

Barnegat High School

Chemistry Honors - Syllabus

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| **Course Information** | **Teacher Information** |
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| Chemistry Honors | Name(s): Alexandra Cahill |
| Full Year | Phone:609-660-7510 ext. 72212 |
| Class Location: Room B212 | Email: [acahill@barnegatschools.com](mailto:acahill@barnegatschools.com) |
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**Course Description:**

| Chemistry is the study of the structure and composition of matter that makes up living things and their environment. Chemistry also deals with the study of the changes of matter and the mechanisms by which changes occur. The course will give students a deeper understanding of the scientific processes that go on around them and the interconnections among the sciences, technology, society, and the environment. Students are expected to demonstrate proficiency in planning and conducting investigations, analyzing data and applying scientific ideas to solve design problems and to use these practices to demonstrate understanding of the core ideas. Ultimately, this course prepares students for introductory college-level chemistry courses and to provide the conceptual foundation and fundamental skills for students to enter a STEM career field (science, technology, engineering, and mathematics). |
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**Course Competencies/ Learning Objectives**

Students who successfully complete Chemistry Honors will be competent in the following areas:

| * Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. * Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. * Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy. * Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs. * Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium. * Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction. * Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay. * Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles. * Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics). * Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes. * Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun’s core to release energy that eventually reaches Earth in the form of radiation. * Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe. * Communicate scientific ideas about the way stars, over their life cycle, produce elements. * Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history. * Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate. * Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. * Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. * Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. * Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem. |
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**Course Texts / Online Resources**

Our Textbook: : Prentice Hall Chemistry Wilbraham, Staley, Matta, Waterman

Google Classroom ID: Period 1A: bxrhseu Period 4A: omvmtep

Period 1B: bwymysc Period 2B: qyied4u

Calculators: Any Scientific Calculator

**Required Materials**

Each student must bring to each class:

* **Binder w/ notebook paper** – \*Should be used only for Chemistry class; anything I print for you will have holes to be entered as well
* **Pencils** **or pens**– Must be neat; pencil is preferred for work that requires math calculations
* **A CHARGED Chromebook w/charger**

**Attendance Policy**

Regular and prompt class attendance is an essential part of the educational experience. The Barnegat Township School District expects students to be responsible and exercise good judgment regarding attendance and absences. Students accept full responsibility for ensuring that they complete any/all work missed due to absences.

**Course Topic Outline**

Please find a list of the units for this course:

| **Content Area: Science** | |
| --- | --- |
| **Course Title: Chemistry Honors** | **Grade Level: High School** |
| Unit 1: Structure and Properties of Matter | 30 days |
| Unit 2: Bonding and Chemical Reactions | 40 days |
| Unit 3: Chemistry and Abiotic Systems and Energy of Chemical  Systems | 30 days |
| Unit 4: Matter and Energy in Living Systems | 20 days |
| Unit 5: Nuclear Reactions | 30 days |
| Unit 6: Human Impact: The Chemistry of Sustainability | 30 days |

**Student Grades**

The grading system for this course is based on the category weights listed in each department’s policy. For this course, those weights are listed below. Each marking period, students will have a minimum of three (3) Major Assessments and seven (7) Minor Assessments (explained below). Course Participation is assessed twice (2x) per marking period using the district rubric.

| **Major Assessments** | - | 55% of marking period grade |
| --- | --- | --- |
| **Minor Assessments** | - | 30% of marking period grade |
| **Course Participation** | - | 10% of marking period grade |
| **Benchmark** | - | 5% of marking period grade |

Please note: the above areas are used as the basis for 80% of your grade for the course; the Midterm and Final exam will constitute the remaining 20% of your grade.

* Examples of Major Assessments include items that are summative in nature, such as: tests, projects, video submissions, or any other type of assessment used to capture evidence of learning at the culmination of a unit of study.
* Examples of Minor Assessments include items that are formative in nature, such as: quizzes, comprehension checks, response journals, exit tickets, small-scale, video submissions, in class and virtual worksheets, or any other type of assessment that is diagnostic in nature and used to guide instruction and provide ongoing feedback to students.
* Note: grades for individual assignments are entered into Genesis for the marking period in which the assignment is collected, and not a subsequent marking period.
* Extra Credit will only be available for assignments that have been approved ahead of time by the teacher and department supervisor.
* In this course, it is expected that students will submit only their best work, and teachers reserve the right not to accept work that is substantially below what a student is capable of producing.
* *Please speak to your teacher about the opportunity for earned Second Chances on certain Major Assessments.*

**Lab Safety**

The following rules are expected and must be adhered to when performing labs in the chemistry classroom. If they are not followed, the students will be asked to no longer participate in lab and will earn a zero on that lab assignment with no opportunity for make ups.

