

SPRING SEMESTER COURSES

INDUSTRIAL DESIGN

The consumer-driven market of the 20th century has made industrial design an integral part of how people think about the design process of their products. Initially, the functionality of products intrinsically linked to its aesthetic form was and is a large contributing factor to the success of companies like Braun and Apple. Increasingly, ‘design thinking’ is a deployed method for solving an array of complex real world problems, and an academic discipline taught at many top universities. This class will introduce you to the field of industrial design by investigating the set of unique principles that support this field, as well as the shared principles that create it. You will learn about form, structure, simple machines, stored energy, the design process, and prototyping through hands-on explorations and supplemented by lectures, films, field trips, and demonstrations. Once the foundation has been laid regarding the principles that underpin design thinking, you will begin work on a project that will take most of the semester. This project will give you the chance to demonstrate and enhance your understanding of the core principles, your creativity in merging these principles, your originality in project conception, your willingness to have a design mindset, and your ability to organize the entire process.

Please sign up for this course under the Arts Department.

- Open to: 11, 12
- No art or science prerequisites; however, this course will not fulfill arts or science requirements for graduation

ADVANCED TOPICS

IN BIOLOGY: MOLECULAR BIOLOGY

This is a one-semester course in molecular biology and biotechnology that continues many of the concepts learned in Bio II at a more detailed level. This course will place a heavy emphasis on experimentation and lab work to learn and contextualize concepts, beginning with the central dogma (DNA to mRNA to protein), foundational bacterial recombinant DNA technology and tools (plasmid DNA, restriction enzymes, and molecular cloning) and leading to topics of genetic transformation, gene sequencing and the Human Genome project, bioinformatics, cancer, epigenetics, and silencing genomes using RNAi in *C. elegans*. The final project for the semester will be an extended investigation that will culminate in the creation of a gene silencing vector that will allow a gene of the students choosing to be manipulated in the *C. elegans* worm. Lab analysis, experimental interpretation, and critical assessment will be stressed throughout the course wherein the final project will result in the application of the concepts and tools used throughout the term.

- Open to: 11, 12
- Prerequisite: A strong record in Bio I & II and Chemistry I & II, or Advanced Topics in Biology A or B, signature of the instructor

HUMAN DEVELOPMENT

The University High School Human Development curriculum is designed to support the overall cognitive, social, and emotional development of each student by creating opportunities for experiential and project-based learning. The curriculum, which spans all four years of a student’s time at UHS, focuses on five main areas: learning and metacognition, cultural competency, health and wellness, community engagement, and college counseling. The Human Development faculty work closely with one another, as well as with the mentors to design, deliver, and support learning that aligns with the school’s mission, philosophy, and goals for student competencies.

THE HUMAN DEVELOPMENT BLOCK

	9 TH GRADE	10 TH GRADE	11 TH GRADE	12 TH GRADE
1Q	LEARNING & METACOGNITION	CULTURAL COMPETENCY	COMMUNITY ENGAGEMENT	COLLEGE COUNSELING
2Q	HEALTH AND WELLNESS	LEARNING & METACOGNITION	COMMUNITY ENGAGEMENT	COLLEGE COUNSELING
3Q	NEIGHBORHOODS INVESTIGATION UNIT*	HEALTH AND WELLNESS	COLLEGE COUNSELING	TOPICAL WORKSHOPS
4Q	POVERTY & HOMELESSNESS UNIT*	COMMUNITY ENGAGEMENT	COLLEGE COUNSELING	TOPICAL WORKSHOPS

* Indicates interdisciplinary units that serve the learning goals of our cultural competency and community engagement programs simultaneously.

LEARNING AND METACOGNITION

The learning and metacognition curriculum teaches students how to utilize effective study skills and develop awareness of their own learning. In 9th grade, the program provides a foundation in study skills and organization, encouraging all students to approach their studies in a strategic manner. Topics include note taking, study skills, time management, organization, selfadvocacy, and self-monitoring. In 10th grade, students delve deeper into the science of learning and explore research-based study strategies relevant to sophomore year classes, such as Western Civilization. The ultimate goal is to equip students with the tools to become effective learners in any subject area, cognizant of their own strengths and areas for improvement as students.

