

# CHEMISTRY

Saint John Bosco High School  
Summer 2017



## INSTRUCTOR

Mr. Matthew F. Cervantes (mcervantes@bosco.org)  
University of Southern California, Chemical Engineering, BS 2005, MS 2008  
Saint John Bosco High School, 2001

## CONTACT INFORMATION

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Office Hours: Monday/Wednesday 1:30 – 2:30pm; Tuesday/Thursday by appointment only.

## ONLINE COURSE RESOURCES

Course Website: [sjbsummerchem.weebly.com](http://sjbsummerchem.weebly.com)  
EDpuzzle Class: <https://edpuzzle.com> → Classroom: hobamec  
Socrative: **MCSJBCHEM**  
YouTube: *Professor Dave Explains*, Tyler DeWitt, *Crash Course Chemistry*  
PhET: <https://phet.colorado.edu/en/simulations/category/chemistry>

## COURSE DESCRIPTION

Chemistry is an in-depth study of matter and energy. Through it, we develop intuition of the relationship between microscopic and macroscopic properties of matter, as well as an understanding of how changes occur at the atomic level. Topics in Chemistry include dimensional analysis, atomic structure, compound nomenclature, states of matter, quantum mechanics, compound geometry, stoichiometry, thermodynamics, equilibrium, and organic chemistry.

## PREREQUISITE FOR ENROLLMENT:

Minimum "C" in Biology. Concurrent enrollment in Algebra 2 or higher-level Mathematics encouraged.

## NEXT GENERATION SCIENCE STANDARDS

- 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
- 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
- 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.
- Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials
- 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

## MATERIALS

**Textbook:** Hein, Morris; Susan Arena. *Foundations of College Chemistry*. John Wiley & Sons, Inc.

### **Supplies**

You are required to bring a notebook to class. This should be a three-ring binder with at least two dividers, wide-ruled or computer paper, and/or graph paper. A scientific calculator is necessary for calculations; a graphing calculator is preferred.

**All written work that is submitted must be done in pencil; there are no exceptions to this rule.**

## GRADING

Final grades are assigned according to the scale to the right. The following categories and grading standards will be followed.

Category	Percentage
Home/Class Work	5%
Exams	45%
Labs	20%
Formal Lab	10%
Final Exam	20%

**No late work will be accepted after July 3, 2017 for Session 1, or July 20, 2017 for Session 2.**

Grade letters will be assigned on the following scale:

A	B	C	D	F
90 – 100	80 – 89	70 – 79	60 – 69	50 – 59
Advanced Proficiency	Proficient	Basic Proficiency	Approaching Proficiency	Not Proficient

### **Homework**

Homework includes any written or electronic practice, including assigned videos. EdPuzzle assignments must be completed by their due dates for full credit. EdPuzzle scores will be compiled semweekly. Written assignments will be checked for completeness; students will have opportunities to ask specific questions after checking. Two assignments will be dropped from this category.

### **Exams**

There are four exams per semester. Each exam addresses a set of learning objectives found on the Learning Target Log. All exams will have a Multiple Choice section to address fluency of concepts and vocabulary, and a Free Response section to address depth of knowledge (DOK). Formal definitions of DOK are available, but this course is limited to a maximum of four points per question, with an expectation that questions are answered correctly and interpreted fully. Any question answered incompletely may qualify for partial credit. All tests consist of 20 multiple choice questions (worth 1 point each), and 5 free response questions (worth 4 points each). The multiple choice and free response sections are equally weighted within the test framework. The minimum assigned score on an exam is 50%, which corresponds to a grade of F. Students found in violation of academic integrity codes pertaining to an exam (whether before, during, or after the exam in question) will earn a minimum grade of F on both the multiple choice **and** free response sections of the exam in question.

One multiple choice section and one free response section of your choosing may be dropped in the final grade calculation, only after evidence of understanding that tests' material is given during an office hour appointment. **Students in violation of academic integrity codes or who do not attempt all exams are not eligible for a dropped exam.**

### **Labs**

There are 10 expected labs and activities throughout the course. Each lab is worth 10 points. Lab assignments may be revised after turning in for maximum credit. The lowest lab score will be dropped in the final grade calculation. Students may lose credit during the lab period for failure to wear proper lab gear. Students may be removed from lab for continued violations of lab rules, or deliberate disregard for lab safety rules or specific lab procedures. Removal from lab will result in a grade of 0 on the lab; a grade of half credit may be earned by making up the lab. **Students removed from lab or who do not attend all labs are not eligible for a dropped lab.**

### **Formal Lab**

One lab will require a formal lab write up. A graded draft is due during the week of the midterm exam. The lab must be typed, 1.5 spaced, 0.5–1.0in margins, 11pt Times New Roman font (body text), and include pictures, graphs, and calculations. Specific instructions on writing the formal lab are posted, along with several examples. The revised lab report is due on the last day of class.

