



CEDAR CLASSICAL ACADEMY

Upper School Academic Catalog (2025 version)

COURSE OFFERINGS

WHAT ARE THE LIBERAL ARTS?

The *liberal arts* are the arts, or studies, that produce free men and women. The word *liberal* comes from the Latin *liber* which means *free*, or *a free man*. The word *liberal* also denotes, from the Latin *liberalitas*, nobility or generosity. The idea of the liberal arts can thus be understood, and has been understood throughout history, in multiple layers:

- *free-thinking* men and women
- men and women *freed from political tyranny* by governing themselves well
- *great-hearted* men and women

Additionally, at Cedar Classical Academy we also aim that every graduate be *freed from the spiritual death and tyranny of sin* by submitting to Jesus Christ and his Word.

In the western world, *the liberal arts* refers to seven subjects, or the seven ways. Three of the ways (*trivium*) are grammar, logic, and rhetoric. Four of the ways (*quadrivium*) are arithmetic, geometry, astronomy, and music. These seven subjects are woven throughout our course offerings.

HUMANITIES

The Academy's Upper School humanities courses in grades 7-12 provide a foundation for learning and growth that prepares students for lifelong learning and a life well-lived. This Academy views K-12 education as terminal. In other words, 12th grade is the conclusion to a complete education that fully equips students for adulthood. A student does not need to go on to get an undergraduate degree or trade education in order to be an educated person.

Our approach situates events and ideas in their historical contexts and provides a broad education leading to wisdom. We focus not only on acquiring knowledge, but also on learning how to think and communicate well. Students study source materials rather than textbooks and engage with these sources through Socratic discussion.

Students cycle through modern history twice in grades 7-12. In the logic school (grades 7-8), students focus on the who, what, when, where and why of history. Students take Renaissance &



Reformation History, Epic Literature, The History of the American Founding, and American Literature in 7th and 8th grade.

In the rhetoric school (grades 9-12), students focus on the motivations and philosophies that drive historical events. Courses help students synthesize a period's history, art, literature, philosophy, and theology to better understand the cultures studied. Students practice drawing their own conclusions and articulating clearly what they learn. Students take Classical Literature & Epics, Ancient History, Medieval & Renaissance Literature, Church History, 18th & 19th Century Classics, American History, 20th Century Literature, 19th & 20th Century History, and Economics in grades 9-12.

Classical Literature & Epics (3 credits)

In this course, students learn to read and understand ancient literary texts, place them in their historical context, and analyze universal themes throughout a text. Students also learn to define and outline the main components of each type of text (principally epic, comedy, tragedy, and philosophical dialogue) and to identify the common structures of each genre. The key worldview question for the year is: "How did God prepare the world for Christ to come?"

Coursework includes reading notes, reading quizzes, composition exercises, and quarterly literary analysis compositions.

Texts include:

- *The Epic of Gilgamesh* (c. 2000 B.C.)
- Lewis, *The Magician's Nephew* (1955)
- Lewis, *Till We Have Faces* (1956)
- Homer, *The Iliad* or *Odyssey* (c. 700 B.C.)
- Selections from Aristotle (384-322 B.C.)
- Selections from Plato (427-348 B.C.)
- Sophocles, *Oedipus Rex* (429 B.C.)
- Selections from Virgil, *The Aeneid* (19 B.C.)
- Aristophanes, *The Frogs* (405 B.C.)
- Shakespeare, *Julius Caesar* (1599)

Ancient History (3 credits)

This course on classical thought and history covers the years 6,000 B.C.-500 A.D. It begins with a focus on Greek thought, philosophy, culture, literature, and art as the foundation of Western civilization. It covers warfare, trade, and political structures during the years 3,000 B.C.-0. It then turns to Roman culture and its influence on the world. The key worldview question for the year is: "How did God prepare the world for Christ to come?"

Coursework includes four essays throughout the year and one research project to be presented to the class, as well as either one final paper or one final exam.

Like all Upper School history courses, this course focuses on primary documents. These include:



- Genesis 1-4
- The Ten Commandments
- Herodotus, *The Histories* (c. 430 B.C.)
- Thucydides, *The Peloponnesian War* (5th century B.C.)
- Plutarch, *Lives*
- Plato, *The Republic*
- Plato, *The Apology*
- Aristotle, *Politics*
- Livy, Selections on Early Rome
- Polybius, *The Histories*
- Cicero, *Catiline Oration*, Letters, *De Officiis* (44 B.C.)
- Caesar, *Commentaries* (58-49 B.C.)
- Sermon on the Mount
- Augustus, *Res Gestae Divi Augusti*
- Marcus Aurelius, *Meditations*

Medieval & Renaissance Literature (3 credits)

Pre-Requisites: Students should read C.S. Lewis's *The Chronicles of Narnia*.

