

Science Acceleration through Honors Chemistry
North Allegheny School District

Please carefully read the following information. Science acceleration is not an easy process and it is one which students and families should carefully consider. It may add unnecessary stress to academic schedules not only through the acceleration process, but also in future years.

Be aware of the following key points regarding acceleration:

- You must submit the online NASD acceleration form with all required information by April 21, 2023, in order to be eligible for acceleration.
- It is the responsibility of the student to enroll in a pre-approved college course following all guidelines and deadlines of the institution in which they plan to enroll.
- There is likelihood that the college course that you will be taking to accelerate through Honors Chemistry will not cover all the topics covered in the North Allegheny Honors Chemistry course.
- The student must learn the items covered on the list of learner objectives for the Honors Chemistry Course at North Allegheny, and this could involve a significant amount of individual preparation outside of your collegiate course.
- Information regarding a full list of learner objectives, appropriate textbook names, and ISBN numbers are available on the science department website.
- In order to accelerate through Honors Chemistry, you must earn an 80% or better in an approved college-level Chemistry course, provide a grade transcript, and earn a score of 80% or better on the North Allegheny Honors Chemistry Acceleration Exam.
- There is a high possibility that you may not meet the grade requirements listed above. Accelerating through Honors Chemistry in a shortened summer semester is not easy. The Acceleration Exam is comprehensive and reflective of the full year/full time lab course taught in the district.
- The acceleration exam will take place on August 14. All students must attend this testing date, with no exceptions. Time, location, and details about the exam format will be sent to students during the summer.
- The grade you earn in the course you are taking to accelerate through Honors Chemistry will not appear on your high school transcript (no high school credit) and will not be used to calculate your grade point average. If successful, you will be allowed to schedule the one next appropriate science course in sequence only if you meet all other pre-requisites for that course. Freshmen and sophomores at North Allegheny are eligible to take one science course, regardless of whether or not they have accelerated.

Please read the remainder of this packet carefully. There are key details about pre-approved courses and content to help in test preparation. Any further questions can be sent to:

Mr. Chris Omasits, NASD Science Department Chair – comasits@northallegheny.org

Mrs. Richelle Gibson, NAI Science Department Liaison – rgibson@northallegheny.org

Detailed Guidelines: Science Acceleration in the North Allegheny School District

A student who wishes to accelerate through Honors Chemistry must submit the online NASD acceleration form after having enrolled in an approved college course. The student must earn an 80% or better in an approved biology course and score 80% or better on the North Allegheny Honors Chemistry examination, which will be given on August 14. Any student interested in accelerating through Honors Chemistry should speak with their current science teacher and their school counselor to determine if acceleration is appropriate. Any questions regarding accelerating through Honors Chemistry or any information in this packet should be posed to the Science Department Chairperson, Mr. Chris Omasits, or Science Liaison, Mrs. Richelle Gibson.

Once you have submitted your NASD acceleration form please be sure to check your NA student email address frequently over the summer for any updates and to finalize the testing time and location.

Two collegiate courses at CCAC have been reviewed and pre-approved:

1. CHEM-109, "Introduction to Chemistry" (See note below)
2. CHEM-151, "General Chemistry 1"

You may NOT enroll in a fully-online section of these courses. They may be hybrid, with a maximum of 50% online coursework.

The North campus of CCAC offers CHEM-109 (lecture and lab combined). However, other CCAC campuses offer the lecture (CHEM-110) and the lab (CHEM-111) as two separate courses. Both lecture and lab courses are needed to meet the North Allegheny acceleration requirements. 4.0 college credits are required.

There are prerequisites listed in the CCAC course bulletin for both courses. It is dependent upon the student to work with the CCAC representative to determine course eligibility. These courses cover many of the topics found in the Honors Chemistry course at North Allegheny, but significant gaps exist between the CCAC courses and the North Allegheny Honors Chemistry course. The gaps with CHEM-151 are not as numerous as those with CHEM-109, but they are still significant. Please see information below that identifies these gaps. It is the responsibility of the student to become proficient in all topics that will be found on the Honors Chemistry examination.

