



Upper School
Curriculum Guide
2026-2027

Table of Contents

Academic Overview	5
Steamboat Mountain School Mission:	5
Requirements to Graduate	7
Student Trajectory Map	9
Math Tracks	9
English Tracks	9
Social Studies Track	9
Science Track	9
Language Tracks	9
English	10
Analytical Writing, Reading, and Thinking	10
The Nature of Human Nature	10
Identity: Self and Society	10
Human vs. Machine	10
Novels to Film	10
Conventions in Classical Noir and Intro to Film Analysis	10
Psychoanalysis and Romanticism within Noir	11
Contemporary Adaptations of Noir	11
American Literature	11
Dystopias of the Past, Present and Future	11
Literature of Place	11
American Horror Stories	12
Postmodernism	12
Intro to Postmodernism: Humanism and Now	12
Postmodern Satire and Social Commentary	12
Postmodernism, Redux: Now, Again	12
Elective English Classes	13
Artificial Intelligence: A Literary and Cultural Study	13
The Art of Songwriting	13
Social Studies	14
World History	14
Middle Eastern Studies	14
The World Wars	14
Colonization in the Modern World	14
Human Geography	14
Modern Cartography and Geology of the Mountain West	14
Electoral and Political Geography	14
Water, Snow, and Storytelling	15

US History	15
Indigenous History	15
The American West	15
Music and Revolution	15
Social Philosophy	15
Intro to Social Philosophy	15
Roots of Inequality	16
Civil Disobedience	16
Social Studies Electives	16
Civics	16
Introduction to Economics	16
Law, Rights, and Citizenship: A Constitutional History Seminar	16
Math	18
Integrated 1	18
Integrated 2	18
Integrated 3	18
Precalculus	19
Calculus 1	19
Calculus 2	19
Elective Math Classes	20
Statistics	20
Finance	20
Science	21
Biology	21
Biology A	21
Biology B	21
Biology C	21
Chemistry	21
Chemistry A	21
Chemistry B	21
Chemistry C	22
Engineering	22
Environmental Science	23
Ecological Systems	23
Circular Economies: Waste Management and Reduction	23
Designing for the Future	23
Physics	23
Kinematics in 1 and 2-Dimensions	24
Dynamics and Energy	24
Waves, Light, and Modern Physics	24

Earth Science	24
Planet Earth	24
Earth Systems in Action	24
Earth Science Field Methods	25
Elective Science Classes	25
Alaskan Public Health - registration closed	25
Wilderness First Aid	25
IT Explorations	25
Language	27
Spanish 1	27
Spanish 2	27
Spanish 3	27
Spanish 4	27
Spanish 5	28
Art	29
Studio Art	29
Intro to Drawing	29
Advanced Drawing	29
Intro to Painting	29
Advanced Painting	29
Mixed Media Fine Art	29
Functional Ceramics and Clay Sculpture	30
Garment Making: Fabric, Fashion, and Wearable Art	30
Media Art	30
Fine Art Photography	30
Commercial Photography	30
Yearbook and Graphic Arts	30
Independent Study	32
One Schoolhouse Partnership	32
Requirements and Policies	32
Tuition Policies	32
With SMS Approval - Tuition Covered	32
With SMS Approval - Tuition Not Covered	33

Academic Overview

The Upper School at Steamboat Mountain School, a 9-12 liberal arts program, prepares students beyond college. The academics are grounded in our core principles and mission and the identity of our community. These pillars shape the pedagogical principles, curriculum, and transformative competencies that occur inside the classroom.

Faculty at Steamboat Mountain School ground their teaching in five foundational pedagogical principles. Their classes are relationship oriented and learner centered, while maintaining high expectations for growth among all students. Teachers' units are rooted in inquiry, with essential questions at the center. The classes also maintain a local to global context, focusing on the individual and expanding outward to local communities and global communities.

Using these guiding principles as Steamboat Mountain School's teaching foundation, the school is in the process of exploring The World Course as a curriculum. Based on UN sustainability themes, The World Course fosters global competence among students and further aligns our academic program with our Global Studies program. Many classes at the upper school focus on the following themes: the environment, society and public health, global conflicts and resolutions, development, technology, innovation, globalization and human movement, diverse perspectives, personal and social responsibility, cultural competence, understanding the natural world, human nature, identity, power, oppression, and liberation. Although these themes do not encompass the entirety of the curriculum, they are threads that run through many classes in grades 9 through 12.

Our courses and curriculum aim to develop a variety of abilities in every Steamboat Mountain School student. By the time they graduate, our students have the skills to read discerningly, to think curiously, analytically, and creatively, and to communicate effectively – both orally and in writing. Graduates are inquisitive and confident, while still maintaining an observational attitude and a listening, open ear to all ideas. These practices foster empathy, gratitude, and a knack for drawing connections across disciplines. Ultimately, the academic program at Steamboat Mountain School teaches students to overcome challenges and fears, establish their own independent voice, and collaborate extremely effectively with others.

Steamboat Mountain School Mission:

Steamboat Mountain School cultivates the intellect and imagination of young minds, so that students grow in their curiosity, discover their potential, contribute meaningfully to their community, and engage in a dynamic, global society.

Our students are:

- **Vigorous in Learning**
 - Our students find their voices by developing their independent thinking skills so that they can collaborate productively in an increasingly connected world.
- **Courageous in Action**
 - When presented with challenges, our students both accept and offer support to strengthen their resilience and develop the confidence they need to take risks.

- Purposeful in Exploring

- Our students bring the world into the classroom and the classroom into the world, stepping forward into global citizenship as they experience, appreciate, and engage with the world around them.

Our school believes in Thriving Through Contrast.

- We intentionally embrace the dynamic equilibrium between contrasting principles by:
 - providing our students with challenge and offering them support
 - developing independent thought and encouraging collaboration
 - bringing the world into the classroom and bringing the classroom into the world
 - focusing on our school community and connecting with the global community
 - fostering self-awareness and inspiring broader impact

Requirements to Graduate

A minimum of eighteen (18) credits, including one (1) art credit, is required for graduation from Steamboat Mountain School. One credit is given for each course passed; a course consists of three classes of one-third credit per class. Credit is only obtained with an averaged final grade of sixty (60%) or better for the course. Please note that although 60%-69% is a passing grade for any Upper School course taken at the school, it is not considered a college-recommending grade. Many colleges and universities will not acknowledge credit for courses in which the received grade is a D+ or lower. Therefore, a student who receives a D+ or lower in a sequential course may be required to do remedial work, repeat the course, or attend summer school before continuing their course of study in that department.