In this course, students learn to read and understand medieval and Renaissance literary texts, place them in their historical context, and analyze universal themes throughout a text. The key worldview question is: "In what ways did the news of Christ change the world?"

Coursework includes reading notes, reading quizzes, composition exercises, and quarterly literary analysis compositions.

Texts include:

- Tolkien on *Beowulf* (1930s)
- *Beowulf* (c. 700-1000)
- Selections from Dante, *Divine Comedy* (1321)
- Lewis, *Preface to Paradise Lost* (1942)
- Lewis, *The Great Divorce* (1945)
- Selections from Milton, *Paradise Lost* (1667)
- Shakespeare, *Much Ado About Nothing* (1612)
- Shakespeare, *Romeo and Juliet* (1597)
- Shakespeare, *MacBeth* (1623)
- Augustine, *Confessions* (400)
- Selections from Augustine, *City of God* (426)
- Selected Poetry from Donne, John (1572-1631)
- Selected Poetry from Herbert, George (1593-1633)
- Tolkien, *The Lord of the Rings* (1955)

Church History (3 credits)

This course focuses on the time period from the end of Imperial Rome to the end of the Renaissance, approximately 0 A.D.-1648 A.D. This course covers the emergence of Christian Rome, the decline of the Roman Empire, the separation of the eastern and Roman church, the formation of creeds and the development of the Biblical canon, the rise of feudalism and Islam, the formation of European culture, and the rise of Renaissance culture and the Protestant Reformation. The integration of Hebrew Scripture, Roman culture, and Greek thought into Christianity is taught from the perspective of God's divine plan for His church. The key worldview question is: "In what ways did the news of Christ change the world?"



Coursework includes reading and discussing 12-15 primary sources via biweekly seminar discussions. Students are first trained and then expected to complete reading assignments on their own and do the leg work of the initial reading on their own, including definitions of unfamiliar words and identification of geographical locations. Students write quarterly essays and one research paper which they present to the class.

Like all Upper School history courses, this course focuses on primary documents. These include:

- Tacitus, *Germania* (98)
- *Acts* (c. 80-120)
- *Apostles' Creed* (5th century)
- *Nicene Creed* (325)
- Selections from Augustine, *Confessions* (397-400)
- Selections from Augustine, *City of God* (426)
- Gregory I, *Account of Benedict's Life* (6th century)
- *The Rule of St. Benedict* (c. 480-547)
- Selections from Einhard, *The Life of Charlemagne* (c. 830)
- Walter Scott, "Chivalry" (1815)
- *Magna Carta* (1215)
- Documents on the Investiture Conflict (1076-1124)
- Thomas of Celano, *Life of Saint Francis* (1229)
- Selections from Aquinas, *Summa Theologica* (c. 1274)
- Martin Luther, *95 Theses* (1517)
- Luther and Erasmus on the Will (16th century)
- Selections from John Calvin, *The Institutes* (1563)
- *The Council of Trent* (1545-1563)
- *The Thirty-Nine Articles* of the Anglican Church (1536-1571)

18th & 19th Century Classics (3 credits)

This class focuses on the time period from the early Enlightenment to the end of the 19th century. Students consider the impact of the Renaissance and Reformation on Europe, the rise of European empires, the Enlightenment's rise through the independence of the new Protestant mindset, American Puritan ideals and their confluence with the revival of classical thought to develop the American Republic, the Enlightenment's impact on modern thought, and the development of individualism, naturalism, and romanticism. The key worldview question for the year is "What is the nature of man?"

Coursework includes reading notes, reading quizzes, graded seminar discussions, and presentations comparing the worldview of books in this class from those in earlier (ancient, Medieval, and Renaissance) time periods on questions such as man's purpose, origin, and relationship to God and to his fellow man. Students also write several papers analyzing the cultural impact of these books on contemporary cultural concerns.

Texts include:

- Swift, *Gulliver's Travels* (1726)
- Austen, *Pride and Prejudice* (1813)
- Shelley, *Frankenstein* (1844)
- Dostoevsky, *Crime and Punishment* (1866)
- Twain, *Huckleberry Finn* (1884)



- Dickens, *A Tale of Two Cities* (1859)
- English Romantic Poetry Anthology
- Doyle, *The Lost World* (1912)
- Wilde, *The Picture of Dorian Grey* (1890)

American History & Civics (3 credits)

This class focuses on American history, literature, and thought during the time period from the early Enlightenment to the beginning of the 20th century, 1700-1910 A.D. Students consider the impact of the Renaissance and Reformation on Europe, the rise of European empires, the Enlightenment's rise through the independence of the new Protestant mindset, American Puritan ideals and their confluence with the revival of classical thought to develop the American Republic. The key worldview question is: "How does man fulfill his ultimate purpose?"

