**Course Description:** This course engages students in both theoretical and practical problem-solving strategies as they investigate chemical issues that are relevant to their daily lives. Topics of study include: laboratory processes, chemical safety, atomic structure, properties of matter, and chemical reactions. This course meets the district requirement for a third year science elective.

**Instructional Philosophy:** Science is a growing body of knowledge about the physical world. Science is also the process through which we continually add to, evaluate, and refine this body of knowledge. Students learn science by interacting with phenomenon first hand, manipulating conditions, making and testing predictions, asking questions and developing answers. My approach to teaching is based on three foundational warranted beliefs:

- All learning--not just science--must be meaningful to students.
- Clearly defined learning outcomes help students set goals, make plans, choose strategies, and assess their own learning.
- Assessments allow students to explain, illustrate, and use models to demonstrate their developing understandings. The purpose of assessment is to advance--not just measure--students’ learning.

**Content Standards:**

C.1.a-f Students will investigate and describe matter in terms of its structure, composition, conservation and energy
C.2.a-i Students will investigate bonding
C.3.a-e Students will investigate chemical composition
C.4.a-i Students will investigate chemical reactions and describe chemical equations
C.5.a-e Students will investigate stoichiometric relationships
C.6.a-e Students will investigate solution chemistry
C.7.a-e Students will investigate the gas laws and corresponding relationships
SC12.1.1.a-l Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.
SC12.1.2.a-d Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.
SC12.1.3.a-h Students will solve a complex design problem.

**Text:**  Chemistry: Matter and Change, Buthelezi et. al.; Glencoe©2013

Text coursework will regularly be assigned. You will be expected to keep up with class reading assignments.

**Major Units of Study**

**Semester 1**

- Matter Classification & Measurement
  - Atomic Structure & Radioactivity
    - Atomic structure models
    - Subatomic particles
    - Phase change
    - Radioactive decay
  - Periodic Table
  - Arrangement of characteristics
  - Periodic trends
- Bonding & Nomenclature
  - Naming conventions
  - Types of bonding
  - Bond characteristics
- Chemical Composition
  - Moles
o Percent composition  o Percent Yield
o Dimensional analysis  o Limiting and excess reactants

Semester 2
• Chemical Reactions
  o Law of Conservation
  o Reaction types
  o Reaction rates
  o Equilibrium
• Stoichiometry
• Reaction rates
• Equilibrium
• Stoichiometry
  o Percent Yield
  o Limiting and excess reactants

Chemistry Course Expectations
• Complete coursework, both in and out of class, in a timely fashion.
• Be fluent with applicable equations and calculations for this course.
• Participate during in-class discussion and cooperative learning opportunities.
• Complete formal lab write-ups and keep a lab notebook.
• Create technology based projects and presentations.

Class Expectations
Be Safe, Be Respectful, Be Responsible
• Students will come to class prepared to learn with the necessary materials (notebook, pencil, commonly used handouts).
• Students will use available class time to complete course work/task at hand as designated by the teacher.
• Participate during in-class discussion and cooperative learning opportunities.
• Students will ask questions and seek out extra help when they feel challenged; this includes scheduling time outside of class for tutoring. The student and instructor will agree upon a mutually acceptable time to meet based on availability.
• It is the student’s responsibility to make up work that has been missed due to absence. If you know ahead of time that you are going to be absent, talk to the instructor before you are gone to make arrangements to make up the work prior to your absence.
• If you are going to be absent on an announced test date, due to a school event or activity that is scheduled in advance, you must make arrangements with me PRIOR to your absence to take the test, or receive a zero.

Communicate!
• Safety Expectations: Chemistry is a lab-based course with safety as an essential component. The safety guidelines support and encourage an investigative approach and laboratory instruction, while at the same time assisting in the development of a safe learning environment. Students will follow the Omaha Public Schools district guidelines on safety that is published in the science safety contract. Students will be provided a copy of the guidelines. The students, parents and/or guardians are expected to read the guidelines and sign and return the signature portion of the contract. The student will not be allowed to participate in the lab activities until the signed contract is returned.
• Rules and guidelines in the Student Handbook will be followed in this class. Main points: Keep food out of the classroom and laboratory. Do your own work. Be responsible with your phones. Students are expected to have the best academic integrity at all times. To reiterate:
  o Cell Phones: Cell Phone use is acceptable before school, during passing times, during lunch and after school hours. During classroom time, cell phones should be either powered off or placed in silent mode. Cell Phone use in individual classrooms is at the discretion of each teacher based on the educational appropriateness of the device and classroom activity. Any violation of this policy will result in disciplinary action.
  o Photos and Recordings on Personal Device: Students are NOT allowed to take photos or videos of staff or other students UNLESS they first receive permission from those they are recording and provide information on what the photo/video will be used for.
Assessment

- Course grades will be determined by course work including homework, quizzes, labs and tests.
- Chapter tests are to be expected at the end of each unit outlined above.
- State Testing: To address state requirements, all 11th grade students will complete a required test – to be determined.

