*"Look for the miraculous in the familiar." - Dr. Mai Thi Nguyen-Kim*

# "The Chemistry that Makes Us Matter"
# Syllabus 2023-2024

**Mr. Kanemasu-Mar (Mr. Mar)**
Tkanemasumar@westlakecharter.com
Class Website

*Class Goals:*

- *To study the diverse relationships shaping our world in order to develop an informed perspective of cause and effect*
- *To build practical and critical investigative skills to enhance your employability & ultimately your livelihood*

## WELCOME TO 11th GRADE CHEMISTRY!

**What/How we will learn:** Chemistry at its core is an investigation of matter and energy in the world around us. In this course, the teacher is not the "giver of knowledge," but more like a coach for learning. The students' curiosity and thought should drive the learning.
We will focus on two learning categories in this intro. chemistry course. First, you will learn to **think & problem solve like a scientist**—make observations of phenomena, gather evidence, take measurements, identify patterns in data, solve complex problems, create models, form justifiable conclusions, and communicate your scientific ideas to others. Secondly, to gain these skills, you will **investigate matter and its reactions** through experiments, explorations, readings, videos, group discussions & argument sessions, projects, etc.

## SUGGESTED MATERIALS

- ❑ Calculator
- ❑ 1 composition notebook for Chemistry ONLY will be provided. You are responsible for any additional paper
- ❑ Chromebook
- ❑ Pencil, 2 whiteboard markers, highlighters, 3 different colored pens

## Contact Info:

- **Preferred:** Come talk with me in class or schedule a time to chat during a break or afterschool.
- The easiest way to contact me is through **email**. I check email usually before/after school on weekdays
- Please don't private message me on Google Classroom.

***Note: Teacher reserves the right to make changes to the syllabus**

*"Look for the miraculous in the familiar." - Dr. Mai Thi Nguyen-Kim*

**My intent** is to create a learning environment that motivates and challenges you to be your best. This experience will simulate real world dynamics & problems and should push you to reflect on & manage your own strengths & weaknesses to better prep you for successful employment.
**In order to achieve this**, this class will follow a unique structure described below:

## Class Structure

| | |
|---|---|
| **Class Period = Chemistry Company** Rules Here | *Each Chemistry period will act as its own private "business entity" in competition with one another to be "Industry Leader." Through whole class challenges and individual success, the "Company" will earn points throughout the semester. There will be designated "paid" job opportunities and team structures that will be essential for company success.* |
| **Individual Mastery Levels (Chemist Level 1-4)** Read Here | *Students will be able to independently advance from Beginner Rank Level 1 to Advanced Chemist Level 4 by meeting specified requirements during class. These ranks will enable students to set tangible growth targets for themselves and serve as a self-monitoring system of their own skills/development in class. Level 4 ranks earn class perks & resumé-building opportunities.* |
| **Ongoing Formative Feedback Record** | *To further track individual progress, each student will receive weekly recorded written feedback for students and parents to review. This is meant to serve as more communication and give context around areas of strength/growth.* |
| **Science Journal = Your primary body of work -** Read Here | *This is your #1 asset. From start to end of class, you will use it to document everything we do in class. It reflects your development, understanding, and serves as evidence of your class performance. Bring daily.* |

All students are expected to engage in class learning because the more thoughts, ideas and questions that everyone contributes, the more powerful our class thinking and discovery will be (30 brains are much stronger than 1). These factors make it difficult to catch up if absent often so try to ensure you are present for class.