Coursework includes reading and discussing 12-15 primary sources via biweekly seminar discussions. Students are first trained and then expected to complete reading assignments on their own and do the leg work of the initial reading on their own, including definitions of unfamiliar words and identification of geographical locations. Students write 4-6 essays and one final paper which they present to the class.

Like all Upper School history courses, this course focuses on primary documents. These are selected from the following list:

- The Mayflower Compact (1620)
- Winthrop, "A Modell of Christian Charity" (1630)
- Edwards, "Sinners in the Hands of an Angry God" (1741)
- *Nicene Creed* (325)
- *Magna Carta* (1215)
- The Stamp Act Documents (1764-1765)
- *Declaration of Independence* (1776)
- *Causes and Necessities of Taking Up Arms* (1775)
- Addresses and Letters from Franklin, Hamilton, Jefferson (1770s)
- Paine, *Common Sense* (1776)
- The Northwest Ordinance (1787)
- U.S. Constitution (1787)
- Selections from Stowe, *Uncle Tom's Cabin* (1852)
- Fitzhugh, *The Sociology of the South* (1854)
- Douglass, *Narrative of the Life of a Slave* and "Self-Made Men" (1845)
- Carnegie, "Wealth" (1889)
- Selections from Aristotle, *Politics Book I* (4th century B.C.)
- Thomas of Celano, *Life of Saint Francis* (1228)
- Selections from Locke, *Second Treatise on Civil Government* (1689)
- Virginia Declaration of Rights (1776)
- Selections from the Convention Debates (1787-1789)
- Selections from *The Federalist Papers* (1788)
- Selections from *The Anti-Federalist Papers* (1788)
- The Bill of Rights (1789)
- The Marshall Court cases (1812-1823)
- Selections from Alexis de Tocqueville, *Democracy in America* (1831)
- *Dred Scott v. Sanford* (1857)
- *Plessy v. Ferguson* (1896)
- Wilson, "The New Freedom" (1912)
- Wilson, "What is Progress?" (1913)
- Plunkitt of Tammany Hall, "Honest Graft" (1963)



- Bryan, "The Cross of Gold" (1896)
- Washington, *Up From Slavery* (1901)
- Turner, "The Significance of the Frontier in American History" (1893)
- Selections from Du Bois, *The Souls of Black Folk* (1903)
- Lincoln, Speeches (1861-1865)
- Truman, "The Fair Deal," "The Truman Doctrine," and Congressional Rejection of the Fair Deal (1949)
- Roosevelt, "The New Nationalism" (1910)
- Roosevelt, "Man in the Arena" (1910)
- Selections from Roosevelt, *Autobiography* (1913)
- Coolidge, Speeches (1923-1929)
- FDR, Speeches (1933-1945)
- Schechter Poultry v. U.S. (1935)
- Lippmann, "The Dominant Dogma of the Age" (2004)

Economics – More information coming 2026

19th & 20th Century History – More information coming 2026

This class focuses on modern history. The key worldview question is: "How should we then live?"

20th Century Literature (3 credits) – More information coming 2026

This class focuses on modern literature. The key worldview question is: "How should we then live?"

Tutorials

For students struggling academically or who have entered the rhetoric school late in the sequence, students meet weekly for 20-30 minutes with a faculty member to discuss readings, review student writing, or for oral assessments. Grades for tutorials are incorporated into Literature and History grades.

OT Survey (3 credits)

In this required course, students develop an understanding of the unity and overarching story of Scripture, tracing various themes throughout Biblical history, identifying genres in Biblical literature, and emphasizing how those themes find their fulfillment in Christ. This class is both academic and devotional, but is not designed to replace daily Bible reading; students are expected to cultivate personal habits of church attendance, prayer, Scripture reading, and Scripture memorization. This year-long course is taken in the first year that a student joins the rhetoric school.

Coursework includes independent reading of the Old Testament (including selections and complete books) with the aim of explaining in detail a sampling of Biblical books representing every literary genre. Assignments include two short (2-4 page) written assignments and five unit tests that correspond to Genesis, the rest of the Pentateuch, Historical books, Wisdom literature and poetry, and the Prophets.



OT Survey students need their own ESV Bible without study notes.

