AP Science Classes

What you need to know
This presentation can be found on the Vista Science/AP Science page

AP Classes in the Science Department:

AP Environmental Science
AP Physics 1
AP Physics 2
AP Chemistry
AP Biology

Success in Science

- Good communication skills - able to advocate for yourself and ask for help when needed
- Organized - can stay on top of assignments and deadlines without prompting from your teacher
- Able to synthesize information and think conceptually
- Study independently - not all the information is given to you in lecture - there is just too much in the curriculum
- Apply concepts learned in this class (and others) to novel scenarios

Remember that this is a new way of thinking for most students, it can be hard to wrap your head around at first. Sometimes you are doing all the right things and *it is still hard*.

- ❏ Increased level of difficulty than what you might be used to- remember these are ***college level classes!***
- ❏ Make sure you are ready for the ***added time*** and rigor commitment
- ❏ You are expected to remember and use information that you have learned in previous classes
- ❏ Expectations are higher- ***no retakes, faster speed***
- ❏ You will be asked to demonstrate your understanding of concepts by applying them to new scenarios, which might be different from what we do in class
- ❏ It is important that you are ***interested in learning the subject matter***- do not take the class just because you want the gpa boost, you will be sad
- ❏ Make sure you have the ***background knowledge and maturity*** - do you really know the stuff from the pre-reqs?

Juniors and seniors often do better in AP Science Classes, they are not recommended for sophomores

Which AP Science Class is right for me?

When should I take AP Science?

AP Environmental Science

Topics in the class include:

- Sustainability
- Earth Systems
- Ecosystems
- Biodiversity
- Energy
- Agriculture
- Land management
- Pollution + Trash
- Climate Change
- Water Resources
- Current Events
- Solutions to environmental issues

Pre-reqs:

- **2 Science Classes (Bio and Chem highly recommended)**
- **IM2 completed**
- **Recommended for juniors and seniors, mature sophomores with strong academics**
- **It is ok for APES to be one of your first AP classes, it is recommended to take APES before AP Biology**

You are expected to:

- Read the textbook and learn on your own
- Apply what you have learned in class to new situations
- Use reasoning and make connections
- Explain why, using specific language
- Use Math and graphs

AP Physics 1 & 2

AP 1 Topics

1. Motion
2. Forces
3. Circular Motion
4. Energy
5. Momentum
6. Simple Harmonic Motion
7. Rotational Motion
8. Fluids

AP 2 Topics

1. Thermodynamics
2. Electric Force, Field, & Potential
3. Electric Circuits
4. Electromagnetism
5. Waves/Optics
6. Quantum & Nuclear Physics

AP Physics 1 & 2

- You must have ***completed*** IM3 before registering for the course. You cannot concurrently register for IM3 and AP Physics 1.
- AP Physics 1 is the prerequisite for AP Physics 2
- You can take them both in the same year, but you don't have to.
    - *AP Physics 2 will only be offered every other year (25-26 and then in 27-28)*

- These are primarily *conceptual* courses - you have to understand how variables affect each other and be able to explain, not just solve a math problem.
- There is a lot of writing, interpreting graphs, and symbolic math.
- You have to be able to work both independently and in a collaborative group.

AP Chemistry - Check **Winter Break Refresher** assignment on Vista's AP Summer Work page for topics you should know going into the class and letters from past students

Topics

- **Atoms**, Chemical **Compounds**, and **Interactions** Between Atoms and/or Compounds
- Chemical **Bonding**
- Chemical **Reactions**
- **Kinetics** (*i.e., how quickly a reaction happens*)
- **Thermodynamics** (*i.e., how much heat/energy is involved in a reaction)*
- **Equilibrium** (*i.e., what happens when a reaction can go forward OR backward*)
- **Acids and Bases**
- **Electrochemistry** (*i.e., what happens when electrons move during a chemical reaction*)

Prerequisites

- Completion of **IM3** with a **C or better**
- Completion of **Biology and Chemistry** with a **C or better**
- ***Recommendation:*** Completion of **Honors Chemistry**

What's Expected of Students

- **Apply fundamental chemistry understanding** in new situations
- **Understand how math and chemistry relate** to each other
- **Complete assigned work** to prepare for regular class time

AP Biology

Topics in the class include:

- **Chemistry of Life**
- **Cell Structure and Function**
- **Cellular Energetics**
- **Cell Communication and Cell Cycle**
- **Heredity**
- **Gene Expression**
- **Natural Selection**
- **Ecology**

- ***This is a capstone class. It should be one of the last science classes you take.***
- You are expected to:
  - Read and learn on your own
  - Apply what you have learned in previous classes
  - Use reasoning and make connections
  - Explain why, using specific language
  - Use math and graphs

What courses should I take before AP Biology?

Required by the College Board:

Passing chemistry and biology

Physics (college prep or AP) does not meet the pre-reqs for this course.

Coming into AP Biology with only biology and college prep chemistry is VERY challenging.

There are LOTS of background skills and knowledge you will be missing.

Strongly recommended by Vista science teachers and Ms Ferrell to be most successful:

- Passing chemistry and biology with a **B or better**
- **Honors chemistry** and/or **AP chemistry**
- **APES**
- **Bonus: AP Stats**

AP Bio assumes you already have **honors level understanding of chemistry and basic knowledge of stats.** APES gives you a strong foundation in **AP skills** and **ecology/nutrient cycles**

Once you are in an AP science class....

1. *Communication is key*: ask questions in class, come to flextime, use email, Google Classroom, and Remind
2. Read the book and look over the notes before class lecture: listen to the screencast, jot down questions as you watch/read
3. Do the homework (book problems and AP Classroom Progress Checks) as early as possible so you can get help
4. Participate in class discussions and activities (like peardecks)
5. Look over the extra resources: videos (Bozeman, Crash Course, Kahn Academy, AP daily videos), review materials for the unit, extra problems in AP Classroom
6. Have a study buddy (or 2 or 3) to ask questions of when teachers are not available
7. Get a tutor - Vista has a list of peer tutors who have taken the class before and done well

What questions do you have for the AP Science Teachers?