
Career Pathways

NDCS offers four Career Pathways that students can choose from: Law & Diplomacy, Medical Science, Information Technology, and Finance

The Career Pathways are designed to provide students with relevant knowledge and experience in one of the three fields. Below are descriptions of the courses that are currently integrated into Career Pathways program.

INFORMATION TECHNOLOGY ACADEMY

Principles of Information Technology: This is the first course students take in the Information Technology (IT) Academy. It provides an overview of information technology and introduces students to the basics of hardware and software. Students examine hardware components, including peripherals, connectors, and memory. Students explore common operating systems, software applications, and programming languages. Students learn about the types of networks and network topology, and they set up an e-mail client/server connection. Students also consider contemporary issues such as security, privacy, and technological inequality. Finally, students explore career opportunities in the fields of IT.

Computer Networking: Computer networking is a hands-on introduction to peer-to-peer and client/server networks. The course guides students through all phases of implementing and troubleshooting common TCP/IP Ethernet networks. It covers network components, cables, and connectors, as well as the OSI model, protocols, and topologies. Students implement and troubleshoot a LAN and learn about access issues for WANs. Finally, students explore opportunities for network-related careers.

Computer Systems: Computer Systems takes students through the intricacies of setting up hardware, installing software, connecting to a network, and connecting to the Internet. Students get hands-on practice upgrading operating systems. They practice assembling and disassembling computer hardware, including peripherals, motherboards, FRUs, and connectors. Students also learn troubleshooting techniques. Finally, students get a chance to explore careers for computer systems professionals.

Database Design: Database Design covers all aspects of the database life cycle, from collecting user requirements to delivering a database application. Students get hands-on practice in a true-to-life database project as they move from a statement of requirements to a conceptual model, then to an entity-relationship model. They translate this into a relational database. Finally, they create, test, and document the associated database application. Students also examine career opportunities as database professionals.

Introduction to Programming: Introduction to Programming uses Python as a basis for learning general programming skills. Students learn programming principles by comparing Python to other programming languages. They use models as a way to quickly solve new problems using knowledge and techniques already learned. Students complete over 60 programs in the course, including both text and graphics/animation programs. In addition to

programming, students learn program design, documentation, formal debugging, and testing. Finally, students examine career opportunities in programming.

Web Design: Web Design is a hands-on introduction to designing, building, and launching Web sites. Students learn about Web development, including HTML coding, usability, design, and Web-based publishing tools. Students determine business requirements, gather Web content, create Web pages, conduct usability testing, launch their Web sites, and plan how to attract traffic. Finally, students take a look at various career opportunities in Web design.

MEDICAL SCIENCES ACADEMY

Applied Medical English: Applied Medical English is an overview of health ethics, cultures of society, family, the individual, health care, epidemiology, and careers. The course also focuses on communication as it relates to our global world. Students will learn the career technical education focus of medical pathways. The focus of this course is on the unifying theme of Public Health and related issues. Students will understand how to make an informed decision on a given health care issue from the perspective of the culture, society, family, and individual. Students will gain practical, generic skills that are needed in the health occupations. Basic communication skills for health care professionals, services provided by various health care facilities, types of health occupations, infection control techniques, legal and ethical issues, and other topics will be broadly covered in the scope of the course. Communication skills will be enhanced through role-playing and learning proper documentation skills.

Anatomy/Physiology: This course is meant to provide students with information and knowledge of basic medical skills, which will be needed for an entry-level health care position. This course will offer basic anatomy and physiology surveys of the body systems, as well as diseases of those systems. More advanced medical terminology will be learned and used. Students will be able to identify and explain factors relating to the transmission of disease. Students will be able to identify cell structure and see cell abnormalities relating to different diseases. The curriculum includes basic preparation in anatomy and physiology, rehabilitative and therapeutic theory and technique, wellness programming, and training and conditioning concepts.