NT Survey (3 credits)

In this second part of the Biblical survey courses required for the first two years that a student joins the rhetoric school, students develop an understanding of the unity and overarching story of Scripture, tracing various themes throughout Biblical history, identifying genres in Biblical literature, and emphasizing how those themes find their fulfillment in Christ. This class is both academic and devotional, but is not designed to replace daily Bible reading; students are expected to cultivate personal habits of church attendance, prayer, Scripture reading, and Scripture memorization.

Coursework includes independent reading of New Testament selections, including complete books, with the aim of explaining in detail a sampling of Biblical books representing each literary genre found in the New Testament. Assignments include short (2-3 page) written assignments, quarterly exams, and a final project that unpacks one New Testament book within its Biblical, literary, and historical context.

OT Survey students need their own ESV Bible without study notes.

Christian Doctrine (3 credits)

Christian Doctrine studies the Christian faith by examining and systematizing the Bible's teaching on a range of theological topics. The class will ask what the Bible teaches about God, the Scriptures, man, sin, Jesus Christ, the Holy Spirit, salvation, the church, and the end times.

The aim of the class is to help students learn what, and even more importantly, why they believe what they do. Students will help to define theological terms in class, using biblical support for their definitions. Particular attention will be given to applying doctrinal truth to our daily lives, not merely regurgitating information.

Our primary text is Wayne Grudem's *Systematic Theology*, and we will make frequent use of historic creeds and confessions of the church, especially the Westminster Confession of Faith. The class's most important consideration will be asking how these precious truths should fuel our love for and obedience to Christ, the Lord of all truth.

Apologetics & Hermeneutics (3 credits) - More information coming 2026

LANGUAGES

Four years of a classical language are required in the Upper School (Grades 7-12): two years of Latin (levels vary), Greek I, and Greek II. Students who enter Cedar Classical Academy after



8th grade start with Greek I, and take Greek I and Greek II in Rhetoric School with the other Rhetoric School students.

Latin IV (3 credits)

Prerequisite: 3 years of Latin grammar.

Latin IV and Latin Capstone are classes for experienced Latin students that emphasize reading and translating classical and early church texts. These courses are designed to further advance Latin reading, grammar, and translation, and knowledge of Roman culture and history.

Latin Capstone (3 credits)

Prerequisite: 3 years of Latin grammar.

Latin IV and Latin Capstone are classes for experienced Latin students that emphasize reading and translating classical and early church texts. These courses are designed to further advance Latin reading, grammar, and translation, and knowledge of Roman culture and history. Latin Capstone consists primarily of collaborative and individual translation work. Its main goal is to give students experience in translation as the culmination of their multi-year study of the language.

Coursework includes translation homework. This class is designed to have a smaller homework load than prior Latin courses.

Translation texts include:

Two books of the Bible:

- The Gospel of John
- The Gospel of Luke
- The Gospel of Mark
- The Acts of the Apostles
- Genesis
- Exodus
- Esther
- The Psalms

One ancient source:

- Caesar, *The Gallic Wars*
- Augustine, *Confessions*

Greek I (4 credits)

This year-long course introduces students to Koine Greek grammar. It is taken in the first year that a student joins the rhetoric school. Students are not required to take Latin prior to taking Greek I, but studying Latin prior and understanding its basic grammar will help students succeed in Greek I. The purpose of Greek I & II is that students are able to translate primary sources with translation aids like glossaries and dictionaries on hand; and that they are better prepared to study and interpret the New Testament. Class structure includes lecture and



collaborative translation work. Students are expected to do about much of the “leg work” of learning a new language, including memorization, drill, and homework practice, on their own outside of class. This work is not difficult, but requires a great deal of consistency. Topics include Greek letters, sounds, the indicative verb system, nouns and adjectives of the first and second declension, prepositions, personal and demonstrative pronouns.

Coursework includes translation of portions of the Greek New Testament.

Greek II (4 credits)

Prerequisite: Greek I

This year-long course continues the textbook and sequence from Greek I, with the same purpose that students are able to translate primary sources with translation aides like glossaries and dictionaries on hand; and that they are better prepared to study and interpret the New Testament. Class structure includes lecture and collaborative translation work. Students are expected to do much of the “leg work” of learning a new language, including memorization, drill, and homework practice, on their own outside of class. This work is not difficult but does require consistency. Topics include nouns, adjectives, and numerals of the third declension, contract and liquid verbs, participles, infinitives, the subjunctive, imperative, and optative moods, and -μι verbs.

Students advance in their understanding of Greek grammar and syntax, and apply this knowledge to translate portions of the New Testament.

RHETORIC

All Cedar students are taught to eloquently communicate through the written and spoken word. Rhetoric courses are designed to move a student from the basics of how to apply logic to communication through proper argumentation and reasoning to writing and defending a senior thesis that integrates multiple subjects.

