



# Loyola

## HIGH SCHOOL

### **Science & Environment IV Applied Science & Technology IV Course Outline**

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**Required Materials:**

- Non-programmable calculator
- Geometry set
- iPad and headphones
- 32-page notebooks
- Lab coat and safety glasses

#### **Course Information:**

The Secondary 4 Science program is comprised of two distinct courses. The 6-credit Applied Science and Technology (AST) course builds upon the scientific, technological and environmental concepts studied in earlier science and technology courses, and students are also required to apply some of the principles studied in earlier Mathematics programs. The AST course culminates in the writing of the Ministry uniform exam in June. The 2-credit Science and the Environment (SE) course provides an introduction to chemistry in preparation for the Sec.5 chemistry course. For both courses, there are extensive hands-on activities to enhance the course content. The learning sequence and main topics covered in the courses are as follows:

#### **Science & Environment (SE) Course** (August to December)

- Scientific Method and Techniques
- Atoms and Organization of Matter
- Molecules and Nomenclature
- Physical Properties of Solutions
- Chemical Reactions and Stoichiometry

#### **Applied Science & Technology (AST) Course** (December to June)

- Graphical Language
- Manufacturing and Engineering Techniques

Properties of Materials  
Electricity and Circuits  
Magnetism and Electromagnetism  
Mechanical Engineering  
Forces and Motion  
Energy and Efficiency  
Environmental Sciences

### **Important Information:**

1. As the course content is delivered via the course Moodle site, a sufficiently charged iPad is required for all classes. Students must check the Moodle site and their school email daily.
2. The iPad is a learning tool that significantly enhances the classroom experience when used appropriately. Students are required to follow the Acceptable Use Policy.
3. All assignments must be completed hand-written in a notebook. Students may take notes directly on their iPad via an annotation app of their choosing, or by hand in a notebook.
4. Late assignments are not permitted except in case of absence. Late projects may be submitted the following class with a 20% penalty. Projects submitted after that time shall receive a grade of 0%.

### **Lab Work:**

1. Safe practices and professionalism are expected at all times in the laboratory.
2. The use of a lab coat and safety glasses is required at all times in the chemistry laboratory. These items may be procured through the Loyola store. Lab days are announced in advance, and failure to bring these items will result in exclusion from the laboratory.
3. If a lab activity is missed, the student must contact the lab technician within 24 hours of the missed lab to make arrangements to complete it. Failure to do so may result in late penalties.
4. Students have 24 hours from the conclusion of the lab activity to complete their lab work online, if applicable.

### **Extra Help / Office Hours:**

Extra help sessions are scheduled by topic ahead of class tests, as well as by appointment with the teacher. The teacher is available most lunch hours. Students may contact the teacher directly by email to determine a mutually convenient time.

## Honours Section:

Students in the Honours Science Section (4-1) will be invited to complete advanced assignment problems and small projects throughout the year to enrich the course content.

## Evaluation: SE and AST courses:

### Competencies

Seeks answers or solutions to scientific or technological problems and communicates in the languages of science and technology ( <b>Practical</b> )	Online Lab Submissions, Lab Reports, Projects, Eval. Situations	<b>40%</b>
In each term, the lab report, project, evaluation situation and online lab submissions each represent an approximately equal portion of the practical competency grade.		
Makes the most of his/her scientific knowledge and communicates in the languages of science and technology ( <b>Theory</b> )	Class Tests, Assignments & Quizzes	<b>60%</b>
In each term, a combined grade of quiz marks and assignments take on the value of one class test. All class tests each represent an approximately equal portion of the theory competency grade.		

### Weighting of Courses and Terms

Course	Term 1	Term 2	Term 3
<b>Science &amp; Environment (SE)</b>	40%	60%	Not evaluated

Students write a final Loyola house exam in December for the SE course which counts for 50% of the theory competency of Term 2.

Course	Term 1	Term 2	Term 3
<b>Applied Science &amp; Technology (AST)</b>	Not evaluated	25%	75%

Students write the Ministry uniform exam in June for the AST course which counts for 50% of the full year theory mark. Results are mailed directly from MEES in July.

### Promotion and Sec. 5 Science Options:

A minimum grade of 75% is required in both the AST and SE courses to qualify for the science options (Chemistry and Physics) in Sec. 5.

A passing grade in the AST course is required for the high school leaving certificate. As both the AST and SE courses are considered separate, a failure in either one is tabulated toward the Loyola diploma.