United States History & Public Health: In this course, students analyze major historical events, trends, and concepts within the context of public and community health. Students make connections between the evolution of medicine and the development of American thought and government, which are brought into awareness by events such as the Enlightenment, the Civil War, and the Great Depression. This course integrates US History knowledge and concepts in a Public and Community Health environment. The applications throughout the course allow students to see the connection between History and Public Health.

LAW & DIPLOMACY ACADEMY

Foundations of Law: This course helps students understand why we live under the rule of law, how laws are created, enforced, interpreted, and changed. The course enables students to examine diverse areas of law, including criminal, civil, constitutional, and international law. It also explores civil rights issues and the role of advocacy, civics, and the media in our legal

system. Students are encouraged to consider these topics through several viewpoints, such as philosophical and historical, power and fairness, US law and law enforcement, advocacy and policy, career exploration, and comparative systems. Students will become engaged in the challenges that groups face when creating, maintaining, and enforcing a government created by and for the people, and will have a forum to affect change. They will be exposed to numerous career opportunities in the government, legal, and protective service sectors.

Criminal Justice: Students will become familiar with the major principles of criminal law, including their evolution, the rationale behind them, and the policies they are meant to promote. Students will be able to apply the rules of criminal law to particular fact situations to predict how cases would be argued and decided in court. The course will be conducted utilizing a modified case method of study. Students will learn to identify and understand the components of an appellate court decision, as well as how to use legal rules to argue a position. The course will help to develop critical thinking and problem-solving abilities, as well as written and oral communication skills. Focus will be on the Fourth, Fifth, and Sixth Amendments to the constitution. The course will look at the investigation of criminal matters (i.e. search and seizure, interrogation) and the prosecution of criminal matters (i.e. arrest, discovery, trials).

Civil Law, Ethics, & Philosophy: This course introduces students to civil law and the legal structures designed to protect people from individuals and corporations that cause harm. Using a famous liability case as a case study, students compare and contrast the goals, professional roles, and standards of proof in civil and criminal law. As they take on the roles of different stakeholders in a civil case, and bring the case to trial, they consider the role that settlement plays in the civil justice system, and analyze the ways in which interest groups may affect public perceptions of the legal process. Students also reflect on the role and impact of civil litigation in US society.

Journey for Justice in America: This course provides students with the necessary skills to pursue a career in the government services and legal sectors, as well as become informed, active citizens in their respective services and legal sectors and communities. Students will understand the principles on which the United States was founded, the structure of government at the federal, state and local levels, the individual and civil liberties needed to maintain a democratic society, and the way in which order is maintained through law enforcement and the judiciary. The course studies moral problems both domestically and internationally such as “what constitutes autonomy and self-rule in the case of Western Sahara?” Topics of study will include, but are not limited to, fairness in college admissions, welfare, genocide, the AIDS pandemic, weapons proliferation, mineral exploitation and torture as a tool for information gathering during wartime. Domestic issues are also explored by looking at Constitutional law and the ways in which our Constitution has been interpreted since its inception. Constitutional issues such as freedom of speech, establishment of religion, right to privacy, legal representation, and cruel or unusual punishment will be looked at from an ethical perspective in effort to determine whether or not the laws governing our own nation are ethically sound.

FINANCE ACADEMY

Introduction to Business Finance: This course is an introductory course to business finance. Students learn to understand and manage personal finances, and understating. The course presents students with essential knowledge and skills to make informed decisions about real-world financial issues. Students participate in virtual trading and present a virtual mutual fund operational in a particular investment area.

Integrated Marketing & English: This course prepares students with foundational knowledge in marketing, while also providing the opportunity for students to study the English language within the context of business. Through critical literacy, students will comprehend how marketing and advertising professionals manipulate structural and rhetorical devices to influence and sway consumers' perception of products and influence buying decisions through advertisements, branding, business communications, and marketing materials. To develop an understanding of how the study of practical and academic English is translated into the practice and language of business, students will read and analyze a variety of texts. Students will refine their skills in rhetorical reading, writing, and speaking, and polish their presentation skills so that they can market business they are a part of, as well as successfully market themselves.

