

2015

# Chemistry 102-005 General Chemistry II Fall 2015

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# Parkland's Mission: To Engage the Community in Learning

## General Chemistry II – CHE102

## Course Syllabus

**Instructor:** Dr. Kevin Tucker  
**Office:** None

**Email:** ktucker@Parkland.edu  
**Phone:** 217-316-2759

**Office Hours:** Tuesday, 9-10 PM

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<b>Course Information</b>	<b>CHE 102 - Section 005</b>	
	Class Meetings:	T: 6 PM to 9 PM Rm. L-239 R: 6 PM to 7 PM
	Lab Meetings:	R: 7 PM to 10 PM Rm. M-232
	<i>Tentative.....</i>	<i>Final Exam: Tuesday, December 15<sup>th</sup> 6 PM to 9 PM Rm. L-239</i>

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**Required Materials:** **Textbook:** Burdge, Chemistry, Atoms First (2<sup>nd</sup> Edition)  
**Other:** Scientific Calculator (with log function), safety goggles, lab notebook (same as for CHE101) and access to McGraw Hill Learnsmart-Connect Homework System

**Prerequisites:** **CHE 101** and **MAT 098**, or equivalent, with a grade of **C or higher (those with a C in CHE 101 should expect to work hard in this class to succeed).**

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### Table of content

General Education – Course Objectives.....	2
Attendance Policy.....	2
Make Up Policy.....	2
Major Course Assignments	
<i>Homework</i> .....	2
<i>Quizzes</i> .....	3
<i>Hour Exam</i> .....	3
<i>Final Cumulative Exam</i> .....	3
<i>Laboratory policies and Procedures</i> .....	3
<i>Laboratory Reports</i> .....	4
<i>Laboratory Assessment</i> .....	4
<i>Special Project</i> .....	5
Chapter-Topic Schedule.....	6
Course Point Distribution.....	7
Letter Grade Scale.....	7
Laboratory Report Rubric.....	8
Writing Guidelines.....	8
Important Date (withdraw dates).....	10
Parkland Resources.....	10

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### General Education - Course Objectives

After completion of CHE 102, students should be able to:

- I. Demonstrate their ability to solve problems, by collecting and evaluating facts and using methods of scientific inquiry;
- II. Demonstrate their ability to compute and to think and express themselves effectively in quantitative terms;

### Attendance

Around the 7<sup>th</sup> day of a full semester class (16 weeks), the instructor is required to assess student attendance. If a student has not attended to that point, the student will be dropped with no refund of tuition and fees. After this date, students should not plan on an instructor withdrawal if you want to withdraw from the course. Students are ultimately responsible for your own withdrawal by the withdrawal date. Non-attendance after the census date will result in an F if the student do not withdraw from the class. Students are responsible for all material and announcements they may miss if absent.

Students expected to invest **at least 8-12 hrs/week outside of class**. The time requirement involves reading the chapters covered in class as well as completing all mandatory and suggested assignments. Few people will do well in this class if they do not study and spend the time.

Attendance at all laboratory sessions, including the first week of class, 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 in the second week 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**. Leaving the lab before completing all experimental portions of the lab, arriving to the lab after the class already started working on the experimental portion, or coming to lab unprepared (incomplete pre lab or inappropriately dressed) will result in a zero in the lab.

There are no make-up assignments for any activities in this class, outside of exams. If you know in advance that you have a serious conflict (**death in the family, serious illness, etc**), which will cause you to miss an exam; be sure to communicate your instructor in advance if it will be possible to complete the work at a different time. Documentation **will be required** to consider any make up request.

### Make-up Policy:

Make up assignments will **ONLY** be offered for hour exams when official documentation is provided to the instructor. Official documentation includes: physician's note, funeral flyer, Parkland's athlete letter, etc.

### Major Course Assignments

The following assignments are consider "major assignments" of this course. The term "major" is used to identify assignments that contribute more than 1% of the student's overall grade. However, this course has other assignments that are not listed under this category. For a complete list of assignments, please check on Cobra under checklist.