English	Four years of English
Math	Three years of required math
Social Studies	Three years of social studies, including US History, World History, and Geography
Science	Three years of science courses, including Biology and Chemistry
World Language	Three years of Spanish. Although SMS offers Spanish exclusively, students who enter the school having reached level 2 in an alternative language may work with the Assistant Head of School to complete their world language requirement through online courses or work with approved tutors.
Arts	One credit in the arts. Although private lessons generally do not count toward this graduation requirement, the SMS works with students and families to encourage their continued pursuit of the arts outside of the School when the School is unable to provide appropriate classes for the student.
Physical Education	This credit can be fulfilled by participation in Steamboat Mountain School's Physical Outdoor Pursuits (POPs), the Steamboat Springs Winter Sports Club program with weekly dryland training in the fall and on-snow training and competition in the winter and spring, or an extracurricular physical activity offered by a third party that meets for at least four hours a week and is approved by the Assistant Head of School and Director of Outdoor and Global Programs. It should be noted that patterns of unexcused absences can jeopardize fulfilling this requirement.

Additional
Reqs.

Global Studies: Although Global Studies is not a graduation requirement, each Global Studies trip counts as one academic credit.

Minimum number of classes: Students are generally required to take 16 classes a year. Exceptions must be approved by the Assistant Head of School. An exception may be permitted, for example, if a student is a high level athlete, will be missing a significant amount of school, and is on the trajectory to fulfill all necessary graduation requirements.

The Capstone: SMS seniors must pass all requirements of the Capstone project in order to graduate.

Seminar: All students participate in Seminar, a grade level specific class covering Academic Skills (9th), Health & Wellness (10th), College & Career (11th), and College Counseling/Transitions (12th).

Student Trajectory Map

Math Tracks

- Foundational:
 - Integrated 1 → Integrated 2 → Integrated 3 → Precalculus* or Single Mod Elective Classes
- Accelerated:
 - Integrated 2 → Integrated 3 → Precalculus* → Calculus 1*
- Advanced:
 - Integrated 3 → Precalculus → Calculus 1* → Calculus 2*

English Tracks

- English 1 → English 2 → English 3* → English 4*

Social Studies Track

- World History → Geography → US History* → Social Philosophy*

Science Track

- Biology → Chemistry → Anatomy and Physiology* OR Physics* OR Environmental Science*

Language Tracks

- Traditional:
 - Spanish 1 → Spanish 2 → Spanish 3 → Spanish 4* → Spanish 5*

*Honors options available

English

The English department exists to develop students' analytical, creative, and communication skills to promote ethical, personal, and collaborative understandings.

Analytical Writing, Reading, and Thinking

9th Grade English

The Nature of Human Nature

- *Fulfills one of three English credit requirements*
- *First class in the sequence*

Through close textual analysis, discussions, and critical reflections, students will examine themes such as power and authority, civilization and savagery, survival and resilience, and the nature of good and evil. Through the study of literature and mythology, students will gain insights into the universal aspects of human nature as well as the ways in which social, cultural, and historical factors shape human experiences and choices. Through a combination of discussions, presentations, and creative projects, students will engage perspectives on human nature and develop critical thinking skills, empathy, and cultural literacy. The class will also encourage students to reflect on the relevance of these timeless stories and themes to contemporary society and their own lives.

Identity: Self and Society

- *Fulfills one of three English credit requirements*
- *Prerequisite: The Nature of Human Nature*

By the end of the class, students will develop a nuanced understanding of the complexities of identity formation, self-perception, and societal influences. It will explore the intersection between personal identity and desires and societal expectations and duty. We will also examine the factors and influences that create cultural identity.

Human vs. Machine

- *Fulfills one of three English credit requirements*
- *Prerequisite: Human vs. Machine*

Through close reading, film screenings, discussions, and creative projects, students will deepen their understanding of the complex dynamics between humanity and technology in dystopian narratives. By examining these texts in dialogue with contemporary debates about automation, artificial intelligence, and ecological sustainability, students will develop critical thinking skills and ethical awareness necessary for navigating the challenges and opportunities of an increasingly technologized world.

Novels to Film

10th Grade English

Conventions in Classical Noir and Intro to Film Analysis

- *Fulfills one of three English credit requirements*
- *First class in the sequence*

In the first class, students will learn fundamental concepts and accompanying terms needed for film analysis. Likewise, they'll assess how the skills needed for cinematic 'reading' translate to the close reading skills inherent to complex humanities courses. Using the centerpiece of 'noir' film and literature, we'll examine archetypal tendencies within literature and film of the genre, modes of predicting outcomes via close 'detective' work while reading, and how directors translate such works to the screen.

Psychoanalysis and Romanticism within Noir

- *Fulfills one of three English credit requirements*
- *Prerequisite: Conventions in Classical Noir and Intro to Film Analysis*

For the second class, students will extend the skills and vocabulary acquired during the first class and apply similar methods to more complex theoretical and critical applications. In particular, they'll examine psychoanalytic and sociological lenses by which authors and directors shape narratives. Still within the noir genre, they'll assess how such complex study resonates within more contemporary literary and cinematic adaptations. Foci will include Freudian expectations of behavior and why they fall flat in reality, along with Blakean Romanticism and its applications for adult behavior.

Contemporary Adaptations of Noir

- *Fulfills one of three English credit requirements*
- *Prerequisite: Psychoanalysis and Romanticism within Noir*

The third class is an ongoing accretion of and reapplication of ideas covered during the previous three. Specifically, students will look at recent noir literary and film works to assess how they differ from traditional, archetypal modes and include (or manipulate) psychological and sociological presumptions. The year will culminate with the group challenge for students to write, cast, shoot, direct, edit and refine a complete noir film (of a reasonable length so as to be feasible and still coherent) that showcases the understandings they've accumulated over the year.