Writing Tutorial (2 credits)

This teacher-led writing lab helps students outline, draft, and edit papers that have been assigned in their other Humanities classes so that students become better writers and, through the writing process, better learners. Students learn the usage, composition, and style rules of Strunk & White’s short classic *The Elements of Style* as well as many common English figures of speech. Inspired by the works of 20th century American philosopher Mortimer Adler, this class teaches students to participate in the Great Conversation through active participation in reading, listening, and discussion. Students are challenged to copy structures and styles from great writers as well as to begin to develop their own voice or style when it comes to the vocabulary that they use. The teacher guides the students through the writing process to help them take more ownership of their own assignments throughout the course of the year.



Students learn multiple ways to research, outline, take notes, improve their reading comprehension, edit their own work, edit others' work, track assignments, and schedule their week.

Texts include:

- Strunk & White, *The Elements of Style* (1918)
- Adler, *How to Read a Book* (1940)
- Adler, *How to Speak, How to Listen* (1983)
- Turabian, *A Manual for Writers* (1947)

Coursework is dictated by content and writing assignments in other classes.

Rhetoric I | Oratory (2 credits)

In this course, students are introduced to the basic principles of rhetoric as outlined by Aristotle, and trained in basic speech writing and oratory. Additionally, students are guided in their rhetorical endeavors by a Biblical worldview that enjoins them to “speak the truth in love.” Students learn about rhetoric as a liberal art, the three appeals (logos, ethos, pathos), species (judicial, ceremonial, deliberative) and canons (invention, organization, style, memory, delivery). Students apply the principles of rhetoric in the second semester by watching and reading great speeches and, finally, drafting and delivering persuasive speeches of their own. Students study Aristotle’s *Rhetoric* throughout Rhetoric I alongside the textbook.

Coursework includes reading, memorization of the “map” of rhetorical principles (appeals, species, canons, etc.), analysis of great speeches, and writing and delivering several speeches that apply the principles of rhetoric to specific situations chosen by the teacher.

Texts include:

- Aristotle, *On Rhetoric* (4th century B.C.)
- *Rhetoric Alive!* Book I, by Alyssa Barnes

Rhetoric II | Debate (3 credits)

In this course, students incorporate principles from logic into their writing, practice making claims and providing evidence for those claims, and develop refutations for counterarguments.

Coursework includes reading, analysis of excellent examples of debate (visual and auditory), debate preparation and participation and two recitations.

Texts include:

- Selections from Aristotle, *Organon* (4th century B.C.)
- Selections from Aristotle, *Poetics* (4th century B.C.)
- *Historic Speeches* (Penguin)



Senior Thesis (2 credits)

The senior thesis is a rite of passage. The Roman statesman Cato the Elder famously defined a rhetorician as *vir bonus, dicendi peritus*: a good man, speaking well. The goal of this course is to continue forming students into this ideal that Cato envisioned. The senior thesis project asks the student to draw on her full range of intellectual gifts. It is a project fuelled by enthusiasm for discovery and for bold endeavors. But, most importantly, it should be a project driven by love for truth, goodness, and beauty.

This capstone course focuses on the making, defense, and delivery of the senior thesis. As a culmination of the Academy's educational program, the Senior Thesis process will direct each student to research and craft an argumentative thesis paper, edit it to excellence, submit it for review, defend it before a panel of judges, and then deliver it as an oration before the Cedar Classical community. This process includes a thesis proposal, identification of book and article sources, research notes on those sources, a 20-40 page paper, a 1-page abstract, oral defense of the paper, an 1,100-word written oration, and delivery of the oration. Seniors attend a quarterly thesis dinner at the home(s) of their teacher(s). The rhetoric teacher, plus a thesis advisor of the student's choice, help the student throughout the research, writing, and editing process.

The senior thesis is a summative and integrative project that requires students to use the rhetorical skills developed at all phases of their learning at the Academy to develop a thoughtful and persuasive argument on a chosen topic. Their thesis and topic must be things of depth and significance about which Christians can reasonably disagree. This integrative project will draw upon students' understanding of basic Christian doctrine, historical heresies, the history and thought of the three main branches of the church (Roman Catholic, Eastern Orthodox, and Protestant), Western political thought, American political philosophy and government, as well as the methods and discoveries of the Quadrivium.

The thesis is not a research paper. It is an argument which will, as a matter of course, rely on good research to make its argument thoroughly and comprehensively. However, unlike a thesis at the collegiate or graduate level, it is not intended to make an original argument in a field in which the student has particular expertise or training. The thesis is also not a policy proposal. It does not identify a problem merely to prescribe a solution. Although the thesis may be formulated as an application rooted in *praxis* rather than theory, it must be grounded in historical sources rather than modern ones. Rather, it is intended to demonstrate the student's ability to engage with meaningful and controversial ideas, and to demonstrate the grammatical, dialectical, and rhetorical abilities that have been trained throughout their career at the Academy.