### Homework

Homework is an important part of this course. It helps student understand the material covered in class and better prepare you for quizzes and exams. You should not leave the homework assignments to the last day before it is due. Instead, try to finish problems to each section of a unit as we progress into the chapter. Ten sets of HW problems will be assigned. Each HW assignment contains approximately 30 problems from the end of the chapter that review the material indicated by the objectives of each chapter. Solutions and well as work shown to answer all problems is required to receive full credit for each HM

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assignment. HW assignments will be mostly graded by completion but a random sample of questions will be graded by accuracy.

The lowest HW grade will be dropped. All HW assignments are due the quiz day, prior taking the quiz. All HW and quizzes due dates will be available in Cobra calendar as well as on the checklist.

**Homework assignments must be submitted to the testing center in order to get access to the chapter quiz. No late HW will be accepted. Taking the chapter quiz prior submitting your HW assignment will result on a zero on the homework assignment.**

### *Quizzes*

10 quizzes will be given. The lowest quiz grade will be dropped. Students will be expected to take the quiz within the specified range of dates in the testing center. The start time listed on the course calendar indicates the time the quiz will first be available and the end time listed on the course calendar indicates the final time you can access the quiz. Students can bring their own calculator to the testing center to use while taking the quizzes. **No student will be allowed to use a phone as a calculator** Students will also have access to a periodic table containing general constants and equations used in class. A copy of the periodic table available at the testing center can be found on Cobra under "Content" → "General Information".

### *Hour Exams*

Four exams will be given: three hour-exams and one cumulative final exam. All exams will be given in the classroom. Students will have access to scientific calculators as well as a periodic table containing general formulas and constant values. Student must bring their own calculators to class on test days. GRAPHING CALCULATORS WILL NOT BE ALLOWED. **No student will be allowed to use a phone as a calculator.**

### **Testing Center Hours (make-ups only):**

9:00 am – 3:45 pm Monday through Thursday

9:00 am – 2:45 pm Friday

### *Final Cumulative Exam*

The final cumulative exam covers material from CHE101 as well as from CHE102. Each student must bring their own calculator, as well as pencil and/or pen to complete the exam. No calculators will be provided for students during the final exam. **No student will be allowed to use a phone as a calculator.**

### *Laboratory: Policies and Procedures*

Laboratory Attendance Policy (please see Attendance Policy- paragraph 3 on page 2 of the syllabus)

1. Read through the experiment in advance. All laboratory experiments are posted on Cobra under (a) "Content" → "Laboratory Information", or (b) "Checklist".
2. Prepare the laboratory notebook in advance, this implies including the following information on your **lab notebook**:
  - a. Name, date, title, course and section
  - b. Complete the first two pages of the lab (pre lab) which include:
    - i. Safety data table
    - ii. Purpose statement
    - iii. 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.
    - iv. Answer for all pre lab questions posted on page two of the lab.
3. Wear appropriated clothing, as described on the safety contract;

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- a. 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.
4. 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.
5. 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.
6. 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.
  - a. Failure to leave all glassware in the drawer clean will result in a 5% deduction in that group's lab report.
  - b. Failure to clean all common areas will result in a 5% deduction on every student lab's report.
7. After completing the experimental portion of the lab, student are allowed to complete the rest of the lab in the lab common area.

### Lab Reports

All lab reports **must** include the following **parts** in the following **order**:

1. All pre lab components (headings, safety table, purpose statement, summary of the lab and pre lab question answered).
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. Each conclusion must include:
  - a. Short summary of what was accomplished in the lab, including all final results.
  - b. Identification of 2-3 procedural sources of error (not human error), and a short description of how they could be minimized.

*Any violations on this list will result in your lab report being returned to you ungraded. You will have until the next class period to fix any errors and turn into your instructor at which point you will automatically be penalized 1 letter grade (10%). If you fail to turn in your lab report with all these errors corrected, you will receive a zero for that lab.*

### 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 calculation 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 on the laboratory policies and procedures section of the syllabus. Students will be allowed to use their lab notebook. However, students are not allowed to use the lab manual for complete the examination.

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### *Special Project*

The purpose of the special projects is to engage students in higher learning by having them use the chemistry knowledge acquired during the semester to research a more advanced chemical problem or concept.

