

# Saint Francis High School Science Department

## Science Course Information for Incoming Freshman

### What is the Science Department Vision for students?

- In the tradition of Holy Cross, the Saint Francis science department seeks to develop both the hearts and minds of our students in support of our school Graduation Outcomes
- A Saint Francis science graduate should be a person who exhibits **curiosity** for our natural world and utilizes the **scientific method** to solve societal problems.
- Through our science curriculum, the department seeks to develop **compassionate** students committed to **environmental stewardship** and **social justice**.

### What does the Science Program look like for Saint Francis students?

- Students are required to complete three years of science for graduation and the overwhelming majority take four years of science
- **Typical Science Pathways include:**

Year	College Preparatory	Advanced College Preparatory	Honors/Advanced
9th	Biology*	Biology or Biology-Honors	Biology-Honors
10th	Physical Science#	Chemistry or Chemistry-Honors	Chemistry-Honors
11th	Science Elective**	Physics or Physics-Honors	Physics-Honors
12th	Science Elective (optional)	Science Elective or AP Science	AP Science

\* Either Biology or Biology-Honors fulfills the Life Sciences graduation requirement

# Chemistry, Chemistry-Honors, Conceptual Physics, Physics or Physics-honors fulfills the physical science requirement

\*\* Current Science Electives include: Environmental Science, Exercise Science and Sports Medicine, Marine Biology,

AP Biology, AP Chemistry, AP Environmental Science, and AP Physics C. The Design department also offers Engineering

as a science-related elective.

### What are the requirements for freshman year Biology-Honors vs. Biology enrollment?

- Incoming freshmen who place into **Geometry-Honors or higher math** AND show **strong reading comprehension skills** (as shown by an HSPT reading score of 92% or higher) are offered the opportunity to enroll in Biology-honors.
- Students who qualify for Biology-Honors are NOT required to enroll in the course and are free to balance their freshman year course load by taking Biology. This does not impact the ability to qualify for Chemistry-Honors in sophomore year.

- All other students who are at the Algebra 1, Algebra 1-H or Geometry math level will be placed into Biology for freshman year.

### **What are the differences between the Biology-Honors and Biology courses?**

- The course content will be very similar as both Biology-Honors and Biology are aligned to the California NGSS 3-course model for The Living Earth: Integrating Biology and Earth Science
- Biology-Honors will go into greater depth and at a faster pace (to cover more topics) than Biology. It's often hard to say which has a greater homework load because it really requires that a student have excellent reading comprehension and organizational skills. In general, honors courses could have two times the homework of a college prep course, eg. 1 hour vs. 30 minutes between classes
- Highly successful Biology-Honors students have the ability to self-organize their study and will read relevant portions of the textbook on their own, and do extra practice (such as making vocabulary flashcards) without prompting from their teacher. Successful Biology-Honors students will also be highly proactive in asking questions during class and seeing their teacher at collaboration for help when they don't understand concepts.

### **What are the requirements for sophomore year science courses at Saint Francis?**

- Students in their sophomore year will complete their physical science requirement for graduation by taking either Chemistry, Chemistry-Honors or Conceptual Physics.
- For Chemistry-Honors placement as a sophomore, students must pass the qualifying exam (with 70% or higher score) that is administered by the Science Department in the early part of second semester. Students must also achieve certain grades in science and math courses for the fall semester. The required grades are a B or higher in Biology-Honors and honors math courses, an A (not A-) in Biology and college prep math courses. Students also need to be concurrently enrolled in Algebra 2 or higher math (preferably Algebra 2 Trig-Honors to be on track for Physics-Honors enrollment in junior year if they are planning that course pathway)
- For Chemistry placement as a sophomore, students are recommended to have a successful completion of biology (generally with a B- or higher grade) and be concurrently enrolled in Algebra 2. Concurrent enrollment in Geometry is acceptable, but students will need to complete Algebra 2 and be enrolled in a Trigonometry-based course concurrently with Physics.
- For Conceptual Physics placement as a sophomore, students will be concurrently enrolled in a Geometry-level or higher math, and this will be the only physics course they take.

### **What are the actual Course Descriptions for Biology and Biology-Honors from the Saint Francis Course Bulletin?**

The basic concepts of biology are introduced through the lens of sustainability on planet Earth including science literacy, ecology, energy and matter in ecosystems and organisms, feedback and homeostasis, genetics and evolution. An emphasis is placed on developing skills valued by the scientific community such as critical thinking, arguing from evidence and evaluating scientific texts. Labs and activities will be used to demonstrate application of topics. This course is aligned to the California NGSS 3-course model for The Living Earth: Integrating Biology and Earth Science.

**Prerequisites/Comments**

9<sup>th</sup> grade standing. For continuation into Chemistry/Chemistry-honors, Physics/Physics Honors during sophomore year, students will need to complete the math requirements for those courses and pass a qualifying exam for the honors courses. UC/CSU Area D.

**622 BIOLOGY HONORS Full Year**

The investigative approach is used to acquire the basic biological concepts and skills. Topics covered include cell chemistry and physiology, plant and animal morphology, evolutionary development, genetics, and ecology. The course addresses itself to the social consequences of our actions as we attempt to solve the biological problems we face. This class places emphasis on applying the concepts of modern biology to relevant current topics during laboratory and other activities in the classroom. There will be long-term projects during each semester. The pace of Biology Honors is faster and covers topics in more depth than Biology. This course is aligned to the California NGSS 3-course model for The Living Earth: Integrating Biology and Earth Science.

**Prerequisites/Comments**

9<sup>th</sup> grade standing. Incoming freshman may elect to enroll in Biology-honors based upon student placement into geometry honors or higher level math and a High School Placement Test reading score above 92%. UC/CSU Area D.