

2015

# Chemistry 101-004 General Chemistry I Fall 2015

Amy Nicely

*Parkland College*, [anicely@parkland.edu](mailto:anicely@parkland.edu)

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**Lecture:** TWRF, 1:00-1:50pm in L-242

**Lab:** M, 11:00-1:50pm in M-232

<b>INSTRUCTOR:</b> Dr. Amy Nicely	<b>OFFICE:</b> L-262	<b>MAILBOX:</b> L-120	<b>PHONE:</b> 351-2285 (campus) 312-880-7607 (text)
<b>STUDENT HOURS:</b> T/R from 2-3pm, L-262 or by appointment		<b>E-MAIL:</b> anicely@parkland.edu	

## Course description

Welcome to Chemistry 101 at Parkland College! In this course we will be expanding upon your previous Chemistry knowledge, and learning about new concepts in the field of modern Chemistry. We will take a deeper look into how Chemistry affects our daily lives by using examples, videos, and lab experiments. Topics covered will include: chemical names, formulas, and equations; types of reactions; stoichiometry; thermochemistry; atomic structure and bonding; behavior of gases, liquids, and solids; properties of solutions; equilibrium.

Prerequisites for this course include: recent high school chemistry or CHE 100 with a grade of C or higher, and MAT 098 with a grade of C or higher.

## Required Course materials

- Textbook: Chemistry: Atoms First by Julia Burdge and Jason Overby. 2<sup>nd</sup> Edition. McGraw-Hill, 2014 with Connect code
- Laboratory Manual: CHE 101 Experiments. Parkland Chemistry Staff.
- Laboratory Notebook: must have carbon copy pages and spiral binding
- iClicker (any version)
- Scientific calculator
- Safety GOGGLES (safety glasses are not permitted)
- Periodic table (inside your textbook and lab notebook or print one online)

## Grade weighting

Connect Plus Homework (120 points) (top 12 HWs x 10 points each)	6%
Class activity (175 points) (Class activities x 50 points, clickers x 50 points, projects x 75 points)	~9%
Quizzes (285 points) (top 8 quizzes x 30 pts each AND top 45 pre-lecture assessments x 1 pt each)	~14%
Hour Exams (600 points) (4 exams x 150 points each)	30%
Final exam (400 points)	20%
Laboratory (420 points) (see lab rules for point distribution)	21%

## Class Activities/Projects

You are expected to attend class every day and participate in the activities and discussion. These activities will include the following:

- Sample problems, worksheets, mini quizzes or group exercises will be given at some point during many class periods. Some of these activities will be assigned participation points while others will be graded for correctness.
- iClickers will be used frequently in class to check your understanding of current material. At the end of the semester, your clicker points will be scaled to a score out of 50. For example, if you earn 68/85 possible points (80%), this will be entered as 40/50 (also 80%) for your final course grade. You can expect anywhere from 1-5 clicker questions per class period:
  - The typical question is worth 1 point. If you attempt the question but answer incorrectly you will receive 0.8 pts. For each correct answer you will receive 1.2 pts. If you forget your clicker or are not present during the clicker questions, you will receive 0 pts.
  - Some clicker sessions will be set up as a mini-quiz, with a shorter time allowed for you to select your answers. These questions will be worth 0.5 pts each. You will earn 0.4 pts for each incorrect response and 0.6 pts for each correct response.
- Throughout the semester, all students are required to participate in a special project. This project includes a visit to the Parkland library, topic selection, searching for appropriate resources, creating a bibliography, designing and creating a tri-fold display board or PowerPoint presentation, and presenting the project to the class. Students will also have the opportunity to participate in a college-wide poster session on Wednesday, April 29 from 4-6pm. More details about the specific requirements of the project – including due dates – will be provided on Cobra Learning.

## Pre-lecture Assessments

- You should plan to spend time every day working on chemistry and can expect to invest *at least* 8-12 hrs/week outside of class. This time should be spent reading the textbook, working through sample problems, preparing for lab, and completing homework assignments
- To help you stay on track with the material, you will be asked to perform specific tasks before each class period (reading sections of the textbook, working through problems, watching a video, etc.). Most class periods will begin with a short assessment related to the assigned tasks. The format of these assessments will vary, but may include activities such as submitting assigned problems or completing a short quiz. Your top 30 pre-lecture assessment scores (out of approximately 40) will be included in your course grade.