1. Do not work in the lab without a teacher being present. Do not start the lab until told to do so.
2. Follow all procedures very carefully. If you do not understand something about the instructions, as before continuing.
3. Read all labels very carefully throughout the lab.
4. Report all accidents, no matter how small to your teacher. Be alert and aware of your surroundings.
5. Long hair must be tied back. No loose clothing or open toed shoes are permitted.
6. Food, beverages and gum are never permitted in the lab.
7. Only use equipment as directed.
8. Immediately notify the teacher of any spills and clean up right away.
9. Never smell a material directly. Waft toward your nose if necessary.
10. Use lab goggles and aprons when instructed (at times contacts cannot be worn. If so, you will be notified prior to the lab day).
11. Inspect all glassware before using it in the lab. If you find chipped, cracked or broken glassware, do not use it and notify your teacher.
12. If you get a chemical in your eye, immediately wash your eye out and notify the teacher.
13. For minor skin burns, rinse with cold water and immediately notify the teacher.
14. Always re-read and double check which chemical you are using.
15. Used chemicals are not to be returned to their original bottles.
16. Never indulge in horseplay or behavior that can lead to the injury of others.
17. Learn the location of any safety equipment (shower, fire extinguisher, dust pan, broken glass disposal can, exit routes).
18. During the lab, keep hands away from your eyes, nose and mouth when using chemicals. Wash your hands after the lab.
19. Return all lab materials and equipment to their proper place after use.
20. Upon completion in the lab, wash and dry all lab equipment and lab bench area.

**Course Participation Rubric**

|  | **Academic Social Skills** | **Readiness to Learn / Study Skills** | **Online Discussions** | **Classwork** | **21st Century College and Career Readiness** |
| --- | --- | --- | --- | --- | --- |
|  | **20 points**   * Student consistently   demonstrates high levels of  age-appropriate  academic social skills  by showing initiative  and independence in  all of the components  below:  ● Self-advocacy  ● Persistence /”grit”  ● Identifying one’s own needs and communicates needs to others   * Student’s classroom   behavior is focused,  on-task, and serves as  a role model for  others; the student  does not require  support from teacher,  parents or others. | **20 points**   * Student   ● consistently  arrives prepared  for class and ready  to learn;  ● demonstrates  high levels of  organization,  motivation, and  ownership of  his/her learning.   * Student consistently   produces notes and  other materials that  demonstrate:  • effort to learn  • identification of  the curriculum’s  main ideas and  important  supporting details. | **20 points**   * Student   consistently  completes the  assigned  homework and  rarely misses a  task, if at all.   * Student   consistently  expends his/her  best efforts to  complete assigned  tasks.   * Homework consistently reflects high levels of care and pride in work. * Homework is consistently done in a manner that | **20 points**   * Student   ● consistently completes  assigned classwork  tasks;  ● voluntarily and  actively participates in  classroom activities on  a consistent basis;  ● consistently remains  focused and on task;  ● contributes to class  discussions in a  meaningful way, by  actively listening,  asking questions, or  sustaining discussion;  ● consistently  demonstrates  leadership in  collaborative  activities. | **20 points**   * Student consistently demonstrates competency in the following NJSLS Career Ready Practices.   CRP1.  CRP2.  CRP4.  CRP5.  CRP6.  CRP7.  CRP8.  CRP9.  CRP11.  CRP12.  \*A full description of  these items is listed at  the bottom of the  rubric. |
|  | **15 Points**   * Student usually demonstrates age-appropriate academic social skills such as persistence or self-advocacy, but may require teacher prompting or direction. * Student’s classroom behavior is generally focused and on-task, but sometimes requires redirection or support from teacher, parents, or others. | **15 Points**   * Student usually arrives prepared for class and/or demonstrates developing levels of organization, motivation, ownership of learning. * Student frequently produces notes and materials that demonstrate effort to learn and identification of mean ideas, but may also require prompting and direction. | **15 Points**   * Student frequently completes the assigned homework but occasionally misses tasks, tasks are completed with inconsistent effort . * Homework usually reflects high levels of care and pride in work, but not always. * Homework is generally done in a manner that advances learning. | **15 Points**   * Student   ● usually completes  assigned classwork  tasks and generally  produces his/her  best work;  ● frequently participates  in classroom activities  but sometimes  requires direction  and prompting;  ● during class  discussions, usually  contributes by  actively listening,  responding, and/or  asking questions. | **15 Points**   * Student frequently demonstrates competency in the following NJSLS Career Ready Practices, but may need direction and support.   CRP1.  CRP2.  CRP4.  CRP5.  CRP6.  CRP7.  CRP8.  CRP9.  CRP11.  CRP12 |
|  | **10 Points**   * Student occasionally demonstrates age-appropriate academic social skills such as persistence or self-advocacy, and/or often requires teacher prompting or direction. * Student’s classroom behavior is generally unfocused and off-task, and frequently requires redirection or support from the teacher, parents, or others. | **10 Points**   * Student rarely arrives prepared for class and/or demonstrates limited levels of organization, motivation, ownership of learning. * Student seldomly produces notes and materials that demonstrate effort to learn and identification of mean ideas, and often requires prompting and direction. | **10 Points**   * Student rarely completes the assigned homework and frequently misses tasks, or tasks are completed with limited effort . * Homework rarely reflects high levels of care and pride in work. * Homework is generally not done in a manner that advances learning. | **10 Points**   * Student   ● seldomly completes  assigned classwork  tasks and generally  does not produce  his/her best work;  ● usually does not  participate in  classroom activities  and often requires  teacher direction  and prompting;  ● during class  discussions, usually  does not contribute  by actively listening,  responding, and/or  asking questions. | **10 Points**   * Student rarely demonstrates competency in the following NJSLS Career Ready Practices, and needs direction and support.   CRP1.  CRP2.  CRP4.  CRP5.  CRP6.  CRP7.  CRP8.  CRP9.  CRP11.  CRP12. |