## Chemistry Semester-long Course:

| Main Topics | Unit 1: Chem Foundations, Science of Cooking, Particle Theory & Matter | Unit 2: Molecular Interactions & Relationships, Reactivity | Unit 3: Nuclear Power & Society | Unit 4: Chemical Equilibrium, Ocean Acidification, Human Impact | Unit 5: Thermodynamics, Intersystem Effects, Sea Level Rise, Science & Social Justice |
|---|---|---|---|---|---|
| **Estimated Timeline** | **3 weeks** | **3 weeks** | **2.5 weeks** | **3 weeks** | **2 weeks** |
| **Unit Driving Question(s)** | What skills do we need to be safe in the chem classroom? How do we as scientists design experiments, make careful observations & gather data in order to argue and explain with evidence? What does chemistry have to do with me? What are the essential characteristics of | How do we produce energy from fuel? Why do we use gasoline instead of rocket fuel for transportation? Why do some reactions release energy & others absorb it? How do we study the scale of reactions happening at | How could a small amount of nuclear material power an entire city but also destroy it? How do complex chemical reactions work? How do we balance the cost and benefits of applied chemical power? | How has climate change disrupted the balance within earth systems? What can we do to reduce our human impact on Earth? How do toxins /pollutants impact Earth's systems? | How can we stop polar ice from melting before the sea level rises too much? How do the changes in one region affect another? |

***Note: Teacher reserves the right to make changes to the syllabus**

| | | | | | |
|---|---|---|---|---|---|
| | matter? | the atomic level? | | | |

## Mastery Based Grading & Course Essential Knowledge & Skills

Each student is responsible for meeting all course requirements. All grades will reflect student mastery of content skills and final grades will be reflective of the student's level of content and skill mastery. These skills will be assessed through students' performance on assessments & projects (based on 1.0-4.0 score). **Students will have 7 primary (Summative) opportunities to demonstrate their mastery level**, but it is essential to understand this grading system is NOT based on the amount of work students do. Rather, a student's grade will reflect the LEVEL of MASTERY they have achieved based on their evidence of growth overtime. Through their Individual Master Level (above), Formative Feedback Record ( above), and work produced in their Science Journal (above), Parent, Student, and Teacher should be able to track progress. Most class work will be "Formative" (practice) and ungraded, but will serve as essential knowledge for the "Summative" Assessments (Mastery checks), all of which will count towards the Final Grade. This format is designed to center the class on *Learning & Mastery*, not the letter grade; it is about the *process*, not the end result. Through investment in daily Formative practice & self-reflection, I believe all students can attain their Mastery goal(s).

**To be clear,**

- Students are expected to complete all assigned work (Formative/Summative); their progress will be documented in their Science Journal.
- Grades will be based on what students are able to show they have learned. No extra credit will be given.
- Reassessments are available (see terms) for students to refine their learning process and encourage pursuit of their learning goals.
- It is the Teacher's responsibility to appropriately shape the process and align Formatives & Summatives to guide students.

See the workflow summary for more clarity:

| | | |
|---|---|---|
| **Formatives** (Receive performance feedback, but 0% of Final Grade) | **Classwork** - Class activities, Models, Problem sets, Documentation in Science Journal, Do Nows, Exit Tickets<br><br>**Homework** - Given Mondays, Practice sets, articles, research, videos, or any other support you need to utilize to enhance your understanding. (Take it if you need it) | **Notes**<br>Done daily, will receive feedback from peers/Teacher.<br>All of a student's activity presented in class (written, verbal, collaborative) will be a reflection of their work |
| **Summatives** (100% of Final Grade)<br>Every 3-4 weeks | **Individual & Class Tests** - Taken at end of each unit.<br><br>**Class Progress Checks** - Quizzes<br><br>**Investigations & Labs** - Usually done with your Table Team; assessed on your lab skills & documentation from your reports<br><br>**Presentations** - Various activities will require a presentation (individual/team/class) to communicate your findings/ideas. | **Reassessments**<br>➢ 2 week window to reassess after any summative (Tests only).<br>➢ This will replace your previous grade<br>➢ Must complete Reassessment Checklist to qualify<br>➢ 3 opportunities max per Test (Initial + 2 Retakes)<br>○ Retake 1 = New Test<br>○ Retake 2 = Prove It presentation |

Letter grades will be earned using the following mastery rubric scale:

| Points | Meaning | Formative Feedback Symbol | Letter Grade Equivalent | Infinite Campus % |
|---|---|---|---|---|
| 0.0-1.0 | No evidence to partial understanding. | ➖ or ✓- | IE | 0-68.4% |
| 2.0 | Evidence demonstrates basic understanding. | ✓ | C | 68.5%-75.4% |
| 3.0 | Evidence demonstrates significant understanding. | ✓+ | B | 80%-87.4% |
| 4.0 | Evidence demonstrates mastery understanding. | ➕ | A | 90%-100% |