1. All projects must have citations in the text of the content and a Reference/Works Cited page.
2. Student must 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. You must use at least 2 sources in total.
  - a. Each topic and primary research article must be uploaded into the corresponding dropbox on Cobra by the due date (*see date and time on Cobra under "Dropbox"*).
  - b. Each will be subjected to the instructor's approval.
3. Students will present an Oral presentation on their research topic on a date TBD. The talk should be 10 minutes in length. A specific grading rubric will be available in Cobra.
4. Students will submit an extended abstract (1 page typed, single spaced, 12 point font) on their research topic. Abstracts should include a brief reason for selecting the topic in addition to discussing the major findings in the research that you are summarizing.

### **Writing assignments**

All written assignments in this class will be subjected to an originality test. Failure to pass the originality test (evidence of plagiarism) will result in a zero in the assignment and a referral of the student and the assignment to the Parkland College Academic Dishonesty committee. To avoid committing plagiarism, please refer to "*Writing Guidelines*" on page 8.

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### Chapter-Topic Schedule

Chapter numbers are based on *Burdge, Chemistry Atoms First, 2<sup>nd</sup> Edition*

Week	Topic	Chapters	Lab
1	Thermodynamics, Equilibrium and Chemical Reactions Review	8, 9, 15	Introductory Lab
2	Thermodynamics, Equilibrium and Chemical Reactions Review	10, 14	Acids and Bases: The pH Scale
3	Acids and Bases	16	Acids and Bases: Solution Preparation
4	Acids and Bases, and Aqueous Equilibria	16, 17	Aqueous Equilibria: Titrations
5	Aqueous Equilibria	17	TBA
<b>Exam I</b>			
6	Electrochemistry	18	Electrochemistry: The Lemon Battery
7	Chemical Kinetics	19	Nuclear Chemistry
8	Chemical Kinetics and Nuclear Chemistry	19, 20	Kinetics: Initial Rates
9	Nuclear Chemistry	20	TBA
<b>Exam II</b>			
10	Bonding Theories Review	3, 4, 5, 6, 7	<i>Molecular Models Worksheet</i>
11	Coordination Chemistry	22	Coordination Chemistry: Nickel Amine
12	Coordination Chemistry	22	Coordination Chemistry: Gap Energy
13	Organic Chemistry: Basics	23	Organic Chemistry: Properties of Organic Compounds
14	Organic Chemistry: Basic Reactions (Addition, Elimination and Substitution)	23	Lab Assessment
15	Organic Chemistry: Polymers	23, 24	TBA
<b>Exam III</b>			
16	Organic Chemistry: Biochemistry and BioPolymers	24	Organic Chemistry: Column Chromatography
<b>Final Cumulative Exam</b>			

*\*Modifications of the syllabus will be notified to the students by the instructors in class and will be posted on Cobra under "news".*

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### Point Distribution for CHE102

Category	Assignment	Modules	Drop	Score	Total
First Week Activities <i>(Due by the end of week 2)</i>	Introductory Lab	1	0	5	5
	Email with Expectations	1	0	5	5
Lecture	Chapter Homework	10	1	10	90
	Quizzes	10	1	20	180
	Exams	3	0	100	300
	Final Exam	1	0	200	200
Laboratory	Laboratory Reports	10	1	15	135
	Theoretical Assessment	1	0	15	15
	Practical Assessment	1	0	25	25
Special Project	Title	1	0	2	2
	Abstract and References	1	0	7	7
	Evaluations (3)	3	0	2	6
	Project	1	0	20	20
	Mol. Model Worksheet	1	0	10	10
<b>Total</b>					<b>1000</b>

### Letter Grade Scale (total point scale)

Less than 600.0	600.0 - 699.9	700.0 - 799.9	800.0 - 899.9	900.0 - 1000.0
F	D	C	B	A



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### Laboratory Report 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
<b>Total Points</b>		<b>15</b>

### Writing Guidelines (By Catherine Britt Carlson)

Students must follow these guidelines when completing writing assignments in CHE102.

- 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. I can also help you if you are having problems understanding your article.
- Both <http://www.chemistrycentral.com/> and <http://www.biomedcentral.com/> are open access databases for journal articles. Also, the Library has resources available, which will be discussed during a lab session. If you have trouble finding articles or if you would like confirmation that the article you found is appropriate, you can come talk to me.
- Plagiarism of any form will NOT be tolerated and will result in a grade of zero. Please refer to [www.plagiarism.org](http://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.
- You must include a references/works cited page and you must include references within the body of your paper.
- 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](http://owl.english.purdue.edu/handouts/research/r_mla.html). Papers that do not include appropriate references pages, 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: Word-for-word sections must be in quotes with in-text citations; Paraphrased content must have in-text citations; Don't rely too much on direct quotations – paraphrasing lets me know that you know the information. Use your own sentence structure to avoid mosaic plagiarism.