Any student wishing to take a course at CCAC is responsible for meeting all of their admissions requirements. This includes completing the "Dual Enrollment Application," completing any necessary placement tests, and finalizing approval through the office of the Associate Dean for Academic Affairs. After all other application requirements are met, the Associate Dean evaluates applicant readiness and provides the permission for enrollment.

Parents and students need to realize that a college campus is an adult learning environment. On occasion, students who are under the age of 18 (or their parents) may be uncomfortable with the mature discussions that take place in particular courses.

If a student wishes to enroll in a chemistry course other than those mentioned above, it is his/her responsibility to obtain a syllabus from the institution outlining specific content, scope, and assessment for that course. The syllabus must be submitted to, examined by, and approved/denied by the North Allegheny Science Department Chair. The syllabus will be examined in the following areas (this may not be an inclusive list):

- Content of the course
- Time spent in classroom setting
- Lab content of the course
- Assessment techniques of the course
- Rigor compared to NA curriculum

It is critical for students and parents to understand that failure to meet the NASD Criteria for Acceleration will prevent a student from accelerating into the next desired course. These criteria are listed on the front page of this packet. By submitting the NASD acceleration form, students are acknowledging that they understand the guidelines for acceleration. **This form must be submitted by April 21, 2023.**

Please keep in mind that if a student is successful in summer acceleration in science, this may require significant changes to their schedule prior to the start of school in August. School counselors will work with students to make these changes before the first day of school.

Details on pre-approved CCAC courses

Please consult the CCAC course catalog for the most up-to-date information, as the following descriptions may have changed since this packet was distributed. All CCAC pre-requisites are up to their interpretation and final decision. NASD has no influence over your registration for a particular course or section.

CHEM-151

Prerequisite(s): CHM109 or CHM110/111 or B or better in high school chemistry within the past five years and MAT108 or MAT111 or equivalent (math placement test). This is a chemistry course appropriate for science and engineering majors. The topics include: measurements, classification and properties of matter, atomic and molecular structure, chemical bonding, periodicity, stoichiometry, thermochemistry, chemical reactions and the structure. Laboratory experiments deal with the quantitative and qualitative determination of physical and chemical properties of chemical substances.

CHEM-109

Prerequisite: MAT-090 or equivalent (math placement test). This is an introductory course incorporating the concepts of chemical structure, bonding, and stoichiometric relationships. This course has a lab component.

General Course Outline for NASD Honors Chemistry

The following is a list of topics that are included in the Honors Chemistry curriculum at North Allegheny. An asterisk next to the topic indicates that at least some subtopics in that section of the course are not covered in the CHEM-109 course at CCAC. An extensive list of learner objectives for Honors Chemistry is available on the science department website. **When possible, students should consult the syllabus given to them by their college instructor to identify gaps in their own courses rather than the general outlines below.**

NASD Honors Chemistry

- Unit 1: The Use of Scientific Tools and Units of Measurement
- Unit 2: Vocabulary of Chemistry
- Unit 3: Thermochemistry*
- Unit 4: Atomic and Quantum Theories*
- Unit 5: History of the Periodic Table and Periodicity
- Unit 6: Chemical Formulas and Nomenclature
- Unit 7: Chemical Reactions
- Unit 8: The Mole Concept and Stoichiometry*
- Unit 9: Chemical Bonding*
- Unit 10: VSPER Theory and Intermolecular Forces*
- Unit 11: Behavior of Gases*
- Unit 12: Solutions and Their Properties*
- Unit 13: Acids and Bases*

CHEM-109

Large gaps identified:

- 1. Problem solving and calculations as a whole
- 2. Electromagnetic spectrum
- 3. Quantum numbers
- 4. Orbital diagrams and electron configuration
- 5. Gas Laws
- 6. Acids, bases, pH
- 7. Types of reactions
- 8. Oxidation reduction reactions
- 9. Reaction stoichiometry
- 10. Metallic bonding
- 11. Molecular geometry
- 12. Bonding theories
- 13. Solutions

CHEM-151

Large gaps identified:

- 1. Electromagnetic spectrum
- 2. Oxidation reduction reactions
- 3. Acids, bases, pH
- 4. Solutions