*"Look for the miraculous in the familiar." - Dr. Mai Thi Nguyen-Kim*

| | | | | |
|---|---|---|---|---|
| **Honors** | Honors credit will be earned by demonstrating mastery of multiple essential skills through the completion of the honors coursework throughout the semester. | | *Honors* | |

***Note:*** *Any grade lower than a C- is considered not passing (insufficient evidence). A student who earns a grade lower than a C- will be responsible for completing summer school or retaking the class.*

## CHAMPIONSHIP GAME

Every team, every individual has a goal. They look forward to having their moment where they can prove themselves and revel in their achievements. It is what makes all of the grind and preparation worth it. It focuses us on a clear purpose.

In the same essence, all of our work will culminate into a **2 week Final Company vs. Company Class Project** that will be done without any Teacher support. This is your *"Championship Game"* to demonstrate all of your Chemistry skills. GAME ON!

***The California Science Test (CAST) is a statewide indicator of science readiness (across Earth & Space, Physics, Biology, Chemistry) and will be another major test of our skills!*

## ABSENCES/MISSED WORK and LATE WORK

- If you are absent, it is your responsibility to get caught up. There are plenty of resources to help you get caught up.
- **Expectation:** Review the weekly plan and ask your teammates about what you missed. Backlog your Science Journal with the info/notes/handouts you missed. If you missed 2+ days, you need to complete a **makeup contract** before rejoining your team. An incomplete makeup contract may involve a parent conference.
    - If you know of an absence ahead of time, best practice is to communicate with your Teacher beforehand.

    .
- If you are absent for a Summative Assessment, you must schedule a new time to take it. You have 2 weeks from the original Assessment date to make it up.

**Google Classroom Codes:**

- **Period 1**: 6ip7orh
- **Period 2:** hsy6pon

***Note: Teacher reserves the right to make changes to the syllabus**

**Your final grade will be composed of the following Habits of Mind & Essential Knowledge & Skills (EKS):**

## Chemistry ESSENTIAL KNOWLEDGE & SKILLS BREAKDOWN & PERCENTAGES

This chemistry course is aligned with the next generation science standards (NGSS) which focuses on integrating and developing scientific & engineering skills along with content.

See Grading & Success Guide for detailed learning targets

- **EKS 01 Particle Theory (15%)**- I can use evidence of observable interactions to explain that everything is made of small particles called atoms and that the phenomena of our universe are derived from the multitude of different atomic relationships and interactions with other like-particles.
- **EKS 02 Chemical Reactions & Bonding (20%)-** I can model and explain with evidence why atoms react with one another & how chemical reactions produce, absorb, and transfer energy between systems.
- **EKS 03 Equilibrium: Acids & Bases (15%)-** I can explain the dynamic interactions between acids and bases and how chemical reactions will push toward a state of equilibrium, linking to the impacts this has on living systems.
- **EKS 04 Gas, Pressure & Thermodynamics (15%)-** I can model how physical laws direct nonliving interactions at varying scales and connect to the magnified impacts on living things. I can evaluate sustainable solutions to combat these changes. I can model and explain with evidence how energy can be produced, absorbed, or transferred between systems.
- **EKS 05 Scientific Investigation & Engineering (20%)-** I can make observations, ask scientific questions, plan, investigate & collect data to explain phenomena and solve problems. I can develop, revise, evaluate and use a variety of scientific models (including diagrams, drawings, physical models, simulations, etc.) to represent scientific ideas, explain phenomena and solve problems.
- **EKS 06- Scientific Literacy: Communication with Evidence (15%)-** The goal of science is to explain phenomena and to solve problems. Students will gather & analyze evidence from reliable sources, construct explanations and engage in argument in a scientific claims-evidence-reasoning format to communicate knowledge and understanding (written and verbal).
- **EKS 07- Quality, Accountability & Collaboration:** Quality is the habit of consistently investing your personal best effort to create a product that is strong, accurate and innovative. Accountability is the habit of consistently meeting deadlines and following directions. Collaboration is the habit of working effectively with others, acknowledging the personal strengths and weaknesses of yourself and others, and providing appropriate support.