Middle School Course Description

New Design; Charter School is committed to providing students with a college preparatory curriculum throughout their secondary education career.

SOCIAL SCIENCES

World History and Geography – Ancient Civilizations

Students in 6th Grade expand their understanding of history by studying the people and events that ushered in the dawn of the major Western and non-Western ancient civilizations.

Geography is of special interest in the development of the human story as it serves to frame the human experience, referencing territories and regional developments.

World History and Geography – Medieval ad Early Modern Times

Students in 7th Grade study the social, cultural, and technological changes that occurred in Europe, Africa, and Asia in the years A.D. 500-1789. After reviewing the ancient world and the ways in which archeologists and historians uncover the past, students study the history and geography of great civilizations that were developing concurrently throughout the world during medieval and early modern times.

US History and Geography

Students in 8th grade study the ideas, issues, and events from the framing of the Constitution to World War I with an emphasis on America's role in the war. After reviewing the development of America's democratic institutions founded on the Judeo-Christian heritage and English parliamentary traditions, students trace the development of American politics.

ENGLISH LANGUAGE ARTS

English 6

This course focuses on developing reading, writing, language conventions, and listening and speaking. The class provides meaningful opportunities for students to delve deeply into the

study, practice, and apply language skills. This course will situate the learner in a position to succeed in the next two years of middle school. The course serves as a fundamental premise for the high school English language experience.

English 7

This course covers word analysis, fluency, and systematic vocabulary development, reading comprehension, literary response and analysis, writing strategies, writing applications, written and oral English language conventions, listening and speaking strategies, and speaking applications. The course is built around a core set of reading materials and grammar is taught within the context of those books.

English 8

This course covers word analysis, fluency, and systematic vocabulary development, reading comprehension, literary response and analysis, writing strategies, writing applications, written and oral English language conventions, listening and speaking strategies, and speaking applications. The course is built around a core set of reading materials and grammar is taught within the context of those books.

MATHEMATICS

Pre-Algebra

Students in this course advance their understanding of number and unit relations while being prepared for algebraic representation of numbers. Students solidify foundational number values while beginning to manipulate the notion of a variable. Lessons clearly and explicitly frame the learners as developing an ability to describe life through numeric expression.

Algebra 1

This course presents educational opportunities for students to develop and master numeric relations between concrete and abstract thinking. Materials covered include expressions, equations and functions, rational numbers, solving linear equations, using proportional reasoning, graphing relations and functions, analyzing linear equations, solving linear inequalities, solving systems of linear equations and inequalities, polynomials, using factoring, quadratic and exponential functions, rational expressions and equations, radical expressions and equations.

Geometry

This course expands upon the basic principles of mathematics. Key topics include geometric proofs, perimeter, area, and volume of two and three dimensional figures. Students also look at size transformations, Pythagorean Theorem, constructions, trigonometric functions, special triangles, and coordinate geometry. Students learn to use a graphing calculator for complex functions.

SCIENCE

Earth Science

Students will develop an understanding of Earth Science and its applications. The course covers the nature of science, science and technology and society, motion and acceleration and forces, the laws of motion, energy, work and machines, the earth-moon-sun system, solar system, heat and states of matter, waves, sound and light, the earth's internal processes, electricity, magnetisms, electromagnetic radiation, energy sources, weather and climate, classification of

matter, properties of atoms and the periodic table, earth materials, earth's changing surface, chemical bonds, chemical reactions, solutions and acids and bases, nuclear changes, and stars and galaxies.

Life Science

This course places students at the center of scientific exploration, with all the wonder and excitement of discovery. Students will learn about science through the study of living things. This exciting class provides opportunities for students to increase their depth and breadth of knowledge about the living world & those things that inhabit it.

Physical Science

This course integrates accurate and comprehensive coverage of physics and chemistry, with mathematics, through accessible text, engaging features, and a variety of hands-on experiences. Critical thinking opportunities, real-world applications and technology resources lead students to a deeper understanding and appreciation of physical science.