## Laboratories

- A lab or alternate activity will be held almost every Monday of the semester, starting with the first week. There are a total of 10 experiments during the semester, and other lab times will be used for molecular modeling, presentations, or other class activities. Attendance is mandatory for every lab session, regardless of whether an experiment is being performed that day.
- **If you fail to attend and complete the mandatory Safety and Introductory lab (Week 1), you will NOT be allowed to participate in the remaining labs.**
- Chemistry is a laboratory science. **If you miss more than TWO LAB PERIODS (from absence or lack of preparation), you will fail the course regardless of your performance in the non-lab portion.**
- 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 on homework, quizzes and exams.
- Please see the lab rules for complete explanation of pre-lab assignments, in-lab safety and procedures, point distribution, and post-lab assignments. We will be reviewing all of this information during the first lab period, **Monday, January 12 at 2pm**. For the first lab session, you need to dress appropriately (wear clothing and shoes that cover you from your shoulders to the tips of your toes) and bring your goggles, lab notebook and a black or blue pen.

## Homework

Homework is a very important part of this course. It will help you practice what you learn in class and be able to apply it during quizzes, exams, and in future courses. These exercises will be most beneficial to you if you work on them every day as we progress through the chapters. You should NOT wait until the homework deadlines to try to attempt all of the questions from an entire unit.

- Homework will be done online at [www.connect.mcgrawhill.com](http://www.connect.mcgrawhill.com), and has been developed by the publisher of your book, McGraw-Hill. You will need a Connect access code (sold in a bundle with your textbook or available individually through the McGraw-Hill website) to complete these assignments. **Use the link provided on Cobra to register your Connect code and add yourself to the CHE 101-004 roster.**
- **Homework is due at 11:45pm on the dates specified on the course calendar.** No late homework will be accepted.
- There will be 14 sets of homework problems. The first homework set is an extra credit assignment, worth 3 points. The remaining 13 homework sets are each worth 10 points. Your lowest homework grade (out of the 13 regular assignments) will be dropped.
- The maximum score on each assignment is 10 points. If a unit has more than 10 possible points, then you can miss one or more questions and still receive a perfect score. There is no bonus for earning more than 10 points on an assignment.
- You may work with your classmates on these assignments. You may ask for assistance in the Center for Academic Success. You may ask Dr. Nicely for help with any of the questions.

## Quizzes

- A total of ten quizzes (each worth 30 points) will be given, but you will be able to drop your two lowest quiz scores. You will take most quizzes online through the Cobra Learning site\*, and may take them from any computer with internet access. You may not work with partners or in groups on quizzes. Cobra Learning has a built-in monitoring system that alerts instructors of all login information and IP addresses. Please be careful to always turn in YOUR OWN original work!!
- *You will be given a range of time, typically two days, in which you may complete the quiz. You will receive a grade of zero for any quiz not completed prior to the deadline. See the course calendar for the anticipated quiz dates. Any changes to this schedule will be posted on Cobra Learning.*
- You should begin your quiz well before the end time. Your quiz will be submitted for grading if you have passed the end time for the quiz (and you will not be able to continue). Once you begin the quiz, the clock starts running and does not stop, even if you leave the quiz or log out of Cobra Learning. Therefore, once you start the quiz, you should plan on finishing in the same sitting. However, if there is time left, you are allowed to go back and resume quiz taking even if the quiz crashes or you are logged out. **There are no makeup quizzes, for any reason.** This includes quizzes which you fail to take or complete due to technical issues not related to the college servers.

\*The first quiz of the semester follows a different format. This quiz will be a traditional closed-notes, in-class quiz given on **Friday, August 28** covering the objectives from Chapter 1. The prerequisites for CHE 101 included a C or better in CHE 100 or recent high school chemistry. In these previous courses, you should have been exposed to the content of Chapter 1, so we will spend only one class period reviewing the material. **It is your responsibility to review the list of objectives and ensure that you're comfortable with the entire set of Chapter 1 objectives.** If you score less than 70% on the first quiz, I strongly encourage you to consider whether CHE 101 is the right course for you. You may consider taking CHE 100 instead to build up your chemistry background knowledge, and you have until Sunday, August 30 to drop the course and receive a full refund.