### A Few Selected Examples from Papers:

**Good:** Lowenstein explains, "calcium is essential to our body's ability to function and our ability to think. The cardiovascular system and the nervous system both utilize calcium, and it's also vital for blood clotting" (Lowenstein). Calcium is so crucial to the body, that without it, my cognitive-thought processing could possibly become impaired, and I wouldn't even be able to write this paper. In fact, deprivation of proper calcium-intake can also result in hypocalcemia, tingling fingertips, muscle cramps, or osteoporosis (Timberlake, 126). [Here, the student uses a word-for-

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word section and has it in quotes with an in-text citation. After that, she uses a paraphrased section with the in-text citation only].

**Wrong:** Polycystic kidney disease is an inherited disorder in which multiple cysts develop that are noncancerous, and these cysts grow predominantly in a person's kidneys ("Polycystic Kidney Disease"). [Here, the underlined section was taken word-for-word from the source, and has an in-text citation, but quotes are missing. This is plagiarism. The underlined section should be in quotes].

**Wrong:** Naproxen is an aromatic compound containing two benzenes, a carboxylic acid, a hydrocarbon/methyl group, and somewhat of an ether group. The two benzenes are the 6-carbon rings bonded to each other, each carbon in the rings have a hydrogen atom attached to it. The carboxylic acid is on the right benzene containing COOH bonded to a CH. There is a methyl group, or hydrocarbon, bonded to the carbon in the carboxylic acid. On the left benzene ring, there is somewhat of an ether bonded to a carbon, the ether contains CH<sub>3</sub>O. Naproxen has a melting point of 153 degrees Celsius. It is insoluble in water and has a pH lower than 4. [This is paraphrased, and some of it is based on the student's knowledge gained from class, but it is either based on outside information or is not her original thoughts. The textbook should be referenced in an in-text citation for the functional groups and the last sentence should refer to an outside source. This is plagiarism].

### Mosaic Plagiarism:

The source says: "Adenoviruses force quiescent cells to re-enter the cell cycle to replicate their DNA, and for the most part, this is accomplished after they express the E1A protein immediately after infection."

**Wrong:** Adenoviruses make sleeping cells restart the cell cycle to make new copies of their genetic material. This is done by making the protein E1A right away following infection (Dazard et al. 2011). [Here the student has just popped in some synonyms, but has used the source's sentence structure. This is mosaic plagiarism -- a mix of original and source writing. When you paraphrase, you need to use your own words and structure].

**Good:** In order to increase the number of adenoviruses made by an infected cell, the adenovirus produces a protein called E1A (Dazard et al. 2011). This protein induces the host cells to enter into the cell cycle and start cell division (Dazard et al. 2011). This drives the cells to replicate the viral DNA, thus increasing the copies of viruses that can be made (Dazard et al. 2011).

For all of these, there should be a Works Cited (references in MLA format).

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### Important Dates

**August 30<sup>th</sup>:** Last day for students to withdraw the class and get full tuition back without a record.

**December 4<sup>th</sup>:** The last day for students to withdraw from this class is before 5:00 P.M. A "W" will appear on your transcript instead of an "F".

### Parkland Resources

#### *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>

#### *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](mailto:CenterForAcademicSuccess@parkland.edu).

#### *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.

#### *Speech Lab*

**The Parkland Speech Lab** is a place to get assistance with putting together and practicing your individual or group presentation, to improve delivery skills, or to cope with speaking anxiety. It is available on a drop in basis.

For more information contact: Jody Littleton [jlittleton@parkland.edu](mailto:jlittleton@parkland.edu), 351-2532. Changes in the schedule will be posted on <http://faa.parkland.edu/speech/lab.html>

#### *Students with 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, 217-353-2082, [crobinson@parkland.edu](mailto:crobinson@parkland.edu)

#### *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>

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### *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.

### *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.