



---

# Course Descriptions 2022-2023

---

---

## High School Expedition Courses

---

### **Surviving in Sustainable Cities (9th/10th Grade)**

Cities are humanity's past, present and future. They are the center of culture. They are as complex as the people who make them up. In this class, we will dive into the complex sustainability of Boulder and the cities that make up the Front Range. We will explore topics of poverty, communities, and climate change in our cities and in our lives. Throughout the trimester, we will work with several different communities around Boulder as well as a variety of experts and professionals thinking critically about urban sustainability and design. This will involve service work and research with CU. We will look for lessons, successes and challenges and truly get to know the area we live in. This class will also spend time looking towards the future. We will build sustainable designs for our city, not simply for resilience from floods, heat and fires, but to build stronger and happier communities. Throughout we will dive into these questions: *How do we live sustainably in our communities? What part do we play in Boulder? What are the issues we can impact?*

### **Biodiversity: Ecological and Human Impact (9th/10th Grade)**

*How does species diversity lead to resilient ecosystems? And why is biodiversity critical for a functional planet?* Students will answer these questions by exploring the role of biodiversity in ecosystem building, resilience, and health. Through exploration of the vast array of niches and species that fill those niches in a living system, students will discover how biodiversity indicates the wellbeing of an area, and assess different ecosystems in and around Boulder. Students will collect and analyze data and write thorough research reports. As a multidisciplinary course, we will also explore fiction and non-fiction readings related to biodiversity. For a final project, students will build a plan to help promote biodiversity where it is needed most, especially in our own backyards.

### **Indigenous Lives: Past & Present (9th/10th Grade)**

Whether studying the Trail of Tears, Wounded Knee, Sand Creek, missing Indigenous women, land treaties, boarding schools, or the Dakota 38, the history of Indigenous people in the United States is marked by violence, broken promises, and segregation of communities. This has caused many Indigenous people to continue to live in abject poverty within a nation which prides itself on prosperity. While heightened awareness of this history may help to improve current conditions, there is still much work to be done to amplify Indigenous rights and their visibility in our country. Students in this course will study the history of Indigenous people in the United States and provide service work and awareness for the many communities in need, working to help magnify their stories of resilience and determination as they continue to maintain their culture and communities in the face of adversity.

### **Writing for Change (9th/10th Grade)**

*How can we use the written word as an avenue to promote activism, change or inspiration within our society?* With a specific focus on environmentalism and adventure writing, this course will explore a variety of different writing techniques, from creative writing to data driven analysis, allowing students to hone their craft and uncover how we can use writing as a tool for transformation. Students will learn from well known environmental writers such as Wendell Berry and Terry Tempest Williams, be exposed to fieldwork opportunities with local organizations like Protect our Winters and the Environmental Defense Fund, and partner with CU for the Global Climate Summit to use their newly acquired writing techniques in ways that truly matter within our community.

### **Pollution: Sources and Solutions (9th/10th Grade)**

It's no secret that the Denver metro area has some of the worst air quality in the country. A quick trip outside during the late summer months generally reveals a sky that is more yellow than blue. But how bad is our air? What are the constituents of air pollution and where does all of this pollution come from? In this class we will investigate the science and politics of many forms of pollution including air, water, and land. We will focus on local issues and explore their relationship with national and global pollution problems. In order to understand the properties and problems with pollution, we will study related chemistry concepts such as acids and bases, redox reactions, combustion, and toxins. Other basic chemistry concepts will be covered as needed such as atoms, molecules, and chemical reactions. Students will also have a chance to monitor the air quality in their homes and neighborhoods using hand-held monitors. As a class, we will travel to more highly polluted local areas to investigate how pollution is affecting those communities and ecosystems.

### **Resilience and Recovery (9th/10th Grade)**

How do we pursue happiness in an uncertain future? What does history teach us about resilience? What can we learn from past crises? What does a sustainable future look like when there is so much uncertainty? How do we rethink and rebuild a better, more meaningful life than the one we are currently living? Individuals, communities, organizations, and even entire nations are revitalizing, building, and innovating to create a positive, more sustainable future. Through an analysis of the Great Depression, the Dust Bowl, the economic collapse of Detroit, and Boulder floods and fires, students will gain insight into what limits or builds the capacity of people and communities to bounce back from a crisis. The class will identify concrete steps we can take to individually and communally recover from a crisis, build our capacity to deal with future crises, and create a more resilient future. Throughout the course, students will be immersed in local efforts to not only recover from crises, but to also build a future of resilience and possibility.