American Literature

11th Grade English¹

Honors option available with recommendation and approval from the department.

Dystopias of the Past, Present and Future

- *Fulfills one of three English credit requirements*
- *First class in the sequence*

"Dystopias Past, Present, and Future" is interested in the historical, contemporary, and speculative realms of societal critique. By examining dystopian narratives that offer us an alternative way of viewing America's past, present and future, participants will gain insights into the socio-political landscape, fostering a deeper understanding of the foundation of American society and its potential trajectories. This class's primary text will be *The Crucible*, *The Handmaid's Tale*, and *Parable of the Sower*.

Literature of Place

- *Fulfills one of three English credit requirements*
- *Prerequisite: Dystopias of the Past, Present and Future*

"Literature of Place" explores the relationship between people and place through literature. In this course students will analyze literary works where setting transcends its traditional role, emerging as a

¹ Rising seniors who took Postmodernism in 24-25 will be taking American Literature in 25-26

dynamic character in its own right. By engaging with texts that prioritize the interplay between people and place, students will deepen their understanding of the connections between literature, culture, and the world around us. This class will use a range of primary texts including fiction, non-fiction, poetry and film.

American Horror Stories

- *Fulfills one of three English credit requirements*
- *Prerequisite: Literature of Place*

"American Horror Stories" looks at the underbelly of American history through the lens of horror and true crime literature. This course offers a chilling exploration of historical injustices, uncovering the realities that lurk beneath the surface of our society. From colonial atrocities to contemporary criminal cases, students will analyze how horror and true crime narratives reflect, critique, and sometimes perpetuate societal norms and power structures.

Postmodernism

12th Grade English

Honors option available with recommendation and approval from the department.

Intro to Postmodernism: Humanism and Now

- *Fulfills one of three English credit requirements*
- *First class in the sequence*

Within the first class, students will be introduced to the complex web of ideas they'll reassess in increments over the course of the year, essentially beginning at the end in conceptual terms. To supplement their reactionary analyses of postmodern concepts, we'll then cycle back to the age-old philosophical undertakings and presumptions of humanism. By contrasting humanist claims with contemporary counter theory regarding truth and reasoning, they'll assess how such ideas have changed over recent decades. Central texts revolve around the social and ideological problems caused by dependence on humanistic assumptions of truth within worlds that increasingly construct their own senses of logic and 'truth.'

Postmodern Satire and Social Commentary

- *Fulfills one of three grade English credit requirements*
- *Prerequisite: Intro to Postmodernism: Humanism and Now*

The second class centers on the various questions and complications of what is vaguely called 'postmodern' and 'poststructuralist', and engages with paradox to consider how and why such questions without answers may be differently productive than whole answers with neat and tidy edges. In essence, we'll look at how artists contend with absurdity, nihilism, and chaos, often rendering productions that mimic the mess they see, rather than solving it.

Postmodernism, Redux: Now, Again

- *Fulfills one of three English credit requirements*
- *Prerequisite: Postmodern Satire and Social Commentary*

The third class is an ongoing accretion of and reapplication of ideas covered during the previous two. Students will take a deep dive into how systems and presumptions influence behavior, and how artists react to such systems. They'll likewise reconsider the opening premises of the course, even as far back as day one, to reconsider how the array of ideas they've acquired, while non-linear and collage-like in chaotic array, more accurately describe the world in which we live today than may a

tidy, linear, or traditional design. In the process, they'll apply complex ideas and considerations of systems to real-world ethical problems, such as the use of A.I.

Elective English Classes

Artificial Intelligence: A Literary and Cultural Study

- *Single class, no prerequisite*

What is A.I. and how might it be used effectively? We'll cover a variety of answers to such questions from literary works and cultural perspectives spanning the past one hundred years. Plus, since the subject matter of the course is experimental and unfolding rapidly in its development today, so will the curriculum. Students will experiment with AI applications in various modes, apply them to writing, illustration, research, and discussion, and thereby wrestle with the ethical and existential difficulties inherent to new technology.

The Art of Songwriting

- *Single class, no prerequisite*

This class is an English elective designed for students who are passionate about music and creative writing. This course will explore the fundamentals of songwriting, blending literary techniques with musical elements to create original songs. Students will study various genres and styles, analyze famous song lyrics, and learn about the historical and cultural contexts of different music movements. Through a combination of individual and collaborative projects, students will develop their own unique voice and style, ultimately composing and performing their original songs. No prior musical experience is required, just a love for music and a willingness to experiment with words and melodies.

Social Studies

The Social Studies department exists to build global and diverse understanding, create cultural competence and draw socially informed connections between events and humanity.

World History

9th Grade History

Middle Eastern Studies

- *Fulfills one of three 9th grade history credit requirements*
- *First class in the sequence*

Middle Eastern Studies explores the region's dynamic past and its profound influence on modern day. Through an examination of the political, social, cultural, and economic dimensions, students will gain a nuanced understanding of the Middle East, ending with the Israeli-Palestinian conflict.

The World Wars

- *Fulfills one of three 9th grade history credit requirements*
- *Prerequisite: Middle Eastern Studies*

The World Wars class offers a comprehensive examination of the two World Wars that profoundly influence global dynamics today. Through a multifaceted exploration of the political, social, economic, and cultural dimensions, students will gain a deep understanding of the causes, consequences, and legacies of these transformative conflicts.

Colonization in the Modern World

- *Fulfills one of three 9th grade history credit requirements*
- *Prerequisite: The World Wars*

This course provides an in-depth examination of colonization in recent history; we'll explore the processes, consequences, and enduring legacies of expansionism across the globe. Finally, we will dive into neo-colonialism and modern day influence.

Human Geography

10th Grade Social Studies

Modern Cartography and Geology of the Mountain West

- *Fulfills one of three 10th grade history credit requirements*
- *First class in the sequence*

This class explores how cartography is an ever-evolving field that can be used to answer a variety of questions ranging from personal reflections to concrete investigations. Students will learn to use and analyze maps in addition to creating their own maps on food culture and earthquake-resistant architecture. In the second half of this course, students will explore the processes that shape the world around them.