ELECTIVES

Academic Enrichment

A daily course offering additional coursework in math and/or English. It is required of all students in 6th-8th Grades.

Physical Education

A daily course in physical education is required of all students in 6th-8th Grades.

Keyboarding & Word Processing/Introduction to Computers

Students in this course develop keyboarding skills as a foundation for computer literacy. Students practice and learn to format reports, write letters, and research papers. This course is designed to help students to prepare for academic work that may be assigned in their regular core classes.

High School Course Description

New Design Charter School is committed to providing students with a college preparatory curriculum that is aligned with the UC/CSU "A-G" requirements, as well as the California State Standards.

SOCIAL SCIENCES

United State History

This course charts the major turning points in American history in the 20th century, reviews the nation's beginnings and the impact of the Enlightenment on US democratic ideals. Students build upon the study of global industrialization to understand the emergence and impact of new technology and a corporate economy, including social and cultural effects. They trace the change in ethnic composition of American society; the movement towards equal rights for racial minorities and women; and the role of the United States as a major world power. An emphasis is placed on the expanding role of the federal government and federal courts as well as the continuing tension between the individual and the state. Students

consider the major social problems of our time and trace their causes in historical events and learn that the U.S. has served as a model for other nations in that the rights and freedoms we enjoy are the results of a defined set of political principals that are not always basic to citizens of other countries. Students learn that political rights are dependent upon an educated citizenry for their preservation and protection.

World History

Provides students with a record of past important political, historical, ideational, economic, cultural, religious, individual, technological, environmental, and social dimensions of recorded human existence. Students study the great eras and civilizations that have marked human history, while developing critical thinking skills that historians and social scientists employ to study the past and its relationship to the present.

AP World History

Students develop a greater understanding of the evolution of global processes and contacts in different types of human societies. The purpose is to advance understanding through the ability to discern critical facts and use analytical skills. The distinctive feature of the course is to frame the causes and consequences of change around the nature of global inter-relations, and comparisons between global regions and areas. As a historical study, the organization of facts, analysis, and interpretation combine to generate a lens from which “Periodization” becomes the principle by which change and continuity are viewed. Those who pass the AP exam in May will receive one semester of college credit in World History.

Government

Students pursue a deep understanding of the institutions of American government. They compare systems of government in the world today and analyze the history and changing interpretations of the Constitution, the Bill of Rights, and the current state of the legislative, executive, and judiciary branches of government. An emphasis is placed on analyzing the relationship among federal, state, and local governments, with particular attention paid to analyzing important historical documents. The achievement of these standards represent the culmination of a goal of civic literacy, as students prepare to vote, participate in community activities, and assume responsibilities of citizenship.

Economics

Students master fundamental economic concepts, applying the tools (graphs, statistics, equations) from other subject areas to the understanding of operations and institutions of economic systems. Students step outside the mathematical context to explore the broader implications on economics theory. The basic economic principles of micro and macroeconomics, international economics, comparative economic systems, measurement and methods are studied in a historical and socioeconomic context.

ENGLISH LANGUAGE ARTS

English 9

Students are introduced to critical analysis of literature through essay writing and written responses. Correct grammar, punctuation, and spelling usages are emphasized. The course curriculum and assessments are designed to prepare students for higher level English courses and testing. Students read texts covering four genres: short story, non fiction, poetry and

drama and analyze recurrent patterns and themes in historically or culturally significant works. Students read selected short stories, analytical essays, poems, biographies, plays, speeches and novels. Students gain skills necessary for competent writing and reading by focusing on the mechanics of language, vocabulary development and directed reading and writing. They complete a variety of writing activities, including narrative, expository, persuasive, informational, and descriptive writing that demonstrates research, organization, and drafting strategies. Students deliver focused and coherent presentations that combine traditional rhetorical strategies.