**OPS Secondary Grading Practices**  *Highlights indicate changes for 2017-2018 school year.*

All coursework and assessments are judged based on the level of student learning from “below basic” to “advanced.” This course will provide multiple opportunities to achieve at the “proficient” to “advanced” levels. Students are evaluated based on a proficiency scale or project rubric. Proficiency scales for this course are available upon request.

**Weighting Assignments (Using A Multiplier)**

When entering grades in the grade book, teachers may assign greater weight to some assignments than others. For example, the final exam may impact a student’s summative grade more than a unit test. Teachers will have the option to use the multiplier to weigh both formative and summative assessments to a maximum of 4. If a weight of 2 or more is applied to an assessment, this information will be communicated to students at the time the assessment is announced.

There are three types of coursework

- **Practice** – assignments are brief and done at the beginning of learning to gain initial content (e.g., student responses on white boards, a valid sampling of math problems, keyboarding exercises, and diagramming sentences, checking and recording resting heart rate). Practice assignments are not generally graded for accuracy (descriptive feedback will be provided in class) and are not a part of the grade. Teachers may keep track of practice work to check for completion and students could also track their practice work. Practice work is at the student’s instructional level and may only include Basic (2) level questions.

- **Formative (35% of the final grade)** – assessments/assignments occur during learning to inform and improve instruction. They are minor assignments (e.g., a three paragraph essay, written responses to guiding questions over an assigned reading, completion of a comparison contrast matrix). Formative assignments are graded for accuracy and descriptive feedback is provided. Formative work may be at the student’s instructional level or at the level of the content standard. Formative assessments/assignments will have all levels of learning – Basic (2), Proficient (3), and Advanced (4), which means that for every formative assessment/assignment, students will be able to earn an Advanced (4). Teachers will require students to redo work that is not of high quality to ensure rigor and high expectations. The students’ score on a formative assessment that was redone will be their final score. It is recommended to have three to five formative assessments for every one summative assessment.

- **Summative (65% of the final grade)** – assessments/assignments are major end of learning unit tests or projects used to determine mastery of content or skill (e.g., a research paper, an oral report with a power point, major unit test, and science fair project). Summative assignments are graded for accuracy. Summative assignments assess the student’s progress on grade level standards and may not be written at the student’s instructional level. Summative assessments/assignments will have all levels of learning – Basic (2), Proficient (3), and Advanced (4), which means that for every formative assessment/assignment students will be able to earn an advanced (4).

To maintain alignment of coursework to content standards, which is a key best practice for standards-based grading, teachers will utilize a standardized naming convention for each of the standards within a course. The content standard will be marked on each assignment entered into Infinite Campus (District Grading Program) using all capital letters followed by a colon. After the colon will be the title of the coursework.

Over the course of the grading period, students will be scored according to this proficiency scale:

- **Advanced = 4**
- **Proficient = 3**
- **Basic = 2**
- **Proficient+ = 3.5**
- **Basic+ = 2.5**
- **Approaching Basic = 1.5**
Below Basic = 1  
Beginning/Failing = 0

At the end of the grading period, scores are converted to a letter grade using this grading scale:

- A = 3.26 – 4.00
- B = 2.51 – 3.25
- C = 1.76 – 2.50
- D = 1.01 – 1.75
- F = 0.00 – 1.00

Redoing/Revising Student Coursework

1. Students are responsible for completing all coursework and assessments as assigned.
2. Students may be allowed redos and revisions of coursework for full credit during that unit of study based upon the teacher’s professional judgment and evidence collected throughout the unit. Scores for student work after retaking, revising or redoing will not be averaged with the first attempt at coursework or assessment but will replace the original student score.
3. Students are expected to complete assessments when given to the class, or if a student was justifiably absent, at a time designated by the teacher.
4. Redoing, retaking or revising will be done at teacher discretion in consultation with the student and parent(s). Teachers may schedule students before, during, or after school to address needed areas of improvement if not convenient during class. The time and location for redoing, retaking or revising will be done at the teacher’s discretion in consultation with the student and parent(s).

Late Coursework

Students are expected to complete coursework on time. Late coursework may be accepted for full credit until the end of the unit based on the teacher’s professional judgment and evidence collected throughout the unit. Accepted late work will not result in a reduction in grade and the M (Missing) will be replaced with the score earned by the student. The teacher or school may make exceptions depending upon student circumstances (such as prolonged absences due to illness).

CLARIFICATIONS:

* Late and revised assignments MUST BE SUBMITTED IN A TIMELY FASHION. Assignments received after on-time work has been returned to others, will generally not be accepted. Rare exceptions may be considered on a case by case basis.

** To be eligible to retake a summative assessment, all assignments for that unit must have been completed and turned in prior to the scheduled summative assessment date.

*** Assignments that are not turned in on the original due date as a result of absences will be handled according to the Northwest Handbook Policy.

Missing Coursework

Work not turned in at all will be recorded in Infinite Campus (district grade book) as an M for missing, which calculates to a score of zero.

Independent Practice

The role of independent practice is to develop knowledge and skills effectively and efficiently during the unit of study. Independent practice helps guide the learning process by providing accurate, timely and helpful feedback to students without penalty.