Electoral and Political Geography

- *Fulfills one of three 10th grade history credit requirements*
- *Prerequisite: Modern Cartography and Geology of the Mountain West*

In this class, students learn about the inner workings of the American electoral machine. Students begin by engaging with local issues and elections, then widen their focus to federal elections, the electoral college, and election reform. Students finish the class by exploring issues in global geopolitics and creatively sharing their knowledge with their peers.

Water, Snow, and Storytelling

- *Fulfills one of three 10th grade history credit requirements*
- *Prerequisite: Electoral Geography and Human Rights*

This class is centered on two units: storytelling and water. Students will research a topic related to one of the five themes of geography. As part of their research, they will interview an expert in the field and write an article modeled after those found in National Geographic Magazine. In the water unit, students will go outdoors and learn about snow science. Those learnings will inform discussion of water use, rights, and scarcity in the American West.

US History

11th Grade History

Honors option available with recommendation and approval from the department.

Indigenous History

- *Fulfills one of three 11th grade history credit requirements*
- *First class in sequence*

Indigenous History will explore the culture, stories and conflict of native voices in the United States. From colonial encounters to contemporary challenges, students will look closely at the relationship between indigenous tribes and the US government.

The American West

- *Fulfills one of three 11th grade history credit requirements*
- *Prerequisite: Indigenous History*

This class delves into the multifaceted history of the American West, examining its complex tapestry of how manifest destiny impacted economic and political expansion. We will also explore American environmental history and how it shapes land protection today. Finally, we will study World War II: the atomic bomb and Japanese internment.

Music and Revolution

- *Fulfills one of three 11th grade history credit requirements*
- *Prerequisite: The American West*

Music & Revolution offers a dynamic exploration of how music has served as a catalyst for social change and shaped the landscape of U.S. history; we specifically will look at music from the black experience. Units include slavery anthems of the Civil War, blues and jazz era of Jim Crow, and 1990s hip hop. This course delves into the symbiotic relationship between music and social change.

Social Philosophy

11th or 12th Grade Social Studies

Honors option available with recommendation and approval from the department.

Intro to Social Philosophy

- *Fulfills one history credit for 11th or 12th graders (11th graders must also take 3 US History credits)*

- *Single class, no prerequisite*

This class explores the foundational concepts and ethical frameworks shaping society in "Social Philosophy." Students will investigate theories of justice, freedom, and power dynamics while critically analyzing the role of institutions and cultural norms in shaping social structures.

Roots of Inequality

- *Fulfills one history credit for 11th or 12th graders (11th graders must also take 3 US History credits)*
- *Single class, no prerequisite*

This class explores the deep-seated origins of inequality in human societies through an examination of historical, cultural, and environmental factors. Anchored in Jared Diamond's "Guns, Germs, and Steel," this class challenges historical notions about how Eurasian hegemony is due to any form of Eurasian intellectual, moral, or inherent genetic superiority. Instead, we'll seek to establish an evidence-based, historical perspective of what accounts for contemporary disparity.

Civil Disobedience

- *Fulfills one history credit for 11th or 12th graders (11th graders must also take 3 US History credits)*
- *Single class, no prerequisite*

This class will explore the moral, ethical and political dimensions of civil disobedience. From the abolitionist movement to the modern fight against climate change, this course will examine the role dissent, protest, and sabotage plays in shaping social change.

American History Themes & Perspectives

11th or 12th Grade Social Studies

Honors option available with recommendation and approval from the department.

Civics

- *Single class, no prerequisite*

Civics is an inquiry based class during which students will explore how factors of structure, process, and policy influence each other at the local, state, and federal levels of government. Emphasis is on teaching students how to develop a critical understanding of diverse perspectives from the founding of the United States and the Constitution to political beliefs and behaviors that influence current public and economic policy.

Introduction to Economics

- *Single class, no prerequisite*

Designed as a one-mod elective, the course focuses on building essential literacy in both microeconomics and macroeconomics. Students will learn to interpret economic indicators like GDP and inflation, understand the mechanics of global trade, and apply economic thinking to real-world scenarios. By the end of the term, students will have a clearer understanding of the forces that drive the American and global economies, as well as the foundational skills needed for informed decision-making in a global marketplace.

Law, Rights, and Citizenship: A Constitutional History Seminar

- *Single class, no prerequisite*

This seminar serves as the synthesis of the "American Systems" elective triad (civics, econ, and this constitutional history seminar), examining how the U.S. Constitution governs the tension between government power, market freedom, and individual rights. Students will move beyond theory to

analyze the Supreme Court as the final arbiter of American life, using landmark cases to see how legal precedence shapes our civic and economic reality.

Math

The math department exists to build quantitative reasoning skills, numerical critical thinking, and problem solving among students, both through the conceptualization of data and its real world applications.

Integrated 1

- *Sequential*
- *Fulfills a year-long math requirement (3 classes)*
- *Integrated 1 A: expressions, equations in one variable, relations and functions, linear vs. nonlinear*
- *Integrated 1 B: linear equations and inequalities, systems of linear equations and inequalities, exponential functions*
- *Integrated 1 C: tools of geometry, angles and figures, logical arguments and line relationships, triangles and congruence*

Integrated 1 provides the foundations for the Steamboat Mountain School math program and prepares students to enter Integrated 2. The Integrated 1 course dives deep into algebraic ideas while exposing students to content across other mathematical subject areas. The scope and sequence follows an integrated framework with content from algebra to geometry to statistics. The course challenges students to master algebraic skills and procedures and then apply those skills and procedures to geometric shapes, concepts and logic.

Integrated 2

- *Sequential*
- *Fulfills a year-long math requirement (3 classes)*
- *Prerequisite: successful completion of Integrated 1*
- *Integrated 2 A: relationships in triangles, quadrilaterals*
- *Integrated 2 B: similar triangles, right triangle trigonometry, circles, functions and continuity, intercepts*
- *Integrated 2 C: linear equations and inequalities, systems, exponents and radical expressions, polynomials, introduction to quadratics (graphing and factoring)*

The Integrated 2 math course solidifies students' basic algebra skills learned in Integrated 1 and expands on these principles to develop new and more advanced algebra skills. This course also incorporates new geometric principles and shows students how to apply their algebraic knowledge to shapes and figures.