**Your first electronic quiz (covering Chapter 2) is due at 11:45pm on Friday, September 4.**

## Exams

Five exams will be given during the semester: four unit exams and one **cumulative** final exam. The unit exams will be given on campus at the Natural Sciences Testing Center (L-161). Exams will be available in the center for 2 days and will be the traditional closed-notes, paper and pencil format. Each of these unit exams will have a 2-hour time limit and will be worth 150 points. Students will be provided with a calculator and a copy of the periodic table to use during the exam. See <https://my.parkland.edu/stuservices/testing/default.aspx> for Testing Center hours and rules.

Dates for all of the exams are published on the course calendar. The final exam is worth a total of 400 points and is scheduled from **11am-1pm on Monday, December 14.**

## Make-up policy

- There are **no make-up opportunities** for Connect homework assignments, clicker questions, pre-lecture assessments, quizzes or laboratory experiments.
- If you know that you will have a serious conflict which will cause you to miss class, be sure to **ask your instructor in advance** if it will be possible to complete the in-class work or receive a make-up assignment. Documentation will be required.
- Other written assignments may be turned in late with a penalty of 10% if turned in on the same day and an additional 10% deduction for each following day. No late assignments will be accepted once the graded assignments have been returned to the class.

## Extra credit opportunity: "oops moment"

Each student is allotted one "oops moment" card at the beginning of the semester. This will allow you to borrow a forgotten item (clicker, goggles, long pants, etc.) pending availability without any repercussions. If you forget your goggles or appropriate lab attire a second time (or don't have a card to submit) you will be penalized according to the lab rules. If you get through the whole semester without using the "oops moment" card you can submit it for 3 extra credit points prior to the final exam.

## Cell phone policy

Students are expected to have their cell phones turned off and put away during class time. If you are expecting an emergency call, please advise the instructor. **Cell phones should NOT be used as a watch, stopwatch, calculator, or reference guide during class or lab unless otherwise instructed.** The instructor may confiscate cell phones for the duration of the class/lab period if students fail to comply with these policies.

## Course website

You should check Cobra Learning on a **daily** basis for important announcements, copies of the lecture notes, other class materials, and your current grades. Log in to Cobra Learning at [my.parkland.edu](http://my.parkland.edu)

## 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 U260, 217-353-2082, [crobinson@parkland.edu](mailto:crobinson@parkland.edu)

## Grading scale

1800-2000 points (90.0%-100%)	A
1600-1799 points (80.0%-89.9%)	B
1400-1599 points (70.0%-79.9%)	C
1200-1399 points (60.0%-69.9%)	D
Less than 1200 points (0%-59.9%)	F

**Tentative Schedule:**

<b>Unit</b>	<b>Chapters</b>	<b>Topics</b>
<b>1</b>	1	<i>Chemistry: The science of change</i>
	2	<i>Atoms and the periodic table</i>
	3	<i>Quantum theory and the electronic structure of atoms</i>
	4	<i>Periodic trends of the elements</i>
<b>2</b>	5	<i>Ionic and covalent compounds; Nomenclature; Moles</i>
	6	<i>Representing molecules; Lewis Structures</i>
	7	<i>Molecular geometry; Intermolecular forces; Bonding theories</i>
<b>3</b>	8	<i>Chemical Reactions; Stoichiometry</i>
	9	<i>Chemical Reactions in aqueous solutions</i>
	10	<i>Energy changes in chemical reactions</i>
	11	<i>Gases</i>
<b>4</b>	12	<i>Properties of liquids and solids</i>
	13	<i>Physical properties of solutions</i>
	14	<i>Entropy and free energy</i>
	15	<i>Chemical equilibrium</i>

All dates and assignments are schedule to change. Any adjustments to this schedule will be posted on Cobra.

