. One quiz grade will be dropped. Students will be expected to take the quiz on Cobra by a specified date and time. You will be allowed only **25min** each quiz. The quiz will then be automatically submitted and graded, whether you have finished it or not. Make sure to pay attention to the time. You cannot re-take the quiz, so make sure you are ready before you start (know the material and have scrap paper, calculator and pencil ready). The quizzes are short and only provide a few examples of questions. They will be different from the exams and not every concept or chapter will appear on the quiz, even if it might appear on the exam. Do not leave the quizzes to the last day. Each quiz is worth 15 points. **There are no makeup quizzes.** If you have any technical problems, contact TechSD at 217-353-3333 (http://www.parkland.edu/techsd). If you see an error or have a problem, contact me ASAP.

Homework:
Homework is one of the most important parts of this course. It helps you understand the material and better prepares you for quizzes and exams. Do not leave the homework assignments to the last day before it is due. Instead, finish problems in each section as we progress through the chapter. 10 sets of HWMK problems are assigned, each with 2 parts (a and b). You must complete both parts (a and b) to receive full credit. The homework system, Connect, is in an online format hosted on publisher website and can be accessed through Cobra. *If you have any technical problems, make sure call and get a case # from the Connect Plus help center before contacting me (see mpss.mhhe.com for Customer Service details).* To access Connect, you should receive an access code as part of your textbook package if you purchase it from Parkland Bookstore. Otherwise, you can purchase a stand-alone version of the access code via the McGraw-Hill website. The lowest two HWMK grades will be dropped. Each HWMK is worth 14 points. Due dates and times of the HMWK are available in the schedule included in this syllabus. **No late HWMK will be accepted.** The HMWK that is assigned is just a *small sample* of the work that you should be doing outside of class. You will be expected to read all of the pertinent chapter sections, do in-chapter problems and examples, and do end-of-chapter questions (the answers to the odd# questions are in the back of each chapter or the end of the book) in addition to this graded HMWK. Refer to the *Chemistry 102 Learning Outcomes and HW Problems* document on Cobra for a list of recommended problems.

Bonus Opportunities:
There are several opportunities for bonus (extra credit) points in this class. All unit exams will include at least 1 bonus question, but there will not be a bonus question on the final exam. Up to 1 bonus point can be earned by attending the Fall Convocation and Student Activities Fair on 8/25, typing up a short reflection paper (~1pg) and handing it in within 1 week of attending the event. Up to 2 bonus pts can be earned by attending up to 2 scholarly science talk (at least 1hr long, 1 bonus pt per talk), typing up a short reflection paper (~1pg) and handing it in within 1 week of attending the talk. Bonus pts are also awarded for completing the Natural Sciences Assessment (a link will be sent via email close to the end of the semester). Lastly, bonus points are awarded for participation in the Natural Sciences Poster Session. This is explained in more detail in the Special Project section of the syllabus.

General Laboratory Information:

- The attendance policy is described on page 1 of the syllabus.
- All laboratory experiments are posted on Cobra under “Content” : “Laboratory Information

Expectations:

- Read through the experiment in advance of the lab session. Use the schedule listed in this syllabus to determine the lab schedule. **Completing the wrong pre-lab or coming to lab with an incomplete or missing pre-lab will result in a zero and the student will not be able to complete the lab.**
- Pre-labs:
    - Name, date, title, course and section
    - Complete the first two pages of the lab (pre-lab) which include:
        - Safety data table
        - Purpose statement
        - Short summary of the lab, including all experiments to be covered in the lab session, a brief description on how the experiment will be performed and any safety issues related to the chemicals or equipment to be used.

Answer for all pre- All lab reports are due at the end of lab that day. No late lab reports will be accepted.

        - lab questions posted on page two of the lab.
    - Wear appropriated clothing, as described on the safety contract
        - Goggles must be worn all the time in the laboratory area. Gloves can be used under the student’s discretion, unless otherwise indicated by the instructor. Gloves are NOT allowed in the laboratory commons.
- During the lab:
    - Perform the experiment as instructed by the lab manual or instructor, label all solution prepared or solids transferred from the original container and record all data on your data sheets under observations.
    - While performing the lab, on the laboratory notebook, keep record of all procedure as it was performed in the lab. Make sure to indicate the glassware used, experimental values obtained and any other relevant observation to the lab.
    - When done, clean up your working area and unplug all electrical equipment. Perform a drawer check to make sure all glassware is present and clean in the drawers. Also make sure all common areas are clean.
    - Evidence of unclean glassware, benches, or common areas will lead to a point deduction for the entire class.
    - Once the wet lab portion is complete, students can move to the Chemistry Commons to complete their lab reports (described on the next page).