CULTURAL COMPETENCY

The cultural competency curriculum engages students in conversations about what it means to be a citizen in a diverse world that is becoming more oriented toward global issues every day and where people from different communities and cultures are expected to work with each other frequently and effectively. A part of the 9th, and 10th-grade core curriculum, cultural competency courses focus on providing students with the opportunity to reflect on their own identities in order to gain a greater level of self-awareness: their values, beliefs, biases, etc. Topics covered include stereotypes and stereotype threat, racial stress, implicit bias, systemic inequities, history of whiteness, and responding to microaggressions, among others. Our belief is that through increased self-awareness and a deeper understanding of the topics covered, students will be able to engage with people across many types of differences in ways that consistently lead to respectful and equitable interactions.

HEALTH AND WELLNESS

The health and wellness curriculum engages students in discussions about health issues that are experienced by teens. The topics covered include communication, decision-making, drugs, alcohol, mental health, contraception, STIs, stress, sleep, nutrition, teen rights, gender and sexuality, and healthy relationships. This curriculum gives students the opportunity to become more familiar with the health resources available to them, familiarizes them with the most prevalent health issues for their population, and provides a way for our students to support and learn from each other.

COMMUNITY ENGAGEMENT

The community engagement curriculum connects student learning, the notion of social responsibility, and meaningful service. By understanding (1) the social, political, and economic contexts of issues such as poverty, health, education, urban life, or the environment, (2) the meaning of the role of active citizenship and engagement in one's society, and (3) the needs of the Bay Area community, students' volunteer work will go beyond mere charity to be useful, authentic, meaningful, and educational. The ultimate goal is to graduate students who feel connected to the world about them, see themselves as active citizens, think critically about the causes and solutions to social issues in the greater community, and are equipped with the skills and attitude to effect change where they see it is needed. The program begins in 9th grade, when students start learning about the

greater San Francisco community through neighborhood investigation units that involve learning from people in the neighborhoods they study. Ninth graders also begin to learn about some of the causes of homelessness in San Francisco and participate in a day-long justice education and volunteer day with an organization that works to address the issue of poverty in our city. Sophomores experience classes that expose them to the core concepts of the community engagement program such as empathy, community, critical thinking about social issues and their root causes, different approaches to community engagement, and cultural competency. They also begin to explore different types of community engagement opportunities. The program continues and deepens in the junior year through a semester-long course on a specific social issue, focused community volunteer work, and guided reflection, and it culminates in the senior year when students create and implement a year-long community engagement project. This project involves students taking on a deeper level of commitment and/or leadership in their community work while continuing to engage them in guided reflection about their learning experiences.

COLLEGE COUNSELING

Throughout their time at UHS, students develop skills and gain knowledge to prepare them for meaningful lives after high school. For the vast majority of our students, the next phase of life includes attending a four-year college or university. The college counseling curriculum addresses those elements of the college application process that apply to all students. The content introduced through the Human Development classes enhances the individual college counseling each student receives. While there are no college counseling classes in the 9th and 10th grades, topics covered in learning and metacognition, health and wellness, cultural competency, and community engagement classes prepare students for college counseling conversations in their junior and senior years (e.g.: introspection and self-awareness, healthy decision making, cultural humility, how to take ownership of one's education and personalize one's experience through UHS, the importance of developing meaningful relationships and clear communication with teachers, and what it means to be an engaged member of a community, among others). Most of the college counseling classes take place in the spring of junior year and the fall of senior year. The junior curriculum gives students an overview of the process, instructs students on various methods of researching colleges, orients them to standardized testing, and concludes with a presentation from seniors reflecting on their experiences. The senior curriculum centers on the application itself and addresses essay-writing, deciding whether and where to apply early, applying to the University of California, finalizing the college list, submitting applications, and, later on, handling the emotions and logistics after receiving decisions.