### **Final Exam**

The Final Exam is cumulative from all units within the semester. The final exam includes equally weighted Multiple Choice and Free Response sections. **Students found in violation of academic integrity codes before, during, or after exams will earn a minimum grade of F on both the multiple choice and free response sections of the exam, and recommended for disciplinary action.**

## GENERAL GUIDELINES

- Come to class with a positive attitude, ready to learn and participate.
- Come to class on time and in proper uniform.; be in your seat at the bell with notes, periodic table, and calculator out.
- No food or drink during class (water is acceptable during class). **No food or drink at all during lab.**
- Respect what others have to say. Do not speak out of turn; this way, everyone has a chance to ask questions and state opinions.
- Speak professionally in class and during breaks. Inappropriate or disrespectful language will not be tolerated.
- Group work is to be an equal, collective effort. Copying will result in a zero on the assignment for all parties.
- Neatness and presentation count in grading. You may be asked to redo illegible assignments, or work done in pen.
- No work will be accepted after the end of the last class of the semester (July 5, 2017; 1:30pm).
- You, the student, are responsible to notify the instructor of any circumstances that may alter your ability to perform well or fully participate.

## ELECTRONIC DEVICE POLICY

Electronic devices may only be used for enrichment or research during class periods. Specific instructions on electronic use must be followed. Electronic devices may be charged at outlets in the back of the classroom (not at student tables). All electronic devices at work desks must be placed in plain view of the instructor at all times; failure to do so will result in confiscation of the device until the end of the class period. Failure to submit devices will result in devices taken to the office where they will be held until a parent/guardian can claim the device; a charge may be applied by the office.

Electronic devices should be connected to the SJB Wi-Fi network for use in class activities.

## CLASS TIME and BREAKS

Summer classes are necessarily constrained by time. Personal matters should be taken care of during designated breaks. Interruptions due to personal issues (bathroom, phone calls, texts, etc) during class will be strictly monitored and documented. Any such interruption will result in an automatic detention of at least 10 minutes; this time will be spent helping with lab clean-up and set-up.

## ABSENCE

Each day consists of five contact hours with the instructor; this corresponds to roughly one week of instruction. Missing one day of instruction should be taken as seriously as missing several days of class during the year.

**No class credit will be given if a student is absent from a class for more than one (1) day.** You may attend half of a school day if such an arrangement is necessary. If you are absent on a lab or test day, you must schedule a make-up time the next day, otherwise you will earn no credit on that assignment.

**It is your responsibility to email the instructor if you are absent and make arrangements for make-up work.**

*Please note the  
Independence Day  
Holiday:  
Tuesday, July 4<sup>th</sup>  
(No School)*

## CONTACTING the INSTRUCTOR

Students are encouraged to contact the instructor for clarification or resources. If emailing about class information, please consult the syllabus and course materials, as these documents contain answers to most common questions. For all email communications, please include your name and period, as well as a relevant subject line.

Parents/guardians are also encouraged to contact the instructor. Please email with a preferred phone number and time and you will receive a callback (or email response) within the day.

Any communications sent or received after 3pm Friday (or the last day of the school week) may not receive a response until the following Monday morning (or first day of the week). This expectation extends to students and parents, in understanding of the balance of school and family life.

## MESSAGE from the INSTRUCTOR to PARENTS

Thank you for making the commitment to summer school Chemistry here at Saint John Bosco High School. This is an intensive, complete semester of Chemistry completed in 12 days (60 hours); those students signed up for two semesters will have 24 class days and 120 hours. It is essential to minimize distractions during the school day, and keep up with assignments daily. If at any time you feel the class is moving too quickly, or more resources are needed, please email me as soon as possible so we can find a solution.

You can find course schedules, learning targets, and resources on the course website. Please encourage your child to keep their focus as the days go on, and reach out for help when it is needed. Because of the summer schedule, we do not have the luxury of taking several days to digest new concepts. Towards this end, students are expected to watch the EDpuzzle assignments so that they are exposed to the material twice, and through different perspectives. If internet access at home is restricted or spotty, students may arrive early or stay late at SJB to complete the online videos.

Please take a moment to email me at [mcervantes@bosco.org](mailto:mcervantes@bosco.org) as an introduction, so that we can be in contact in case anything comes up during the class. I would like to know that you have read the syllabus, and if you have any concerns about the summer class.

I'm looking forward to another great summer of Chemistry here at Bosco. Thank you for your time and effort this short semester or school year.