Integrated 3

- *Sequential*
- *Fulfills a year-long math requirement (3 classes)*
- *Prerequisite: successful completion of Integrated 2*
- *Integrated 3 A: quadratic functions, polynomial functions, solving polynomial equations*
- *Integrated 3 B: inverse and radical functions, exponential and logarithmic functions*
- *Integrated 3 C: rational functions, inferential statistics, trigonometric functions*

Integrated 3 builds upon and extends the mathematics learned in Integrated 1 and Integrated 2. The scope and sequence follows an integrated framework with content from algebra to geometry to statistics. Integrated 3 challenges students to master algebraic skills of increasing difficulty and then apply those skills using patterns, modeling and conjectures. The course emphasizes problem solving

and applications in real-world situations, and students explore the connection between the concepts they are learning and the way those concepts model the world around them.

Precalculus

Honors option available with recommendation and approval from the department.

- *Sequential*
- *Fulfills a year-long math requirement (3 classes)*
- *Prerequisite: successful completion of Integrated 3 or approval of department*
- *Precalculus A: quadratic and polynomial functions, exponential and logarithmic functions*
- *Precalculus B: the unit circle, trigonometric functions, systems of equations in many variables, introduction to matrices*
- *Precalculus C: conic sections, sequences and series, introduction to limits*

Precalculus promotes in-depth understanding of the concepts and mathematical thinking necessary for calculus, statistics, and future mathematics courses. Students will learn the properties, algebra, graphs, and language of a variety of functions, including exponential, logarithmic, and trigonometric. These functional concepts are continually reinforced throughout the course and are applied to advanced topics.

Calculus 1

Honors option available with recommendation and approval from the department.

- *Sequential*
- *Fulfills a year-long math requirement (3 classes)*
- *Prerequisite: successful completion of Precalculus or approval of department*
- *Calculus 1 A: limits, derivatives (physical and geometrical meanings, definitions, properties), derivative rules, implicit differentiation and related rates*
- *Calculus 1 B: identifying features of graphs using derivatives, indefinite integral as the antiderivative, definite integral as an accumulation, basic integration techniques including integration by substitution (u-sub)*
- *Calculus 1 C: application of the definite integral to area and volume, extended applications to physics*

This course introduces the fundamental topics of calculus. The Calculus 1 course emphasizes visualization and correlation of all related perspectives and concepts. Students are encouraged to recognize how all new material in calculus fits into material they have already learned in previous math courses. Students in the course look at "the big picture" of mathematics. Students are expected to become proficient users of the graphing calculator, which is used regularly throughout the course in order to help them visualize the concepts being covered in class.

Calculus 2

Honors option available with recommendation and approval from the department.

- *Sequential*
- *Fulfills a year-long math requirement (3 classes)*
- *Prerequisite: successful completion of Calculus 1 or approval of department*
- *Calculus 2 A: advanced integration techniques, extended applications of the definite integral (arc length, surface area, work by a variable force)*
- *Calculus 2 B: differential equations and direction fields, models for population growth, parametric and polar curves, derivatives of parametric and polar equations*

- *Calculus 2 C: infinite sequences and series, series convergence tests, representations of functions as power series, introduce Taylor and Maclaurin series*

Calculus 2 is a continuation of the study of calculus, focusing on integration techniques, applications of the definite integral, and the analysis of infinite sequences and series. Students will learn advanced methods of integration, including integration by parts, partial fractions, and trigonometric techniques, and apply these skills to solve problems involving area, volume, arc length, and other real-world contexts. Students are introduced to parametric and polar equations and their applications. The course finishes with a study of sequences and infinite series, with emphasis on determining convergence and using various tests. Students will explore power series and Taylor series as tools for approximating functions. A strong foundation in Calculus 1 is essential for success in this course. Students are expected to be proficient users of the graphing calculator, which is used regularly throughout the course in order to help them visualize the concepts being covered in class.

Elective Math Classes

Statistics

- *Single class, no prerequisite*
- *Fulfills one of three year-long math requirements for 12th graders, or acts as a math elective*

Our world is filled with data. Everywhere we look data is being collected from us and presented to us to accomplish a variety of tasks. While it is an incredibly powerful tool, it is not straightforward or easy to use and understand. However, in your future education and lives, you will have to be able to understand and work with data in a variety of ways. The goal of this project is to build a knowledge base of how data is created, manipulated, and used for a variety of purposes in our world. We will learn how to read and understand different data sets and graphics, and then how we can make these on our own. We will discuss how and why data is reliable and credible, along with how we can find good data on the internet.

Finance

- *Single class, no prerequisite*
- *Fulfills one of three year-long math requirements for 12th graders, or acts as a math elective*

Students learn how to enter and manipulate functions within google sheets, to apply mathematical equations to real life situations and utilize that information to make decisions. They will focus on interest, credit and loans (applied to car purchases, credit cards, and student loans), taxes and budgeting (applied to taxes and creating a holistic life budget for a potential future situation).

Science

The science department exists to generate appreciation and curiosity for the natural world. Our students learn to observe, investigate, and reflect as a way to gain knowledge of the natural world.

Biology

9th Grade Science

Biology A

- *Fulfills one of three credits for a biology requirement*
- *First class in sequence*

From pond water to alpine soil, students practice scientific thinking by collecting real-world data and unraveling the mysteries of life's molecular building blocks. Along the way, they'll discover how proteins, lipids, and carbohydrates fuel everything from sprouting seeds to sprinting runners.

Biology B

- *Fulfills one of three credits for a biology requirement*
- *Prerequisite: Biology 1 A*

Cells divide, mutations arise, and students explore how these processes connect to cancer, inheritance, and cutting-edge genetic technology. Hands-on experiments—from bitter taste tests to cheese-making—bring DNA to life, while electrophoresis lets them visualize the science behind genetic analysis.