Lab Reports
All lab reports are due at the end of lab that day. **No late lab reports will be accepted.** All lab reports must be written in black pen.

Lab reports must include the following parts in the following order (refer to the example provided on Cobra):

1. All pre-lab components: see information listed on page 5.
2. Laboratory journal: A complete description of how the lab was accomplished (procedure) as well as all experimental observations such as experimental values and qualitative descriptions.
3. Data analysis and calculations: Some labs will require students to analyze their experimental data by graphing their results using Excel.
4. Conclusion:
    a. Short summary of what was done in the lab, including all results.
    b. Identification of 2-3 procedural sources of error (not human error), and a short description of how they could be minimized.

Lab Report Grading Rubric

Category	Lab Report Component	Points
Pre-lab	Headings	0.25
	Safety Table	0.5
	Purpose Statement	0.25
	Procedure Summary	1.5
	Pre-lab Questions	1.5
Experiment	Lab Journal	6
	Calculations & Data Analysis	3
Conclusion	Conclusion	2
Total Points		15

Laboratory Assessment
The laboratory assessment grade is an individual examination consisting of an online theoretical exam and a wet lab experiment part. The theoretical examination consists of lab-related questions focused on procedures and calculations performed as part of the lab.

The wet lab part of the laboratory assessment grade is based on an individual examination where students will be assigned to perform a specific laboratory task or procedure in the lab. Students will be expected to complete a proper laboratory report and the students will be evaluated based on proper and correct use of equipment, safety, and proper laboratory report and conclusion as described above. Students will be allowed to use their lab notebook, but students will not be allowed to use the lab manual.

Special Project:

- You will make a PowerPoint presentation, share it with the class discussion forum, comment on a classmate's presentations in the discussion forum, and then submit your presentation to the drop box for grading.
    - Making the presentation:
        - choose a chemistry-related topic and use at least 1 primary research article (not a review article, a news article, or an advertisement) as a source.
        - Get your topic and primary research article approved by me by **W 10/21.**
        - At some point in the presentation, discuss the overview of the primary research article AND discuss and explain at least 1 data table/figure from the primary research article
        - use at least 2 sources in total.
        - All projects must have citations in the text of the content and a Reference/Works Cited page.
    - Sharing and commenting on the presentation in the Cobra discussion forum:
        - Enter the discussion forum and add your PowerPoint presentation as an attachment (due **M 11/2**)
        - Post a comment (at least 3 sentences) on the discussion forum about someone else's project by **W 11/4.** This should be a constructive suggestion – giving helpful advice to your classmate based on the Special Project grading rubric. Credit will not be given to student replies that are not substantive or not creative. If you see someone's project does not have a reply post, post to that project first. Only post to someone who already has reply posts if there is no one who needs a reply. Credit will not be given to students who reply to posts that have replies if there are students that still need replies.
    - Uploading the presentation to the Cobra drop box for grading:
        - submit your PowerPoint presentation to a drop box on Cobra by **W 11/11.**
        - submit a Word file containing all of the content. This will be submitted to a drop box on Cobra and scanned for plagiarism and content by **W 11/11.**
- Important Dates:
    - topic and article approval: **T 10/20.**
    - submit to discussion forum: **M 11/2.**
    - post a comment: **W 11/4.**
    - submit PowerPoint presentation and Word file to Cobra drop boxes: **W 11/11.**
    - **Late projects will not be accepted and will earn a 0%.**
- You have the opportunity to present your project during a Natural Sciences Poster Session on **W 12/2** at 4-6 PM. Participation in this event is an extra credit opportunity. If you choose to present, you can earn up to 6pts EC. PowerPoint presentations at the session require the students to bring their own laptop. If you chose to attend, but not present, you can earn up to 2pts EC, if you write a reflection paper due in class on **M 12/7**. Lastly, you can earn up to 10pts EC if you present your project to an audience (this is a competitive process and requires you to submit an abstract that is chosen among other submissions).