Deadlines for the thesis are incremental. Topics are due Week 8, final draft is due Week 24, defenses take place in Week 27, and students give orations in Week 29. The entire thesis



project is done before Week 30 so that seniors have extra time in the last month of school for other projects and events.

Texts include:

- Schall, *A Student's Guide to Liberal Learning* (2000)
- Plato, *Phaedo* (c. 400BC)
- Lewis, *The Abolition of Man* (1943)
- Chesterton, *Manalive* (1912)
- Strunk & White, *The Elements of Style* (1918)
- Turabian, *A Manual for Writers* (1947)

MATHEMATICS

All Cedar students take the same math courses through 8th grade. In the 7th-8th grades, all students take the following courses: 7th Grade Math, Introductory Logic, 8th Grade Math (Algebra I or Geometry), and Intermediate Logic.

In the 9-12th grades, students take the following math courses: 9th Grade Geometry, 10th Grade Algebra II, 11th Grade Precalculus & Trigonometry, and 12th Grade Calculus.

Geometry (4 credits)

This course builds students' understanding of geometry through the study of Euclid. Geometry presents the student with a study of transformations, measurement formulas, three-dimensional figures, and shapes and patterns. Students undertake proof writing, studying Euclid's *Elements* and following a carefully sequenced development of logic. Emphasis is on drawings, measurements, and visualizations, along with properties and deduction, and the algebraic and numeric representations needed to describe the visual world. Students entering the sequence late without any experience in logic should take Logic I over the summer prior to the start of their Geometry course.

Coursework includes daily practice problems demonstrating clear mathematical thinking with neat handwriting and clear labeling, notetaking, and writing assignments for every unit. Students will complete required reading of Euclid's *Elements* at home.

Algebra I (4 credits)

Algebra I uses Singapore Dimensions 8 to build on the topics introduced in 7th grade math and logic to describe patterns, work with formulas, discuss unknowns, and graph functions. After eight years (K-7) working through the Concrete-Pictorial-Abstract (CPA) approach to thinking mathematically, Algebra I asks students to think primarily on the abstract plane. Students interpret, translate, and create linear, quadratic, and absolute value functions. Geometry, statistics, and probability are included to integrate concepts with algebraic expressions, equations, functions, and fractions. This class prepares students to succeed in the advanced topics taught in Geometry, Algebra II, and Precalculus & Trigonometry. This course is critical for students to strengthen their algebraic skills so that these skills become a habit.



A scientific calculator is required for this course. Students who have mastered the content and skills of Algebra I in the 8th or 9th grade are ready to continue to Algebra II.

Coursework includes daily homework assignments, in class instruction and review, formative assessments throughout the units and summative assessments at the end of units. A final exam will be administered at the end of the school year.

Algebra II (4 credits)

Algebra II emphasizes facility with algebraic expressions and forms—especially linear, quadratic, and polynomial forms; powers; and roots—along with functions based on these concepts. Students will study logarithmic, trigonometric, polynomial and special functions both for their abstract properties and as tools for modeling real world situations. Emphasis is on problem solving techniques.

Graphing calculators and their appropriate practical uses are incorporated into the course. TI-83 or TI-84 calculators are required for this course.

Coursework includes daily homework assignments, in-class instruction and review, formative assessments throughout the units and summative assessments at the end of units. A midterm and final exam will be administered at the end of each semester.

Precalculus & Trigonometry (4 credits)

Prerequisites: Algebra II

This course combines the study of algebra, geometry, and functions, which lead into the study of calculus. The course focuses on the mastery of critical skills and exposure to new skills for success in polynomial and rational functions and systems of equations. Students study functions, polynomial and rational functions, exponential and logarithmic functions, trigonometry, analytic trigonometry, laws of cosine and sine, systems of equations and inequalities, matrices and determinants, sequences, series, probability, polar functions, conic sections and limits. Classroom instruction includes lecture, demonstration, discussion, and practice problems.

Coursework includes daily practice problems demonstrating clear mathematical thinking with neat handwriting and clear labeling, notetaking, and writing assignments for every unit.

This course is required for seniors if not taking Calculus their senior year due to entering the sequence late or not earning credit for previous math classes.

Calculus (4 credits)

Prerequisites: Precalculus & Trigonometry



Calculus is math in motion. Far from being a branch of mathematics suitable only for engineers, calculus is the most applicable math class that we offer to the everyday problems that adults will face in the world. In the traditional seven liberal arts, *astronomy* means number in motion. In this way, calculus, a modern-day application of this principle, completes the quadrivium.