*"Look for the miraculous in the familiar." - Dr. Mai Thi Nguyen-Kim*

| Assessment Calendar | | | | | |
|---|---|---|---|---|---|
| **Week** | **Monday** | **Tues** | **Wed** | **Thurs** | **Friday** |
| Week 1 August<br>**Unit 1** | | **Unit 1 Intro to Chem (3 weeks)** | 1st day of school<br><br>Hw: read syllabus and class info | Hw: Read Company materials | Intro to company jobs & roll out applications |
| Week 2 August<br>**Unit 1** | Quiz on class materials & processes | | | Assign Company jobs | |
| Week 3 August<br>**Unit 1** | | | | | Summary Discussion<br><br>Exit Ticket 1 - Submit photo of their work on Google Classroom |
| Week 4 September | | U1 Assessment<br>Random Journal Check 1 | | | Level Up Day 1 |
| Week 5 September | Labor Day | **Unit 2 Fuels (3 weeks)**<br><br>Opt in Random Journal Check<br><br>Evaluate Company Employees #1<br><br>GOAT Award Ceremony | | | Summary Discussion<br><br>Formative Assessment Check |
| Week 6 September | Lab 9.3 quiz | | U1 ReAssessment Deadline<br><br>Grouping + practice<br><br>Exit Ticket | | Summary Discussion<br><br>Formative Assessment Check |

***Note: Teacher reserves the right to make changes to the syllabus**

| | | | | | |
|---|---|---|---|---|---|
| | | | | | Level Up Day 2 |
| Week 7 September | Opt in Random Journal Check | | | | Formative Assessment Check |
| Week 8 October | | | GOAT Award Ceremony | | Unit 2 Assessment<br><br>Opt in Random Journal Check |
| **Fall Break 10/2-10/6** | | | | | |
| Week 9 October | **Early Dismissal (1:30pm) HS conferences**<br><br>**Unit 3 Nuclear (1.5 weeks) Case Study**<br><br>Evaluate Company Employees #1 | **Early Dismissal (1:30pm) HS conferences** | **Early Dismissal (1:30pm) HS conferences**<br><br>Grouping + practice | **Early Dismissal (1:30pm) HS conferences** | **Early Dismissal (1:30pm) HS conferences**<br><br>Summary Discussion<br><br>Formative Assessment Check<br>Level Up Day 3 |
| Week 10 October | | | Opt in Random Journal Check | | |
| Week 11 October | Honors Presentations | Honors Presentations<br><br>Unit 3 Assessment | 10/25 - 11th grade PSAT (Scholarships!) | **Unit 4 Oceans (4 weeks)**<br><br>GOAT Award Ceremony | |
| Week 12 Oct/Nov | | | Grouping + practice<br><br>Level Up Day 4 | Lab | Lab<br><br>Summary Discussion<br><br>Formative Assessment Check |
| Week 13 November | Opt in Random Journal Check | Honors midterm | | | Veterans Day |
| Week 14 November | | | GOAT Award Ceremony | | CHECK Student Understanding Chart |

*"Look for the miraculous in the familiar." - Dr. Mai Thi Nguyen-Kim*

| | | | | | |
|---|---|---|---|---|---|
| | Opt in Random Journal Check<br>Evaluate Company Employees #4 | | Level Up | | Summary Discussion<br><br>Formative Assessment Check |
| **Thanksgiving Break** | | | | | |
| Week 15 Nov-Dec | Opt in Random Journal Check | | Grouping + practice<br><br>Exit Ticket | | Unit 4 Assessment |
| Week 16 Dec | Opt in Random Journal Check | Evaluate Company Employees #5<br><br>Level Up Day 5 | Launch Final Team Challenge | | **LAST DAY to REASSESS** |
| Week 17 Dec | | | | | |
| Last week of semester | | **FINISH FINAL TEAM CHALLENGE**<br>Final Evaluation | **Final reflection**<br>GOAT Award Ceremony<br><br>**Announce "Industry Leader"** | Dec 21:<br>Thurs:<br>End of semester<br><br>End of class company celebration | |

***Note: Teacher reserves the right to make changes to the syllabus**