Special Project Rubric:

Category	Points
Introduction	
Headings: Name, Course-Section, Affiliation (Institution), Date, Title	**0.5**
Introduction: Describes the importance of topic and defines all new terms	**1**
Content	
Relevance: chemistry-related topic. Good fit with chosen topic	**0.5**
Chemistry : High level of conent accuracy. Student understanding of content is clear. The project is mainly focused on the science of the topic.	**2**
Primary article: an appropriate primary article is used	**3**
Primary article: the primary article is summarized	**3**
Primary article: contains a scientific table/figure that is well explained.	**3**
Conclusion: Summarizes the information presented in a concise manner	**1**
Citations	
Originality: All paraphrasing is done correctly. No evidence of mosaic plagiarism. Little to no direct quotes.	**5**
In-text citations: All images have in-text citations	**2**
In-text citations: All written information has an in-text citation	**6**
Works Cited: Contains a complete Works Cited (MLA) at the end.	**5**
Appearance	
Formatting and Neatness: The project is easy to follow, organized in a logical fashion, colors and fonts are easy to read. Visually appealing	**1**
Length: The presentation contains at least 10 slides of science content	**1**
Writing: Good grammar and spelling	**1**
Total	***35***

Writing Guidelines

- A primary research journal article can be found in a peer-reviewed scientific journal. **Expect to spend time on this.** These research articles are not easy to read.
- Both http://www.chemistrycentral.com/ and http://www.biomedcentral.com/ are open access databases for journal articles. Also, the Library has resources available.
- Plagiarism of any form will NOT be tolerated and will result in a grade of zero. Please refer to www.plagiarism.org, the library, and the CAS Writing Lab for help. These sources are *highly* recommended. **Many students have received 0% because they did not fully understand what plagiarism is and unintentionally plagiarized.** Within the body of the paper, you need parenthetical references, even if the material is paraphrased and not a direct quote (scientific paper style, not newspaper style). Use the MLA standards for in-text citations and the Works Cited, which can be located at the following website: http://owl.english.purdue.edu/handouts/research/r_mla.html. **Papers that do not include appropriate Works Cited, use of quotation marks, and in-text parenthetical citations (as appropriate) will result in a grade of zero.**
- Notes on some of the most common errors: Paraphrased content must have in-text citations; Use little to no direct quotations – paraphrasing lets me know that *you* know the information. Use your own sentence structure to avoid mosaic plagiarism.

Course Grading: (subject to change)

Chemistry 101 - Course Rubric					
Categories	**Activity**	**Points per Units**	**Units**	**Total Points**	**Notes**
Lecture (71.6%)	Connect Homework	14	10	126	One Drop
	Quizzes	15	7	90	One Drop
	Hour Exam	100	3	300	No Drops
	Final Exam	200	1	200	No Drops
Laboratory (24.4%)	Lab Notebook/Report	15	9	120	One Drop
	Quizzes	5	9	40	One Drop
	Theoretical Assessment	25	1	25	No Drops
	Practical Assessment	50	1	50	No Drops
	Molecular Geometry Worksheet	5	1	5	No Drops
	1st Week Lab Report	4	1	4	No Drops
Special Project (4%)	PowerPoint	35	1	35	No Drops
	Discussion Post	5	1	5	No Drops
Extra Credit	Welcome Convocation	1	1	1	Bonus
	Science Talk	2	2	4	Bonus
	Natural Sciences Assessment	1	1	1	Bonus
	Presentation at Poster Session	6	1	6	Bonus
	OR				
	Attendance at Poster Session (requires reflection paper)	2	1	2	Bonus
	OR				
	Oral Presentation at Poster Session (competitive)	10	1	10	Bonus
Total Points				**1000**	

Course Grading Scale

< 60.00%	60.00%-69.99%	70.00%-79.99%	80.00%-89.99%	90.00%-100%
F	**D**	**C**	**B**	**A**

Course Schedule (subject to change):

Lecture Schedule			Lab Schedule	
Date	**Chapter**	**Topic**	**Date**	**Lab**
Week 1				
M 8/24	8-10, 14-15	Thermodynamics, Chemical Reactions, and Equilibrium Review		
W 8/26	8-10, 14-15	Thermodynamics, Chemical Reactions, and Equilibrium Review		
			R 8/27	Introductory lab
Sun 8/30: Last day to withdraw for full refund				
Week 2				
M 8/31	8-10, 14-15	Thermodynamics, Chemical Reactions, and Equilibrium Review		
W 9/2	8-10, 14-15	Thermodynamics, Chemical Reactions, and Equilibrium Review		
			R 9/3	Acids and Bases: pH
Sat 9/5	*8PM*	*HMWK 1a: Chapter 8-10, 14-15* *HMWK 1b: Chapter 8-10, 14-15*		
Week 3				
M 9/7		**HOLIDAY**		
W 9/9	*8:30AM*	*Quiz #1: Chapter 8-10, 14-15*		
W 9/9	16	Acids and Bases		
			R 9/10	Acids and Bases: Solution Prep

