



## Syllabus – High School Chemistry 1 & 2 (2024-25)

### Instructor Contact Info

**Name:** Kristin Marais (B.S. Biochemistry, M.S. in Teaching, Washington State Professional Teaching Certificate with endorsements in biology, chemistry, and general science)

#### Best way for parents/guardians to reach me:

**Email:** [kmarais@discovery.org](mailto:kmarais@discovery.org)

*\*Using this email ensures parent/guardian emails are kept separate from student emails about the class, assignments, grading, etc.*

**Call:** (number will be provided later)

#### Best way for students to reach me:

**Email:** through your Canvas inbox

*\*Using this email ensures student emails are kept within our online Canvas classroom email.*

**Call:** (number will be provided later)

### General Course Info

#### Basic Course Structure:

Discovery Institute Academy's high school chemistry course is a two-semester, virtual, synchronous, and lab-based course which integrates the fundamentals of chemistry with intelligent design concepts and topics where applicable. As a "virtual" course, students will participate remotely in the course using their own personal computer. As a "synchronous" course, students will typically meet two times a week via scheduled virtual class sessions to connect and engage with their instructor and peers and to progress through each unit of the course together. Outside of these scheduled class virtual sessions, students will work independently as they review assigned content and complete assessments.

This course is best suited for homeschooling students as Discovery Institute Academy is not a credit-granting institution and does not offer courses for academic credit. Please see the "Learning and Assessment" section further below for more information on how this practically relates to evaluating a student's overall "grade" at the end of the course.

#### Course Overview:

This course will address the concepts of a traditional high school chemistry course, preparing students for a future high school AP chemistry course or college/university general chemistry course. The course will tie in intelligent design (ID) concepts where applicable.

In the first semester, students will become proficient in the process of science, matter and atomic structure, electronic structure, chemical bonding, and intro to chemical reactions. In the second semester, students will go deeper into chemistry topics by classifying various types of reactions, carrying out stoichiometry problems, studying the behavior of gases, and exploring the states of matter, properties of solids, liquids, and solutions, thermochemistry, kinetics, equilibrium, spontaneity, acids and bases, and nuclear chemistry.

At various points, students will develop the skills of scientific inquiry through posing questions, formulating hypotheses, designing and/or conducting experiments, collecting and analyzing data, drawing conclusions, and communicating their findings. Students will learn through a variety of mediums including videos, handouts, assigned readings, discussion boards, Labster virtual simulations, wet labs, activities, projects, and quizzes/assignments. DiscoveryU will be the portal for reviewing content (e.g., articles, instructional pages, handouts, videos, etc.) including access to select Discovery

Institute books, articles, and multimedia embedded into the course. Canvas will be the portal for submitting assignments, reviewing assignment scores/feedback, checking overall grades, and emailing the instructor.

**Prerequisite(s):** Algebra 1

*Please Note: It is strongly recommended that students have taken one year of algebra as some chemistry units will require students to set up and solve algebraic equations and create/interpret graphs. Questions? Concerns? Email me!*

**Suggested Grade Level for Student:**

11th grade

*Please Note: Grade level is not a requirement. The grade level is only suggested as most students will have completed the prior algebra 1 prerequisite by grade 11. Questions? Concerns? Email me!*

**Course Length:**

~34 academic weeks for full-year course (~17 weeks sem 1 / ~ 17 weeks sem 2)

**Suggested Course Time:**

In my experience, it is very difficult to estimate the time input required for students to succeed in chemistry as this varies greatly from student to student and also from assignment to assignment (e.g., simulations, labs/activities, projects, or tests may require additional time). Students often find chemistry concepts and applied math skills more challenging than their other subjects. At minimum, I recommend setting aside 1-1.5 hours/day M-F for chemistry study/work outside of x2 weekly class sessions. However, please remember that this is a JUST an estimate and varies greatly from student to student and assignment to assignment.

**Materials and Other Requirements:**

Textbook:

Title: Pearson Chemistry (may also be branded Savvas Chemistry)

Authors: Wilbraham, Staley, Matta, & Waterman

Publishing info: Copyright © 2017

ISBN-13: 9781323205907 (if searching for the book, please search by its ISBN, not its title)

New copies can be purchased at Savvas Learning: <https://www.savvas.com/Search-Result?keyword=9781323205907>

Used copies can be found through Direct Textbook: <https://www.directtextbook.com/isbn/9781323205907>

Lab / Activity Materials

As a teacher, I strongly recommend the wet labs, especially for students who may want to pursue science as a career. While virtual labs are obviously safe, wet labs can pose safety concerns as students conduct labs at home that may involve handling harmful chemicals (i.e., toxic, corrosive, or flammable) or the potential for accidents. During orientation week, all students and their parent/guardian will be expected to review, sign, and date a safety guideline form that will stipulate that a supervising adult be nearby during experiments as well as outline clear safety guidelines for lab attire, workspace, lab procedures, clean-up and disposal, and storage. Students will then upload this signed form to their orientation module – a module that requires students to complete each item in the module before they can progress to other modules. The goal? Safe students having fun!