<b>Wk</b>	<b>Monday (Lab)</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
<b>1</b>	<b>8/24/15</b> Perform Lab: Safety and Lab Intro, due 2pm	<b>8/25/15</b>	<b>8/26/15</b>	<b>8/27/15</b> Connect: Ch 1 due 11:45pm	<b>8/28/15</b> Quiz: Ch 1 in class
	<b>8/31/15</b> Perform Lab: Density	<b>9/1/15</b>	<b>9/2/15</b> Density lab report due 1pm	<b>9/3/15</b> Quiz: Ch 2 opens; Connect: Ch 2 due 11:45pm	<b>9/4/15</b> Quiz: Ch 2 due 11:45pm
<b>3</b>	<b>9/7/15</b> <b>Labor Day; No Lab</b>	<b>9/8/15</b>	<b>9/9/15</b> Project Ckpt 1 due 1pm	<b>9/10/15</b> Quiz: Ch 3 opens; Connect: Ch 3 due 11:45pm	<b>9/11/15</b> Quiz: Ch 3 due 11:45pm
	<b>9/14/15</b> Perform Lab: Visible Light Spectroscopy	<b>9/15/15</b>	<b>9/16/15</b> Visible Light Spectroscopy lab report due 1pm	<b>9/17/15</b>	<b>9/18/15</b> Connect: Ch 4 due 11:45pm
<b>5</b>	<b>9/21/15</b> <b>Exam 1 in TC; No Lab</b>	<b>9/22/15</b> <b>Exam 1 due 4pm</b>	<b>9/23/15</b>	<b>9/24/15</b> Quiz: Ch 5 opens; Connect: Ch 5 due 11:45pm	<b>9/25/15</b> Quiz: Ch 5 due 11:45pm
	<b>9/28/15</b> Perform Lab: 3D Printing	<b>9/29/15</b>	<b>9/30/15</b> Project Ckpt 2 due 1pm	<b>10/1/15</b>	<b>10/2/15</b> 3D Printing formal lab report due 1pm
<b>7</b>	<b>10/5/15</b> Perform Lab: Molecular Geometry Quiz: Ch 6 opens Connect: Ch 6 due 11:45pm	<b>10/6/15</b> Quiz: Ch 6 due 11:45pm	<b>10/7/15</b>	<b>10/8/15</b>	<b>10/9/15</b> Molecular Geometry lab report due 1pm  Connect: Ch 7 due 11:45pm

Wk	Monday (Lab)	Tuesday	Wednesday	Thursday	Friday
8	10/12/15	10/13/15	10/14/15	10/15/15	10/16/15
	<b>Exam 2 in TC; No Lab</b>	<b>Exam 2 due 4pm</b>	Project Ckpt 3 due 1pm		<b>MIDTERM</b>
9	10/19/15	10/20/15	10/21/15	10/22/15	10/23/15
	Perform Lab: Recycling Aluminum Quiz: Ch 8 opens; Connect: Ch 8 due 11:45pm	Quiz: Ch 8 due 11:45pm		Project Ckpt 4 due 1pm	Recycling Aluminum lab report due 1pm
10	10/26/15	10/27/15	10/28/15	10/29/15	10/30/15
	Perform Lab: Titration		Titration lab report due 1pm	Quiz: Ch 9 opens; Connect: Ch 9 due 11:45pm	Quiz: Ch 9 due 11:45pm
11	11/2/15	11/3/15	11/4/15	11/5/15	11/6/15
	Perform Lab: Thermochemistry - Calorimetry		Thermochemistry – Calorimetry lab report due 1pm	Quiz: Ch 10 opens; Connect: Ch 10 due 11:45pm	Quiz: Ch 10 due 11:45pm
12	11/9/15	11/10/15	11/11/15	11/12/15	11/13/15
	Perform Lab: Gas Law		Project Ckpt 5 due 1pm		Connect: Ch 11 due 11:45pm
13	11/16/15	11/17/15	11/18/15	11/19/15	11/20/15
	<b>Exam 3 in TC; No Lab</b>	<b>Exam 3 due 4pm</b>		Quiz: Ch 12/13 opens; Connect: Ch 12/13 due 11:45pm	Quiz: Ch 12/13 due 11:45pm
14	11/23/15	11/24/15	11/25/15	11/26/15	11/27/15
	Project Presentations; slides due 1pm		Gas Law formal lab report due 1pm	<b>Thanksgiving Break; No Class</b>	<b>Thanksgiving Break; No Class</b>
15	11/30/15	12/1/15	12/2/15	12/3/15	12/4/15
	Perform Lab: Thermodynamics - Spontaneity Quiz: Ch 14 opens; Connect: Ch 14 due 11:45pm	Quiz: Ch 14 due 11:45pm	<b>Poster Session 4-6pm College Center</b>	Thermodynamics - Spontaneity lab report due 1pm	<b>Last day to withdraw</b>
16	12/7/15	12/8/15	12/9/15	12/10/15	12/11/15
	Perform Lab: Le Chatelier's Principle (due same day)	Connect: Ch 15 due 11:45pm	<b>Exam 4 in TC; No Class</b>	<b>Exam 4 due 4pm; No Class</b>	<b>Last Day of Class</b>

**Final Exam: Monday, December 14, 11am-1pm**

Important Note: This is a tentative syllabus. The instructor reserves the right to modify the syllabus and course schedule at any time to better serve her class.