Week 4				
M 9/14	*8:30AM*	*Quiz #2: Chapter 16*		
M 9/14	16	Acids and Bases		
W 9/16	17	Aqueous Equilibria		
			R 9/17	Aqueous Equilibria: Titration
Sat 9/19	*8PM*	*HMWK#2a: Chapter 16* *HMWK#2b: Chapter 16*		
Week 5				
M 9/21	17	Aqueous Equilibria		
W 9/23	17	Aqueous Equilibria		
			R 9/24	Library 1st: Meet in **R227**. Then Chpt 18: lecture (in **B118**).
Sat 9/26	*8PM*	*HMWK #3a: Chapter 17* *HMWK #3a: Chapter 17*		
Week 6				
M 9/28	***8-10, 14-17***	***Exam 1***		
			T 9/29	***Exam 1***
W 9/30	18	Electrochemistry		
			R 10/1	Electrochemistry
Sat 10/3	*8PM*	*HMWK#4a: Chapter 18* *HMWK#4b: Chapter 18*		
Week 7				
M 10/5	*8:30AM*	*Quiz #3: Chapter 18*		
M 10/5	19	Kinetics		
W 10/7	19	Kinetics		
			R 10/8	Kinetics
Week 8				
M 10/12	19	Kinetics		
W 10/14	20	Nuclear Chemistry		
			R 10/15	Nuclear Chemistry
Sat 10/17	*8 PM*	*HMWK#5a: Chpt 19* *HMWK#5b: Chpt 19*		

Week 9				
M 10/19	*8:30AM*	*Quiz #4: Chapter 19*		
M 10/19	20	Nuclear Chemistry		
W 10/21	**Get approval for special topic and primary article**			
W 10/21	20	Nuclear Chemistry		
			R 10/22	Chpt 3-5: lecture (in **B118**)
Sat 10/24	*8PM*	*HMWK #6a: Chapter 20* *HMWK #6b: Chapter 20*		
Week 10				
M 10/26	***18-20***	***Exam 2***		
			T 10/27	**Exam 2**
W 10/28	6-7	Bonding Theories Review		
			R 10/29	Molecular Models
Sat 10/31	*8PM*	*HMWK #7a: Chapters 3-7* *HMWK #7b: Chapters 3-7*		
Week 11				
M 11/2	*8:30AM*	*Quiz #5: Chapter 3-7*		
M 11/2	21	Metals		
M 11/2	**Special Project submission to discussion forum**			
W 11/4	22	Coordination Chemistry		
W 11/4	**Special Project Discussion Forum comment is due**			
			R 11/5	Nickel Amine Lab
Sat 11/7	*8PM*	*HMWK #8a: Chapter 21* *HMWK #8b: Chapter 21*		
Week 12				
M 11/9	*8:30AM*	*Quiz #6: Chapter 21*		
M 11/9	22	Coordination Chemistry		
W 11/11	22	Coordination Chemistry		
W 11/11	**Special Project submission to drop boxes for grading**			
			R 11/12	Gap Energy lab
Sat 11/14	*8PM*	*HMWK #9a: Chapter 22* *HMWK #9b: Chapter 22*		

Week 13				
M 11/16	*8:30AM*	*Quiz #7: Chapter 22*		
M 11/16	23	Organic Chemistry		
W 11/18	23	Organic Chemistry		
			R 11/19	Properties of Organic Compounds Lab
Week 14				
M 11/23	23	Organic Chemistry		
W 11/25	23	Organic Chemistry		
R 11/26		**HOLIDAY**		
Week 15				
M 11/30	23	Organic Chemistry		
W 12/2	***Natural Sciences Poster and Presentation Session (4-6PM)***			
W 12/2	23	Organic Chemistry		
			R 12/3	Chapter 23-24 lecture (in **B118**)
F 12/4: Last day to withdraw from class				
Sat 12/5	*8PM*	*HMWK #10a: Chapter 23* *HMWK #10b: Chapter 23*		
Week 16				
M 10/26	***18-20***	***Exam 3***		
			T 12/8	***Exam 3***
W 12/9	24	Organic Chemistry: polymers		
			R 12/10	Lab Assessment
Finals Week				
W 12/16	***All Units***	***Final Cumulative Exam in L239: 8-10 AM***		