### **The Future of Clean Energy (9th/10th Grade)**

Scientists and policy makers around the world agree that we must quickly implement strategies to reduce our greenhouse gas emissions in order to avoid catastrophic climate change. In this course we will examine current and future technologies and the policies related to them to reduce or eliminate the use of fossil fuels, such as wind, solar, hydrogen, fusion, and geothermal. As well, we will investigate energy storage systems like batteries, capacitors, pumped water, and molten salt. We will explore the science and statistics of alternatives to fossil fuels in all energy sectors from transportation to industry with a focus on assessing the

feasibility of implementation and their real effects on climate change. Students will partner with local energy-focused companies to assess the viability, economics, and science of alternatives to fossil fuels. Some of the questions we will aim to answer include: *Does driving an electric or hybrid car really make a difference on a local or global scale? Will installing solar panels on your house prevent the flooding of coastal communities due to sea level rise? How can we heat our homes without damaging the planet?*

### **Boulder Through the Ages (9th/10th Grade)**

How has Boulder changed with time? What has influenced Boulder to evolve throughout the ages? What does it mean to have a sense of place and how does our sense of place impact us as humans? Using Boulder, Colorado as a specific case study, this course will explore how this town has developed through history. By examining particular historic events such as the Industrial Revolution and Post World War II America, in collaboration with the Boulder Museum and the Boulder Open Data project, we will learn about significant circumstances that have impacted the way we see Boulder today. Additionally, students will evaluate their own sense of place as residents of this community and how living in this location has impacted their own life.

### **Russia in the 21st Century (11th/12th Grade)**

The dissolution of the Soviet Union and the end of the Cold War marked a turning point for Russia and Eastern European countries to reshape and redefine their social, economic, and political systems and identities. Russia's invasion of Ukraine and the war it sparked has exposed fundamental differences in beliefs about what those systems and identities should look like in the future. This course will explore the cultural, historical, and political roots of the current conflict in Russia and Ukraine. Students will seek out diverse perspectives on the conflict and what is at stake for both Russians and Ukrainians. *What are the future implications of the conflict? What will be Russia's role in the world in the 21st century?*

### **Atmospheric Science: Adapting to Change (11th/12th Grade)**

An understanding of weather, climate, and the underlying atmospheric science is becoming more and more important in our world. In this course, we will explore why it takes a supercomputer to predict the weather. Even so, why are weather predictions still limited? From the spin of the Earth to the topography of the neighborhood, our environments affect the weather we experience everyday. Predicting future weather conditions has consequences for every aspect of our lives and is becoming more important as our climate changes. We will explore these consequences through the lenses of both science and humanities. Students will learn what makes up the atmosphere and affects its behavior, and how we build models to predict future climate impacts. We also learn about current and potential strategies for adapting to changing climate conditions – an emerging area of study that combines science, engineering, and human behavior.

### **Biotech And The Future of Medicine (11th/12th Grade)**

Biology-based technologies are emerging in medicine: gene editing, 3D printing organs, programming cellular machinery to synthesize microstructures, stimulating developmental pathways to grow missing body structures, interfacing prosthetic machinery with nervous systems, and more. *How can medicine improve lives by using these innovations? How can we ensure that these technologies aren't used to harm people?* Students will explore the frontiers of medical science through reading, writing, and research, and discover the possibilities for

healthcare through assessing the risks, benefits, and ethics behind these kinds of biological manipulations.

### **The Rise of -isms (11th/12th Grade)**

From medieval Europe to modern-day philosophy, the rise of -isms has informed some of the most complex sociological studies in world history. Whether political, economic, societal, religious, philosophical, structural, or ideological, -isms have defined nations, decimated populations, and given sociologists constant fuel for their study of systems and the people most affected by them. This course will take a closer look at many of these categorical -isms and how they have shaped schools of thought, helped build prosperous nations, or become dangerous ideologies that many people follow. Expeditionary study in this course will merely take a step outside the doors of Watershed (or maybe even within it) as students grapple with historical and modern applications of -isms within our global society.