Our study of calculus, the mathematics of motion and change, is divided into two major topics: differential and integral calculus. Differential calculus enables us to calculate rates of change, to find the slope of a curve, and to calculate velocities and accelerations of moving bodies. Integral calculus is used to find the area of an irregular region in a plane, to measure lengths of curves, accumulate total value of changing functions over time and find the volumes of irregular solids.. Students will develop a conceptual understanding of the theory behind these ideas from problems presented analytically, numerically, graphically, and verbally. Students will be required to demonstrate their understanding verbally, through clear mathematical calculations, and in writing justifications using the appropriate theorems to support their reasoning. Graphing calculators will be used, but most calculations will be completed by hand.

Coursework includes daily homework assignments, in class instruction and review, formative assessments throughout the units and summative assessments at the end of units. A midterm and final exam will be administered at the end of each semester.

If desired, students can sign up for and take the AP Calculus AB exam. Although this is not a College Board course, we will cover all topics (and more) suggested by the AP Calculus AB course description and students can request extra preparation material if they want to sign up and take the exam. Ask your calculus teacher for more information.

SCIENCE

All Cedar students are required to take one year of biology, one year of chemistry, one year of natural philosophy and astronomy, and one year of algebra-based physics.



Biology (3 credits) - More information coming 2026

This course introduces students to biology through Socratic dialogue, case studies, selected readings, laboratories, research, and independent projects. Students learn to evaluate the current secular research in biology critically while developing an appreciation for the work of the Great Artist. Students develop their skills in the laboratory by hands-on experience and learn proper lab techniques. Topics covered include classification (taxonomy), microbiology, fungi, cell structure and function, genetics (means of heredity), evolution, ecology, and basic zoology.

Chemistry (3 credits)

This preparatory course in general chemistry investigates foundational chemical principles and theories, including periodic trends, chemical bonding, molecular theory, stoichiometry, kinetic theory, gas laws, solution chemistry, acids and bases, and thermodynamics. The course includes lecture and lab. Coursework will include one major summative paper and one thorough lab report.

Topics covered include major developments in chemistry-related scientific history to better understand and communicate the nature of science and inquiry, the scientific method, atomic theory and structure, molecular geometry, nomenclature, measurement and units, lab procedures, analysis of data, polyatomic ions, changes in matter and chemical reactions, stoichiometry, chemical reactions and solution stoichiometry, acid-base chemistry, thermochemistry, bonding, chemical kinetics and equilibrium, electrochemistry, reduction-oxidation reactions, organic and biological molecules.

Coursework will include one major summative paper and one thorough lab report. The paper will involve staggered submission with multiple deadlines for the thesis and intro, the first two pages, a complete rough draft, and the final assignment.

Natural Philosophy and Astronomy (3 credits)

This course covers both astronomy and natural philosophy, with significant overlap between the two topics. The astronomical section of the course includes a history of astronomical thought, a guide to the sky (constellations, moon phases, eclipses), extended information on the Sun and planetary bodies in our solar system, and a discussion of astrobiology. The natural philosophy section of the course discusses a large number of primary source readings from the history of natural philosophy and science, including modern perspectives on the relationship between science and faith, and challenges for the present-day Christian thinker. The class includes lecture, lab, discussion, and presentation aspects.

Coursework includes one robust research paper and one 5-10 minute presentation. The presentation can be based on the same topic as the research paper or on the research paper itself. Coursework contains lengthier reading assignments than other science classes, roughly 20-30 pages per week.



Nearly all primary sources are assigned in part. These sources include:

- *Four Views on Creation* (2017, Zondervan)
- Behe, *Darwin's Black Box* (1996)
- Janssen, *Standing on the Shoulders of Giants* (2016)
- Einstein, *Relativity* (1915)
- Feynman, *Lectures on Physics* (1963)
- "Surely You're Joking Mr. Feynman" (1985, Video Interview)
- Galileo, *Dialogue Concerning the Two Chief World Systems* (1632)
- Pascal, *Pensees* (1670)
- Chesterton, *Orthodoxy* (1908)
- Aristotle, *Physics* (4th century B.C.)
- Plato, *Timaeus* (c. 360 B.C.)
- Darwin, *Origin of Species* (1859)
- Newton, *Principia* (1728)
- Copernicus, *On the Revolutions Of the Celestial Spheres* (1543)
- Wegener, Selections from early papers on continental drift and the resulting criticism (1880-1930)
- "Astronomy: The Cinderella of the Liberal Arts" (2010)
- Bacon, Selections (1561-1626)
- Descartes, Selections (1596-1650)

Physics (3 credits)

Pre-requisites: Physical Science (7th/8th Grade), Algebra I, Ability to read challenging texts

This algebra- and trigonometry-based physics course covers the foundational principles and nature of physics. Course topics include one and two dimensional motion, Newton's laws of motion, circular motion, energy and energy conservation, momentum, gravity, fluids, oscillations and waves, geometric optics, electrostatics and DC circuits, magnetism and AC circuits, relativity and quantum mechanics. Course includes lecture, lab, and discussion of primary sources. It does not require calculus. Labs train students in applying the scientific method.