Important note: While I will do everything I can to ensure these labs are safe for students, the wet labs are voluntary and parents/guardians and students assume all risk if they do them. It is up to the parent/guardian whether they accept this risk / danger and whether they feel comfortable with their student conducting labs at home. Parents/guardians and students are not obligated to conduct any of the wet labs in this course. At any point before or during the course, simply email me and I can place “EX” or “Excused” in the gradebook for any wet lab(s) you wish for your student to opt out of.

For those students who choose to do wet labs and activities, you will need to purchase additional materials related to wet labs and activities. A materials list will be provided closer to the start of the course. Please note that the instructor will likely need to add/delete/modify some materials as the course progresses for best student experience but will make every attempt to inform students and their parents/guardians in a timely manner.

### Other Requirements

All students will need to have consistent access to the following reliable/working items:

- High-speed internet/wifi
- Modern desktop / laptop computer with up-to-date OS, web browser, and software programs
- Headphones w/ microphone
- Webcam (to show your smiling face during live Zoom sessions)
- Printer w/ printer paper and ink
- DiscoveryU Account - Discovery Institute Academy will create the student's account upon registration.
- Canvas Account (free version) - During orientation week, the instructor will invite the student to their Canvas course via an email invitation with accompanying instructions.
- Labster Account - During orientation week, the instructor will invite the student to their Labster course via an email invitation with accompanying instructions.

### Highly Recommended (but not required):

- Drawing Tablet - **I wish I could require these as they maximize a student's ability to participate in the course by working problems on their computer screen, sharing their screen during Zoom, and taking a screenshot of their work!** There are many options ranging from cheaper/smaller/non-display screens like "[One by Wacom](#)" (~\$30) to pricier/larger/display screens like the "[Wacom One 12](#)" or iPads. Whether cheap/pricey, this is a game changer for ANY online student!
- External Monitor - Having two screens to work with during class sessions or independent work is invaluable!

## **Learning and Assessment**

### **Chemistry Standards:**

Please see the "*Chemistry Standards*" page in your "*Course Agreement*" for a specific list of chemistry skills/concepts addressed unit-by-unit. Underlying many of these standards are specific concepts and skills. However, for simplicity, the standards represent the overall broad scope of skills/concepts students will be learning.

### **An important note about the role of parents/guardians:**

This course is best suited for homeschooling students as Discovery Institute Academy is not a credit-granting institution and does not offer courses for academic credit. As such, it is the parent/guardian rather than the instructor that is considered the final authority on student learning. Practically, this means that while the instructor is responsible for all course instruction, assessment, grading, feedback, and formulating of an overall student letter grade at the end of the course, it is the parent/guardian that is considered the final authority on their student's overall learning and can assign an overall "grade" for their student as they see appropriate. The parent/guardian can access the Canvas gradebook for their student through their Canvas parent/guardian observer account to see their student's scores and instructor feedback. Parents/guardians are welcome to use the instructor's final overall grade in that gradebook to inform their own final evaluation of their student's learning. For more information on how the instructor will assess student learning, see the next section below.

### **Assessment Types, Weights, Revisions, and Late Work:**

Formative Assessments – 0% weight \*All formative assessments will include "FA" in the assessment name.

#### *Purpose:*

Informal assessments (including wet labs, activities, or simulations that aren't included in weighted labs further below)  
Provide opportunity for a student to explore and practice the skills/concepts of a course standard(s)  
Prepare student for summative assessment(s)  
Ensure student understands course expectations and structure  
Provide opportunities for student to reflect on learning  
Encourage class participation/collaboration  
Provide opportunity for course evaluation

#### *Revision Policy:*

The student will have 3 attempts for each formative assessment with their highest score being their final score. If a formative assessment is set to 1 submission, the student should email the teacher to open additional submissions. With each attempt, the student will receive feedback in the form of a score and/or teacher feedback to help the student

prepare for a summative assessment(s).

