



2021-2022 COURSE CATALOG

CEL



COURSE OFFERINGS: SANDS CENTER FOR ENTREPRENEURIAL LEADERSHIP (CEL)

GENERAL INFORMATION

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The Sands Center for Entrepreneurial Leadership (CEL) provides unique learning opportunities that empower students to tackle any challenge using entrepreneurial thinking. These classes incorporate technology, design, and entrepreneurship in a hands-on, project-based fashion. At SCH Academy, entrepreneurship is far more than just business. It is a unique way to look at the world: a perspective that will move a student from thought to action—from “I wish this was better” to “I am going to make it better.” The skills and habits of mind that students will acquire through these CEL classes will help them to become entrepreneurial problem solvers.

WHAT CLASSES ARE OFFERED?

Students in 9th grade will be offered four Entrepreneurial Leadership course options, outlined in the section below. 9th graders will pick two experiences. These classes will introduce students to a variety of entrepreneurial, design, and technology skills. In 10th grade, students will tackle a CEL Capstone Project—a student-defined project that utilizes key entrepreneurial skills in the pursuit of creating a product or service, a software application, a social entrepreneurial endeavor, or a creative project. In 11th and 12th grade, students can continue their entrepreneurial pursuits through a variety of classes offered by the New Media, Engineering, and History Departments, as well as the CEL Venture Accelerator program. CEL classes will meet three times in the 7-day cycle.

REQUIRED COURSES

PRODUCT DESIGN

Grade 9; required, meets 3 times per 7 day cycle

Offered by the CEL and New Media Departments, this class introduces students to creative problem solving through design. Students build visual literacy skills and engage in the design process involving 2d drawing with Adobe Illustrator, and 3D modeling and prototyping with the laser cutter, vinyl cutter, heat press, and 3D printer. Throughout the semester-long course, students learn to identify problems and seek solutions in real-world

projects that teach the basic skills of Product Design.

INTRODUCTION TO MICROPROCESSORS AND CODING

Grade 9; required, meets 3 times per 7 day cycle

This CEL course, offered by the Engineering Department, will serve as an introduction for students to the basic concepts of electronics and microprocessors, including the C Programming language. Utilizing the SparkFun Inventor's Kit and its Arduino UNO microprocessor, students will create a prescribed series of circuit designs and programs, building an understanding of the circuits, their components, and the C Programming language. They will then embark on a design project using the Arduino processor to create a solution to a defined problem. Each student or group of students will perform a problem analysis and brainstorming process to identify a solution. They will then have to procure the necessary resources (sensors and actuators) and program the Arduino to solve the identified problem. Recent projects include automatic track following model race cars, self-navigating sailboats, digital dog collars using GPS and digital fences, sensor activated hydroponic gardens, self balancing quadcopter drones, digital alarm clocks and coin operated vending machines.

BUSINESS FUNDAMENTALS

Grade 9; required, meets 3 times per 7 day cycle

In this course, students will learn some of the fundamental skills for success in entrepreneurial ventures. We will begin by learning how to plan, analyze, and manage projects. Students will develop their "soft skills" such as collaboration and communication required for success in team environments. From there, we will begin the study of product development with a focus on small businesses and start-ups. This unit will familiarize students with some tools for idea generation and evaluation, culminating in the creation of a full plan for a product launch. Lastly, students will learn some of the basics of product marketing and brand management. This will include case studies of highly successful marketing campaigns and conclude with students developing their own marketing campaign for a product of their choice.

INTRODUCTION TO APP DEVELOPMENT

Grade 9; required, meets 3 times per 7 day cycle

This course is designed to help students build a solid foundation in programming fundamentals through building mobile apps for Apple's mobile devices using the language and tools of professionals – Swift and Xcode. Students will gain practical experience with the tools, techniques, and concepts needed to build a basic iOS app from scratch. Students will also learn basic user interface design principles, which are fundamental to programming and making great apps. Throughout this course, students experience an authentic workplace environment as they develop and apply the skills of social

problem-solving, creativity, research, collaboration, and communication to industry best practices, such as paired programming and rapid iteration. The apps students build in this course will concentrate on solving problems with an intersection between their passion and developing an app to find adaptive ways of coping with social issues that are considered problematic in today's world. Students will be given 2 challenge prompts to choose from that involve social problem solving, and subsequently be placed in a group to collaboratively build an app to address the challenge at hand. Students apply the same development cycle as those in the workplace, which means students build an app, analyze errors in code, and adjust to solve the problem they have identified. To do this well, they must implement resourcefulness while collaborating with their peers, the same way they will have to in the real world. Students will leave this class with a minimum viable prototype of an app that they can continue working on in the 10th grade CEL capstone and/or Coding elective sequence, along with a collection of skills highly valued in the workplace today.

CEL CAPSTONE

Grade 10; required, meets 3 times per 7 day cycle

Students will pursue a project of their own design, utilizing the skills that they have acquired through their prior CEL experiences. With the guidance of a lead faculty mentor, as well as subject matter experts, students will work in small teams to design a product or service, a software application, a social entrepreneurial endeavor, or a creative project. The CEL capstone will culminate in a showcase event, where each student team will display, demonstrate, and present their work in a public forum.

ELECTIVES

PERSONAL FINANCE

Grades 11, 12; elective; fall semester; ½ credit, meets 6 times per 7 day cycle.

is an introductory course for students who are interested in learning more about basic money and finance concepts. This course will teach you topics that you are guaranteed to see and experience throughout your lives, from creating a personal budget to borrowing money, to investment and savings strategies. This is not a course about how to pick stocks or get rich quickly. Instead, it is an opportunity for you to tackle real-world financial scenarios and think carefully about the type of future you'd like to build for yourself. By the end of Personal Finance, you will be equipped to think through financial decisions and understand the impact they will have on your life.

THE PSYCHOLOGY OF HAPPINESS

Grades 11, 12; elective; spring semester; ½ credit, meets 6 times per 7 day cycle.

How do we find our own happiness? And how do we keep it once we have it? There is so much pressure and many misconceptions based around happiness. What does it mean to find purpose and be whole? What about the inbetween? This class will incorporate research on positive psychology, the science of wellness and human behavior. Using project-based learning, students will explore mindfulness practices, the science of wellbeing, gratitude and the creation of healthy habits. Students will engage in a series of positive activities designed to give them a sense of how the theories can be applied to their own lives, and at the end of their study students will create a podcast explaining how they have come to define and explain happiness for themselves.

VENTURE ACCELERATOR

Grade 10–12; fall/spring semester; elective; ½ credit, variable meeting times per cycle.

Prerequisite: Submission of application prior to enrollment

The Center for Entrepreneurial Leadership's Venture Accelerator (CELVA) is now offered as an elective option for students in grades 10, 11, and 12. This semester-long experience is a forum for students to learn entrepreneurship by doing, where students have the opportunity to work on real ventures under the guidance and tutelage of accomplished entrepreneurs and professionals. Students will be accepted into this elective by application—submitting for-profit, non-profit, advocacy, and personal project ideas for consideration. Students may use the elective to continue their work on either a pre-existing venture or new venture. Outstanding work within the CELVI elective can result in departmental distinctions and seed funding grants.