Biology C

- *Fulfills one of three credits for a biology requirement*
- *Prerequisite: Biology 1 B*

From antibiotic resistance to pika survival, students investigate how species adapt in a changing world and why evolution is always a driving force of life. Students will wrap up with a deep dive into human physiology—covering everything from first aid skills to the science of sex education.

Chemistry

10th Grade Science

Chemistry A

- *Fulfills one of three credits for a chemistry requirement*
- *First class in sequence*

In Chemistry A, students begin with a review of core scientific skills. Topics include measurements, significant figures, scientific notation, and dimensional analysis. Students will apply these skills in a few hands-on labs. Including determining the density of irregular objects and identifying a mystery material. With this foundation, we will be introduced to the structure of all matter (things). Students will study why the periodic table is arranged the way it is and use it as a tool to predict the formation of ions and ionic compounds. Students will begin to develop their skills in naming elements chemical compounds. A lab on electrolysis will be conducted to explore the formation of ions.

Chemistry B

- *Fulfills one of three credits for a chemistry requirement*
- *Prerequisite: Chemistry A*

In this mod students will focus on chemical reactions and extend their skills to predicting chemical reactions and solve quantitative problems in chemistry. Students will learn to balance chemical equations and use these equations to identify common types of chemical reactions. Through experiments and demos, students will observe and analyze several types of reactions. The course will introduce the mole concept and provide a foundation in core Stoichiometry exploring mole-to-mole relationships and chemical reactions.

Chemistry C

- *Fulfills one of three credits for a chemistry requirement*
- *Prerequisite: Chemistry B*

We will conclude our general chemistry studies exploring electron configurations and how light emission during reactions can be used to determine what elements are present in a substance. Students will examine how atoms are arranged in matter and the implications for the properties and state of matter.

Students will investigate the behavior of gases and the gas laws via a series of experiments. Each student will conduct a separate experiment to examine changes to variables such as pressure, temperature, or volume affect gases .

Engineering

11th or 12th Grade Science

Honors option available with recommendation and approval from the department.

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *First class in sequence*

Engineering design A

The course introduces students to the engineering design process through hands-on projects and problem-solving challenges. Students will learn the cyclic design process used by engineers to define problems, develop possible solutions, build prototypes, and test their designs.

Students will be introduced to computer-aided design (CAD) using industry standard software. Students will learn basic modeling techniques to visualize and design parts and structures.

Students will apply the engineering design process through a bass wood bridge challenge. Students will design, build, and test a basswood bridge to explore concepts such as forces, load distributions, structural efficiency, and material limitations.

Engineering Design B

- *Prerequisite: Engineering A*

In this second course in the engineering sequence students will have the opportunity to expand their technical skills by designing a sensor and data acquisition project. Engineers are fond of saying we can't fix what we can't measure. Students will propose an environmental variable or variables they want to measure over a period of several days to weeks. Students will learn the basics of microcontrollers and programming using Arduino platforms and off-the-shelf sensors. Once the data is collected students will prepare a report on their interpretation of the results.

Engineering Design C

- *Prerequisite: Engineering B*

The course culminates in open ended engineering challenges that allow students to apply the skills they have developed in the sequence. Students will explore renewable energy technologies and examine how engineering solutions can address environmental and energy challenges.

Students will participate in a small-scale renewable energy project in which they design and test systems that harness energy from sources such as wind, solar, or water. Through testing and analysis, students will estimate the efficiency of their designs.

A second project will see the students proposing a project they would like to undertake. Students will design a solution using the engineering design process, develop a prototype with CAD or prototyping tools. The class will conclude with presentations of the students' projects.

Environmental Science

11th or 12th Grade Science

Honors option available with recommendation and approval from the department.

Ecological Systems

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *Class occurs in last mod of the school year*
- *First class in sequence*

In this class, students will learn how ecosystems function and the role individual species play in maintaining a dynamic balance. Students will practice data collection skills throughout our campus and Routt County that will enable them to successfully plan a project utilizing the principles of Permaculture or sustainable agriculture.

Circular Economies: Waste Management and Reduction

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *Prerequisite: Ecological Systems*

This course provides a comprehensive exploration of environmental policy, sustainable resource management, and waste reduction practices. Students will engage with a range of topics including environmental policy frameworks, mining practices and their impacts, recycling methodologies, composting techniques, and modern approaches to waste disposal.

Designing for the Future

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *Prerequisite: Circular Economies: Waste Management and Reduction*

Dive into the science of air pollution, climate change, and the innovative solutions shaping our future! From analyzing smog to designing sustainable cities, this course explores cutting-edge renewable energy and real-world strategies for a cleaner planet. Students will experiment, innovate, and reimagine our world for a cleaner, more sustainable future.

Physics

11th or 12th Grade Science

Honors option available with recommendation and approval from the department.

Kinematics in 1 and 2-Dimensions

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *First class in sequence*

Describing the motion of objects and systems. We will explore velocity, acceleration, and free fall. We will investigate motion through video analysis. The first class in this sequence will culminate in students conducting motion analysis of something or someone moving in 2-Dimensions.

Dynamics and Energy

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *Prerequisite: Kinematics in 1 and 2-Dimensions*

We will explore the causes of motion and how energy is converted within systems and between systems. This exploration will include an analysis of forces, gravity, circular motion, energy, and momentum.

Waves, Light, and Modern Physics

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *Prerequisite: Dynamics and Energy*

In this final course in the sequence we will explore the phenomena that have and continue to shape the 20th and 21st centuries. We will investigate wave and light behaviors. Through our inquiry we will see how light provides clues to the origins of our universe. We will finish the course with a survey of modern physics by considering relativity and nuclear physics.

Earth Science

11th or 12th Grade Science

Honors option available with recommendation and approval from the department.

Planet Earth

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *First class in sequence*

The Earth's landscape is unique and complex, from mountain ranges to rivers to deep-sea trenches. This mod introduces the fundamental processes that shape the solid Earth and explores the long history of our planet. Students examine Earth's internal structure, plate tectonics, the rock cycle, and the formation of major landforms. The course also introduces the concept of geologic time, using rock layers and fossils to understand how scientists reconstruct Earth's history. By studying both the physical processes that shape the planet and the evidence preserved in the geologic record, students develop a foundation for understanding how Earth has changed over billions of years and how those changes influence modern environments.