### **China in the 21st Century (11th/12th Grade)**

In 1980, with a population of 1 billion people in a world of 4 billion people, 80% of China's population lived in poverty in rural areas. Urban cities had crumbling infrastructure. The few cars and trains that existed were from the 1950s. Since then, in a short 43 years, China transformed into one of the most powerful and modernized countries in the world, lifting half a billion people out of poverty and becoming a political, economic, technological, and military force that will be on the global center stage for generations to come. Today, almost 80% of 1.4 billion people are living in hundreds of cities that are less than 30 years old. China has achieved one of the most dramatic transformations of a country in all of human history. Understanding China today is critical if we are to peacefully navigate our relationship with China. This course will explore the scientific, historical, ideological, political, and social roots that gave China the capacity to achieve such a transformation. Students will study the influences of religion and philosophy on the system of values and ethos that have helped to shape Chinese identity for thousands of years. Understanding Chinese identity through time will inform our understanding of how China today has been able to successfully transform its society so quickly. Students will also learn about China's political system and the social, economic, and political challenges it is facing as it moves through the 21st century. Finally, the course will focus on China's vision for the future. *What are its intentions? What should define U.S. foreign policy with China?*

### **The Future of Transportation (11th/12th Grade)**

Humans like to get around and on a planet with more than 7.5 billion people we have many ways of transporting ourselves. *How do you get around?* Do you mostly ride in a car? What about people in other parts of Colorado, the U.S. and the world? In this class, we will examine the large variety of modes of transportation from our local area to cities around the globe. We will explore the economic, social, and environmental impacts of our current transportation systems. As well, we will find out what the future holds for transportation. In this class, we will explore physics concepts such as velocity, acceleration, forces, friction, and vectors. Students will develop their scientific writing skills through in-depth research reports. Additionally, we will explore the human side of transportation through works of fiction and non-fiction. We will partner with local organizations such as RTD to examine the state of public transportation in the Denver metro area and engage in projects aimed toward improving the efficacy and availability of reduced-carbon transportation.

---

## High School Skills Courses

---

### **Ceramics Through the Ages: Investigation, Replication, and Inspiration (Tri 1)**

*What can art tell us about the past? How has pottery changed what's possible?* This art course connects skill-building with clay to forms of pottery from different times in history. Students will balance creative work with investigation and experimentation as they dive into traditional styles of making, decorating, and firing a variety of forms and vessels. Our primary focus will be on the ceramic history of the U.S. Southwest. Students will interact with artists, historians, and experimental archaeologists as they unravel the role of ceramics in Ancestral Puebloan history and work to replicate creations using traditional materials and methodology. The class will travel to the 2022 Southwest Kiln Conference where we will have the opportunity to connect and work alongside artists and makers exploring the beautiful and intricately decorated pottery of the Four Corners and beyond. This course offers a true hands-on approach to studying art history as students strive to build empathy for and knowledge of the potters who inspire artists to this day.

### **Drawing the World (Tri 1)**

This course will focus on improving students' ability to draw the world around them, whether it be people, nature, or architecture. The skills in the class will set-up students to enter a new level when it comes to drawing scientific and observational journals, quickly sketching people and places, and using visual mediums to express how they see the world. We will look at a variety of tools and strategies that artists use to solve visual challenges. Students will use ratios, geometry, and positive and negative space to more accurately interpret and capture what they are seeing. Students will work primarily with pencils and pens and should plan to be in the field often, as most of our drawing practice will happen outside.

### **Digital Design 1 & 2 (Tri 1)**

From web design, advertising, or logo development, each element of digital design harnesses the power of graphic design, user-interface (UI), and user-experience (UX) to curate content for the digital age. Using the wealth of Adobe® products and online software platforms, this class will provide students with the opportunity to learn the tricks of the trade, engage in the digital design process from beginning to end, and fine tune and edit their work in design challenges that will incorporate much of the software and skills used in the digital design career industry. This course will be divided into Digital Design 1 (introduction to Adobe programs) & Digital Design 2 (expanding previous work to focus on UI & UX). Prerequisite for Digital Design 2 is Digital Design 1.

### **Cinema Studies: Genres & Filmmaking (Tri 2 & 3)**

*What does cinema tell us about ourselves? How do filmmakers evoke emotion and deliver a message?* Students will have the opportunity to uncover the scope of film from its innovative infancy with the likes of the Lumiere brothers and Thomas Edison to the contemporary digital medium that commands so much of the mediascape today. Students will journey through the history of cinema by focusing on a collection of film genres selected by the class. Students will also immerse themselves in the craft of filmmaking as a medium for storytelling. Our film studies will put us on an avenue to understand the constructs of effective cinematic storytelling. Students will deconstruct the process of moving a well-crafted story to a script and moving that

script into production to produce a short film. Teams of student filmmakers will craft a short film that pays homage to a genre of their choosing.

