

## Biomedical Sciences

### General Course Overview

Biomedical Sciences is a two year course that introduces students to concepts, skills, and careers associated with Biomedicine.

The first year is focused on the human body in different constructs of health and disease. Students will focus on these essential questions throughout the year:

- *How does the structure of my body influence its function?*
- *How do we function with(in) the construct of our bodies in relation to our community and the constraints of our environment?*

Each unit will follow the same flow:

1. Lecture and notes on the basic structure and function of the organ system(s).
2. Training and certification of a specific biomedical science skill.
3. Engage in **ALL** four individual inquiry based activities:
  1. Build the entire organ system out of clay and attach to your model.
  2. Read and discuss in class an article associated with the organ system(s).
  3. Compare and contrast healthy and diseases tissues under a microscope.
  4. Pick a topic associated with the organ system to research a write about in any format you want.
4. In a team, you will be given a mock patient that you will have to 3D print a medical intervention or solution to help them. As a team you will bring together all of your knowledge gained from your individual learning to research and create a workable solution to the patient issue.
5. Take photos to document all of your work and upload to your Biomedical Design Journal

### Unit overview:

Unit	3D Printed Medical Device Challenge
Unit 1: Hair, Skin, and Nails	Create anti facial recognition jewelry
Unit 2: Musculoskeletal System	Design a prosthetic
Unit 3: The Digestive System	Rebuild a damaged organ
Unit 4: Reproductive Health	Team choice
Unit 5: Circulatory/Respiratory Systems	Invent masks for breathing in different environmental conditions
Unit 6: Nervous System	Fix damaged nerves

In the second year students will focus on systems of Biomedicine. Students will focus on the following essential questions throughout the year:

- *How do systems and environmental conditions contribute to individual and community health and sickness?*
- *How are healthcare systems designed to include or exclude us?*

At the end of the second year, students have a capstone project where they will research, redesign, and 3D print a prototype of a health care system based on their own interests to benefit their community.