Earth Systems in Action

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *Prerequisite: Planet Earth*

Earth's atmosphere and oceans are constantly in motion, shaping weather, climate, and the movement of water and energy across the planet. This mod examines how energy and water move through Earth's atmosphere and oceans to shape weather, climate, and regional environments. Students explore atmospheric circulation, the global water cycle, ocean currents, and major weather systems while analyzing local climate and weather data. Emphasis is placed on understanding how

the atmosphere and hydrosphere interact with the lithosphere and biosphere to form interconnected Earth systems. Through data analysis and case studies, students develop the ability to interpret environmental patterns and understand the processes that influence climate and weather across the planet.

Earth Science Field Methods

- *Fulfills one of three 11th or 12th grade science credit requirements*
- *Prerequisite: Earth Systems in Action*
- *Class occurs in last mod of the school year*

From mountain slopes to river valleys, the local environment offers insight into the forces shaping Earth's surface. In this experiential module, students apply Earth science concepts through hands-on field investigation in the Yampa Valley. Working in local environments, students collect and analyze data related to earth systems & local geology. Completing projects that interweave watersheds, weather patterns, and geologic formations touching on all concepts learned through the first two mods. Students develop practical skills in scientific observation, environmental monitoring, and field research while learning how scientists study natural systems outside the classroom & lab. The module culminates in a field research project in which students synthesize their observations and data to explain how Earth's systems interact in a real-world landscape in the Yampa Valley.

Elective Science Classes

Elective classes do not fulfill the graduation requirements of the three-sequence courses. They are additional credits beyond the required courses.

Alaskan Public Health - registration closed

- *Fulfills three of three 11th or 12th grade science or science credit requirements*
- *No prerequisite*

Wilderness First Aid

- *Fulfills one of three 10th, 11th, or 12th grade science credit requirements*
- *Single class, no prerequisite*
- *This class has an ADDITIONAL COST to the standard tuition*

Learn about the scope of wilderness medicine, patient care, common backcountry injuries and health problems, and environmental concerns. You will have the opportunity to earn a Wilderness First Aid certification through Desert Mountain Medicine as a part of this class.

IT Explorations

- *Fulfills one of three 10th, 11th or 12th grade science credit requirements*
- *Single class, no prerequisite*

Tech Team students engage in Information Technology through hands-on exploration, covering key areas such as hardware networking (portals, switches, and routers), PC/Mac troubleshooting, user-level technical support, and Agile project management. This fast-paced, adaptive course integrates real-world applications, allowing students to work with actual clients both on and off campus while exploring emerging technological developments and their broader impacts. Discussions may include how Facebook discontinuing third-party landing pages affects websites, e-commerce, and the stock market, how semiconductor or gold shortages influence global

economies, or what implications innovations like Microsoft's use of DNA as a hard drive may have for the future.

Language

The Spanish department exists to foster confident, empathetic, and global learners who strive to engage genuinely with other people and the Spanish language.

Spanish 1

- *Sequential (A, B, C)*
- *Fulfills a year-long language requirement*

Spanish 1 is focused on mastering the basics of the Spanish language while simultaneously introducing students to an exploration of cultural comparisons to develop the beginnings of cultural competency. In Spanish 1, students will learn basic grammar and vocabulary that builds the foundation for communication in their second language. They will develop tools that they can utilize as they participate in basic listening, speaking, reading, and writing. The class employs the Acquisition-Driven Instruction model of language instruction, following the SOMOS 1 curriculum from The Comprehensible Classroom™. Students will also read a short novel designed for language learners. Specific grammar instruction will be introduced organically throughout the course, specifically the present and past tenses.

Spanish 2

- *Sequential (A, B, C)*
- *Fulfills a year-long language requirement*

In Spanish 2, students continue to build their speaking, writing, and listening skills in Spanish, with an emphasis on gaining confidence speaking through regular conversations. Spanish 2 builds on language communication skills developed in previous years by continuing our use of the SOMOS 1 Curriculum from The Comprehensible Classroom™ and starting SOMOS 2. Students will also read a short novel designed for language learners. Specific grammar instruction will be introduced organically throughout the course, specifically the present and past tenses.

Spanish 3

- *Sequential (A, B, C)*
- *Fulfills a year-long language requirement*

In Spanish 3, students continue to build their speaking, writing, and listening skills in Spanish, with an emphasis on gaining confidence speaking through regular conversations and the beginnings of analytical writing, all completely in Spanish. Spanish 3 builds on language communication skills developed in previous years by continuing our use of the SOMOS Curriculum from The Comprehensible Classroom™ and beginning the Huellas Curriculum. Students will also read a short novel designed for language learners. Specific grammar instruction will be introduced organically throughout the course.

Spanish 4

Honors option available with recommendation and approval from the department.

- *Sequential (A, B, C)*
- *Fulfills a year-long language requirement*

In Spanish 4, students continue to develop acquisition of language through the intermediate levels. Spanish 4 uses the Huellas Curriculum that is primarily comprehensible-input based; students are

exposed to past, present and future tenses along with more complex structures. Spanish 4 will incorporate the UN's Sustainable Development Goals and provide opportunities for students to explore cross-curricular themes, interact with authentic materials that are accessible to them, and learn how they can make an impact in the world (in Spanish!).

Spanish 5

In Spanish 5, students continue to develop acquisition of language through the high intermediate levels. Students focus on complex tenses and authentic texts and films in order to grow their communication skills. As students prepare for courses and experiences beyond SMS, the Spanish 5 curriculum aims to foster curiosity and confidence in their learning while pushing them with a rigorous language curriculum.

Honors option available with recommendation and approval from the department.

- *Sequential (A, B, C)*
- *Fulfills a year-long language requirement*

Art

The art department exists to stimulate student curiosity and playfulness, to provide global connections between historical, structural, and cultural perspectives, and to guide in the development of students' own artistic voices.

Studio Art

Intro to Drawing

- *Fulfills one of three art credit requirements*
- *Single class, no prerequisite*

Students will develop drawing skills that focus on the use of mark-making, line, space, pattern, gesture, light and shade, focal point, and composition. Students will investigate how art can be used to communicate ideas, identity, emotion, and stories using graphite, charcoal, ink, and pastels. Major topics include portraiture, still life, animals, landscapes, culminating in a major project of the students' chosen genre.