### **Rhyme and Reason (8th-12th) (Tri 2)**

How do we spark curiosity and wonder through poetry? This creative writing course will initially study impactful poets throughout history, such as classic writers like Oscar Wilde, to new and upcoming changemakers like Amanda Gorman. While studying their writing, we will also learn how their writing affected the era in which they lived, and the important events that they wrote about– what they meant and how they emphasized a need for change. While learning about specific techniques from these poets, students will then create their own poems to spark curiosity, change, and wonder within our community.

### **Painting and Perception (Tri 2)**

This course focuses on color theory, seeing colors as values, mixing colors, understanding the difference between hue, value, and intensity, and looking at both harmony and symbolism in color. Additionally, the course investigates optics and perception in an effort to understand how our eyes and our brain work in concert to interpret what we see. Final projects will be acrylic paintings on canvas with a focus on perceptual and pictorial color. All projects will be differentiated for skill, interest, and understanding. We will be investigating a range of historic and contemporary artists to understand historical perspectives, innovations, and techniques.

### **Function, Form, & Fashion (Tri 3)**

Necessity is the mother of invention (a concept often attributed to Plato). From the Camelbak to Crocs, design and development of everyday wearable products hinges not just on looks and appeal, but also on real life use and purpose. (Crocs were originally made for boating but quickly became a useful shoe for kids who needed slip-ons.) In designing products that we wear or use, factors such as disability or quick accessibility become central to a design team's prototypes and manufacturing. In this class, students will engage in design thinking as well as in the creation of products that serve function, form, and fashion. Prepare to sew, assemble, and even program your way to developing functional fashion that looks good and performs even better.

### **Gods, Heroes, & Games (Tri 3)**

Before there was Marvel and DC there was Bulfinch. He published one of the first books of Greek mythology in 1867. From this first collection, came stories that shaped decades of pop culture, characters morphing into movies, comics, video games, and much more. This course takes a spin through the study of Greek mythology and then utilizes these stories to segue into the design, illustration, and programming of video games. Students will be immersed in all aspects of game design and program their own games based upon new or existent storylines derived from the study of mythology. In this course, be prepared to read, design digital game assets, and program. While no experience is necessary, this is a challenge course that combines multiple skills in a single class.

### **Independent Study or Internship (Tri 1, 2 & 3)**

Students interested in pursuing an area of demonstrated passion are able to design their own independent coursework and internship opportunities. This includes identifying learning goals, making connections in the community, and completing coursework in their topic area. These

courses and opportunities are designed to offer a more rigorous experience for students ready to take on more challenge and self-direction in their learning. Students must complete the initial plan description in the registration survey to be considered.

---

## Spanish Courses

---

Watershed students move through levels of proficiency in Spanish starting with middle school basic Spanish through advanced courses in high school. The Watershed Spanish curriculum focuses on helping students to engage in a lifelong experience of becoming bilingual. The Spanish program is a proficiency-based curriculum that enables students to use the second language in real life scenarios in an immersion setting. Through interacting with authentic resources, volunteer opportunities, and exchanges with native speakers, we support students to increase their competence in interpersonal and presentational speaking, writing, listening, and reading skills. Beginning in the fall of 2022, our Spanish program will allow for the option of a Seal of Biliteracy for students completing 4 years of HS Spanish and achieving a passing score on a summative assessment.

### Watershed Spanish Courses

- Middle School Spanish Language and Culture
- High School Introduction to Spanish
- High School Intermediate Spanish
- High School Advanced Spanish
- Seal of Biliteracy optional

---

## Math Courses

---

Students move through seven years of math starting with Math A in the 6th grade. The Watershed mathematics curriculum focuses on helping students develop not just computational fluency but also flexible, robust quantitative reasoning skills. Through projects and real-world mathematics, we support students to increase their mathematical fluency and ability to use math in their day-to-day lives. More and more, future citizens need a flexible understanding of mathematical thinking, with an increased emphasis on data analysis, engineering applications, and computer science. Beginning in the fall of 2021, most of our math courses are expanded to include a focus on these emerging STEM areas. This enhanced math program allows us to make math more relevant to our students' lives both today and in the future.

### Watershed Math Courses

- Math A & Introduction to Data Science
- Math B & Topics in Engineering
- Algebra 1 & Topics in Data Science
- Geometry
- Algebra 2 & Topics in Engineering
- Statistics
- Precalculus
- Calculus

---

Link to: [2022-2023 Middle School Course Descriptions](#)

---