Coursework includes reading selections from primary sources.

These selected texts include:

- Einstein, *Relativity* (1915)
- Feynman, *Lectures on Physics* (1963)
- Aristotle, *Physics* (4th century B.C.)
- Newton, *Principia* (1728)

APPLIED ARTS

Students in 9th-12th grades must take a minimum of one applied art course each year, but must take a minimum of 14 arts credits over the course of four years. Special fees may apply to some of these courses. These fees are published annually during registration and cover the cost of materials but not instruction. (For example, a Mock Trial course would require a fee to cover entrance fees into competitions.) Not all electives are offered every semester. Some classes are only offered when class size permits.

Upper School Choir (3 credits)

All Cedar students are required to take choir in 7th-10th grade. In the absence of other elective offerings, Upper School Choir is also required in 11th-12th grade. Its purpose is to lay a



foundation for life-long literacy in, enjoyment of, and participation in music and to equip students to fulfill Biblical commands to sing. We wish our students to acquire knowledge of great musical works through the study of the classical and folk repertoire, and believe that the best way to teach this knowledge is in the context of making music. This course focuses on aural skills, sight singing, ear training, singing parts, reading music, whole-hearted participation, performance skills, sound and symbol analysis, historical choral pieces, notation, improvisation, and dictation. Students are assessed individually for sight-singing according to their level of proficiency.

Repertoire includes:

- “Of the Father’s Love Begotten” (13th century Plainsong)
- “Psallite” by Michael Praetorius
- “Jesu Rex Admirabilis” by Giovanni Pierluigi da Palestrina
- “Loch Lomond” Scottish folk song
- “In the Village” from Three Hungarian Folk Songs by Bela Bartok
- “Gloria Patri” from The German Liturgy by Felix Mendelssohn
- Hymn part-singing

Art Practicum (2 credits)

This fine art class leads students through an atelier approach to learning, where students have more input in the decision making process and—with some parameters—guide themselves through their projects, receiving guidance and skill instruction as they progress. A full year commitment is required to move on to additional art courses. Media may include oil and chalk pastels, pen and ink, watercolor, charcoal, acrylics, gouache, and sculpture. Students learn how to manipulate their mediums on a variety of surfaces to create a finished piece that demonstrates thorough consideration of the elements of art and principles of design. Students study various art masters from the Renaissance, Baroque, Neoclassical, Impressionist, and other periods, examining their techniques and attempting to copy the style of their work. Students learn how to use their chosen mediums appropriately, from building armatures and adding clay for sculpture busts, to sketching initial designs and layering color with pastels, to learning crosshatching techniques with scratchboard or pen and ink. Students who have taken all of the previous art courses will work on building a portfolio of their own original compositions. Students will choose a master artist to imitate each quarter. They will research and give a presentation on the artist and write an artist proposal for their chosen project. They will then take skills learned from imitating, including technique, color scheme, theme, genre, and subject matter, and create a composition in the style of the original.

Coursework includes quarterly presentations, artist proposals, and independent work on the quarterly project.



Art Studio (2 credits) - More information coming 2026

Anatomy & Physiology (2 credits)

This course trains students to conceptually and practically understand what it looks like to push the human body to the limit. It begins with the theological underpinnings of humans as incarnate creatures. Students learn the scientific explanations behind movement, cardiovascular and metabolic systems, nutrition, and the body's response to physical stress. Each lesson has a practical application, and students are expected to sweat each class period.

Coursework is confined to class periods except for occasional anatomy coloring pages to reinforce concepts. Students are assessed on their knowledge of scientific concepts as well as on their physical skill.

Workout Science (2 credits)

This course trains students to design their own workouts and coach their fellow students to excellence. It begins with a review of human anatomy and physiology as a review of proper form for basic calisthenic and aerobic exercises. Students learn progressions for each calisthenic skill in order to improve their own form and endurance as well as to teach the skill to others. Students then write, prepare, lead, and coach their own workouts.

Coursework includes writing and coaching workouts. Students are assessed on their knowledge of scientific concepts and physical skill as well as on their written workouts and coaching ability.