**\*New Jersey Student Learning Standards for 21st Century Life & Careers / Career Ready Practices**

CRP1. Act as a responsible and contributing citizen and employee.

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.

CRP6. Demonstrate creativity and innovation.

CRP7. Employ valid and reliable research strategies.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP9. Model integrity, ethical leadership and effective management.

CRP11. Use technology to enhance productivity.

CRP12. Work productively in teams while using cultural global competence.

**Plagiarism, Cheating, and Academic Integrity**

The Barnegat Township School District places a strong emphasis on students’ integrity, and the district will not tolerate instances of academic dishonesty. Plagiarism is the practice of copying words, sentences, images, or ideas for use in written or oral assessments without giving proper credit to the source. Cheating is defined as the giving or receiving of illegal help on anything that has been determined by the teacher to be an individual effort. Both are considered serious offenses and are subject to consequences described in the Student Handbook and Board Policy #5701.

**Honor Code**

The purpose of this Honor Code is to communicate the meaning and importance of academic integrity to all members of the school community and to articulate and support the interest of the community in maintaining the highest standards of conduct in student learning. Barnegat High School embodies a spirit of mutual trust and intellectual honesty that is central to the very nature of learning, and represents the highest possible expression of shared values among the members of the school community. The core values underlying and reflected in the Honor Code are:

**Academic honesty** is demonstrated by students when the ideas and the writing of others are properly cited; *students submit their own work for tests and assignments without unauthorized assistance; students do not provide unauthorized assistance to others; and students report their research or accomplishments accurately.*

**Respect** for others and the learning process to demonstrate academic honesty.

**Trust** in others to act with academic honesty as a positive community-building force in the school,

**Responsibility** is recognized by all to demonstrate their best effort to prepare and complete academic tasks.

**Fairness and equity** are demonstrated so that every student can experience an academic environment that is free from the injustices caused by any form of intellectual dishonesty.

**Integrity** of all members of the school community as demonstrated by a commitment to academic honesty and support of our quest for authentic learning.

This Honor Code summarizes the Honor Policy, which defines the expected standards of conduct in academic affairs. The student body and faculty at Barnegat High School will not tolerate any violation of the Honor Code.

Any violation of the Honor Code will result in Administrative Consequences and be detrimental to student grade.

**Student Expectations**

1. All school rules and policies apply to this class.
2. The teacher and students will work together for a respectful, safe classroom.
3. Google Meet behavior (if quarantined) should match expected classroom behavior - be respectful and appropriate.
4. Google Classroom is a place of learning and all behavior should mirror what is expected in school.
5. Please email or message me questions as soon as you have them. I will answer your email in a prompt manner. Email is always the best way to get a hold of me.
6. Bring chromebook to class CHARGED and with your charger.
7. Students will come to class on time, prepared, and ready to learn.
8. Students will complete all assignments, including homework, by all deadlines. Make-up work is only accepted after an excused absence. Everything will be posted on my teacher page and all paperwork missed will be in a folder, by student name in the classroom; student is responsible to pick it up.
9. Test retakes will be CONSIDERED with a test re-take form and a solid plan to improve the grade.
10. Students will actively participate in class discussions and other activities in order to enhance their learning experiences.
11. Cell phones, iPods, or any other personal electronic devices are prohibited in class at any time. 1-2-3 Rule: If I see a phone 3 times, it gets put on my desk. Any student that needs to may also put their phone there.

**Extra Help and Support**

Occasionally, students will require additional help to master the content and skills in this course. If you need additional help, there are a variety of options for you, including:

* After school help sessions; swing by or make an appointment with me to know I am available. : ) I will always make myself available to you if I can but will not be after every day.
* Den Room; use this time! I will gladly write a pass any day that den takes place for you.
* Free online tutoring with Brainfuse (available from the Barnegat Library website)

As your teacher, I am committed to your success. If you need help, please ask!

**Honors Chemistry Student and Parent Agreement:**

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I have read and understand the syllabus as well as the lab safety expectations for Chemistry Honors.

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Student Signature Date Print Name

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Parent/Guardian Signature Date Print Name