Should the student need additional submissions beyond three to understand the material and be ready for a summative assessment(s), the student will email the teacher and together they will make a plan to help the student move forward.

Summative Assessments – 80% weight \*All summative assessments will include “SA” in the assessment name.

*Purpose:*

Formal assessments

Provide opportunity for a student to demonstrate they have met/exceeded course standard(s) or showcase understanding of a topic/skill

*Revision Policy:*

The student will have 3 attempts for each summative assessment with their highest score being their final score.

If a summative assessment is set to 1 submission, the student should email the teacher to open additional submissions. With each attempt, the student will receive feedback in the form of a score and/or teacher feedback to help the student meet/exceed course standard(s) (i.e., earn 80% or above on the summative assessment).

Additional submissions beyond the 1st submission may require the student to complete a specific study plan and/or a modified or alternative summative assessment.

Should the student need additional submissions beyond three to meet/exceed course standard(s), the student will email the teacher to ask if an additional submission is allowed. The teacher may discuss this further with the student and if an additional submission is offered, may require the student to complete a specific study plan and/or a modified or alternative summative assessment.

Labs – 20% weight \*All weighted labs will include “LAB” in the assessment name.

*Purpose:*

Provide opportunity for a student to participate in the scientific process through wet labs, activities, and simulations  
See “Lab / Activity Materials” section earlier to understand the optional aspect of wet labs and activities

*Revision Policy:*

See the revision policy for summative assessments

Late Work Policy (for formative assessments, summative assessments, and weighted labs):

As this is a synchronous course, students will be most successful if they are working on pace within the course because they will come prepared to participate in weekly class sessions, be able to tackle new concepts/skills that build upon prior concepts/skills, and avoid the stress that comes from procrastination. Generally, and unless the instructor communicates otherwise:

(1) Formative assessments *will not have* an assigned due date. Given that formative assessments are not weighted, students can technically choose to do all or some formative assessments as they see the need for practice/learning. Within those formative assessments they choose to do, students can do all or some of the problems. Some students feel they need to do all the formative assessments to feel confident for summative assessments while other students opt out of all/most formative assessments. Ultimately, it is up to the individual student to determine how much/how many formative assessments they need to do to be successful in the course.

(2) Summative assessments and weighted labs *will have* an assigned due date. Given that summative assessments and labs are weighted, students need to complete each summative assessment and weighted lab for the course. If a student is unable to complete a summative assessment or lab by the due date on account of illness, emergency, or other extenuating circumstance, the parent/guardian should email the instructor directly to explain the circumstance and request an extension.

**Grading Methods:**

All summative assessments and weighted labs will be graded according to a corresponding rubric or teacher directions. Only summative assessment scores and weighted labs will be calculated towards a student’s final grade. Each semester will receive a separate grade.

**Grading Scale:**

A = 90% - 100%  
 B = < 90% - 80%  
 C = < 80% - 70%  
 D = < 70% - 60%  
 F = < 60%

**Instructor Expectations (i.e., what you can expect of your instructor)****Instructor's Weekly Schedule:**

Day	Schedule	What will I be doing?
Mon & Wed	10:00 am - 2:00 pm PST (prep day)	making/returning calls and emails, grading, lesson prep
Tues & Thurs	9:00 am - 10:30 pm PST (class A)	facilitating class session
Frid / Sat / Sun / Holidays - Not available.		

**Instructor Turnaround Time Estimates:**

Responding to Phone Calls	1 school day
Responding to Emails	1 school day
Grading Submitted Work	3 school days <i>*This estimated time can be lengthened for certain grading-intensive assignments/labs/projects or during busy seasons such as the semester end.</i>

**Instructor Weekly Email:**

Between Thursday-Friday, the instructor will email parents/guardians and students each week. This email will include information about course topics, assessments, deadlines, and other announcements for the following week.

**Progress Reports:**

The instructor will email parents/guardians and students with individual progress reports at roughly the halfway point of each semester course.

**Instructor Teaching Approach:**

The instructor will:

- Be knowledgeable in their subject area and always willing to learn more.
- Be enthusiastic about what they are teaching!
- Be approachable, patient, compassionate, and encouraging with students.
- Welcome questions and new ideas!

- Facilitate critical thinking.
- View learning as a process that takes practice, invites revisions, and leads to growth.
- Provide detailed feedback to help students assess their understanding and make revisions as needed.

**Instructor Professional Discretion:**

The instructor reserves the right to make adjustments to the course structure, content, pacing, and expectations as needed. Parents/guardians and students will be notified via email of any significant changes made after the course has started.