Advanced Drawing

- *Fulfills one of three art credit requirements*
- *Prerequisite: Intro to Drawing*

Students will build off foundational drawing skills to investigate more advanced drawing techniques that align with investigations into identity, surrealism, hyperrealism, and other topics of personal interest. Students will understand the important contributions of master artists in a historical and cultural context.

Intro to Painting

- *Fulfills one of three art credit requirements*
- *Single class, no prerequisite*

Students will develop painting skills that focus on composition, surface texture, layering techniques, and color theory, using watercolor and acrylic paint. Emphasis will be placed on investigating abstract expressionism, the landscape, interior spaces, and text as a powerful tool for conveying meaning.

Advanced Painting

- *Fulfills one of three art credit requirements*
- *Prerequisite: Intro to Painting*

Students will build off foundational painting skills to investigate more advanced techniques that allow them to explore topics such as personal history, identity, beauty, death, appropriation, and aspects of the self through watercolor, acrylic, and oil paint. Students will understand the important contributions of master artists in a historical and cultural context.

Mixed Media Fine Art

- *Fulfills one of three art credit requirements*
- *Single class, no prerequisite*

This multi-media studio art course invites students to explore the creative possibilities of drawing, clay, fabric, mixed media, painting, and photography while developing both technical skill and personal voice. Through a series of thematic units students will investigate how different materials and processes can express meaning in unique ways. Emphasis will be placed on observation,

craftsmanship, and creative problem-solving, as well as reflection and critique. By the end of the course, students will produce a portfolio of mixed-media works that showcase both their technical growth and their individuality as emerging artists.

Functional Ceramics and Clay Sculpture

- *Fulfills one of three art credit requirements*
- *Single class, no prerequisite*

Students will learn how to use traditional and contemporary techniques using clay and glaze to investigate where aesthetics and function intersect in the art making process. Students will learn traditional hand-building and pottery wheel techniques.

Garment Making: Fabric, Fashion, and Wearable Art

- *Fulfills one of three art credit requirements*
- *Single class, no prerequisite*

Students will have opportunities to engage in creative embroidery, hand stitching, machine sewing, fashion design, pattern making, and garment construction techniques to make functional, fashionable, and unique wearable objects and clothing.

Media Art

Fine Art Photography

- *Fulfills one of three art credit requirements*
- *Single class, no prerequisite*

Students will engage in photography projects from a variety of fine art genres including landscapes, portraiture, still life, surrealism, etc., culminating in a major project each week that explores the development of their unique artistic voice.

Commercial Photography

- *Fulfills one of three art credit requirements*
- *Single class, no prerequisite*

Students will learn how to apply a commercial lens to the practice of photography, focusing on architectural photography, fashion photography, food photography, and photojournalism for a cause.

Yearbook and Graphic Arts

- *Fulfills a year-long art requirement*
- *Meds 2, 4, and/or 5*
- *Single class, no prerequisite*

Together, the yearbook team produces a 68-page yearbook to be released to students in the spring. Students learn the principles and fundamentals of visual arts, graphic design, and photography with the final goal being the creation of the school yearbook. Students investigate graphic design, DEI, journalistic writing, current events, photography, copyright issues, advertising, and publication ethics based on Steamboat Mountain School happenings. The broader Digital Arts portion of this course introduces students to contemporary visual communication through hands-on projects that blend creativity, technology, and critical thinking. The course also emphasizes digital design, identity, and narrative, helping students craft compelling messages and visuals that reflect purpose and audience.

Independent Study

The Independent Study program at Steamboat Mountain School offers motivated students the opportunity to design and pursue a personalized academic or creative project under the guidance of a faculty mentor. This flexible, student-driven course allows participants to explore areas of deep interest beyond the standard curriculum, develop essential research and problem-solving skills, and demonstrate initiative in managing their own learning. Independent Study projects may involve in-depth research, hands-on experimentation, artistic creation, or a combination of approaches, culminating in a final presentation or product that showcases the student's growth and achievement. All Independent Study proposals must be approved by the Assistant Head of School to ensure academic rigor and alignment with the school's educational philosophy.

One Schoolhouse Partnership

SMS is a member of One Schoolhouse (OSH), a consortium of independent schools offering outstanding online courses to students around the world. One Schoolhouse provides small classes, strong teacher-student relationships, and a curriculum that is student-centered. The partnership with One Schoolhouse allows SMS students to have access to an expansive curriculum, gain experience with online learning, and additional opportunities to pursue learning in areas of interest.

Requirements and Policies

- One Schoolhouse offers 90+ fall semester and year long courses.
- Students enrolled in the GS program must be aware and take responsibility for potential conflicts with their course.
- Students enrolled in the competitive ski/ride program may enroll in year long courses.
- Non AP courses require 6-8 hours of time per week and AP classes require 8-10 hours of time each week. One Schoolhouse courses will not be scheduled. Students will need to complete OSH coursework during free periods, study halls, and/or on weekends and in evenings.
- One Schoolhouse courses are space limited and students may not get into a class that is full.
- One Schoolhouse courses are best suited for students who are motivated, can work well independently, and can manage their time effectively.
- Admittance to OSH courses will be determined by the Assistant Head of School and based upon the student's application, work habits, and feedback from current faculty.
- Students will submit a request to the Assistant Head of School during the SMS course registration process.

Tuition Policies

With SMS Approval - Tuition Covered

- Students who are taking a sequential course (likely in language or math) that is not offered at SMS. Note that this option is not available for GS students.
- Seniors who are unable to take a required course due to a scheduling conflict.
- In both cases the grade will be marked on the student's SMS transcript as an OSH course.

With SMS Approval - Tuition Not Covered

- Summer courses that are used to either lighten a student's academic load during the school year or to advance in a subject.
- A year long or semester course that is not offered at SMS.
- A year long or semester course that allows the student greater flexibility in their academic schedule.

For a list of OSH check out their website: <https://www.oneschoolhouse.org/>