English 10

This course is for tenth grade students who have successfully completed English 9. This course continues the critical analysis of literature through essay writing and oral responses, developing the full range of English skills - reading, writing, speaking and listening. Students focus on the mechanics of language, vocabulary development and directed reading and writing. Students increase their vocabulary development; work on analysis and reasoning skills, and research techniques. Students complete a variety of writing activities including: Opinion Statement, Focused Description, Poetry, Problem-Solution Essay, Career Search Report, Persuasive Essay, Cause-and Effect Essay, Interpretive Essay, Autobiographical, Incident and Research Report that demonstrate research, organization, and drafting strategies. Students read selected short stories, analytical essays, poems, biographies, plays, speeches and novels and will analyze recurrent patterns and themes in historically or culturally significant works. Students deliver focused and coherent presentations that combine traditional rhetorical strategies.

English 11

English 11 is designed to prepare students for college level literature courses. The class will focus on American Literature and students explore and analyze the relationship between author, the work of literature, and historical time frame. In addition, students examine how American Literature has been shaped and enhanced by the diverse backgrounds and unique circumstances of its authors.

English 12

English 12 is a rigorous college preparatory class. Students read novels, short stories, drama, poetry, and non-fiction works with an emphasis on world literature. Students analyze literary works with a critical eye, forming opinions based on evidence, and expand vocabulary, listening and speaking skills within the context of literature. Students learn to write with a clear voice and understanding of audience, and are expected to draw conclusions based on research. Students produce a variety of writings, including reading logs and journals, scripts, short stories, poems, and autobiographical, reflective, persuasive, cause and effect, compare and contrast, and research essays.

AP English Literature

This course introduces upper classmen to major works in the English Canon. It provides a basis for a continuing discussion and ongoing learning about the themes, styles and applications of literature. Students work individually and in small groupings to develop and advance a knowledge base in literature that will promote further studies at the post secondary level. This course is an in-depth look at the major streams of English Literature and prepares students for the Advanced Placement exam. Students in this course are required to read and study major literary works and their applications to modern global living. Those who pass the AP exam receive one semester of college credit in English Literature.

MATHEMATICS

Algebra I

This course seeks to teach students to reason symbolically in mathematics. The key content involves writing, solving, and graphing linear and quadratic equations, including systems of two linear equations in two unknowns. Quadratic equations are solved by factoring, completing the square, graphically or by application of the quadratic formula. The course also includes the study of monomial and polynomial expressions, inequalities, exponents, functions, rational expressions, ratio and proportion. Algebraic skills are applied in a wide variety of problem solving situations.

Algebra II

This course expands on the basic algebraic concepts involved in solving equations and inequalities, factoring polynomials, graphs, exponents and solving quadratic equations. Additionally, it examines quadratic, logarithmic, and exponential functions, the application of functions to real world problems, conic sections, probability, trigonometric functions, and complex numbers.

Geometry

This course seeks to expand upon the basic principles of mathematics. Key topics include: geometric proofs, perimeter, area, and volume of two and three dimensional figures. Students also look at size transformations, Pythagorean Theorem, constructions, trigonometric functions, special triangles, and coordinate geometry. Students learn to use a graphing calculator for complex functions.

Trigonometry/Math Analysis

This is a preparatory course for students intending to take college level or AP Calculus. The course is based on the California State Standards for Trigonometry and Mathematical Analysis. In addition, students learn about probability and statistics, analytic geometry, limits, and are introduced to calculus as well.

Calculus

Students develop an understanding of the calculus concepts and the class provides an experience with its methods and applications. The course emphasizes a multi representational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally.

AP Calculus A/B

This course is equivalent to a typical first semester college Calculus course. Topics covered include limits, derivatives, integrals and their applications. Students may receive college credit if they earn a passing score on the Advanced Placement Exam.

AP Statistics

Introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to the following broad conceptual themes:

- Exploring Data: Describing patterns and departures from patterns
- Sampling and Experimentation: Planning and conducting a study
- Anticipating Patterns: Exploring random phenomena using probability and simulation
- Statistical Inference: Estimating population parameters and testing hypotheses
- Students who successfully complete the course and examination may receive credit and/or advanced placement for a one-semester introductory college statistics course.

SCIENCE

Biology

An in-depth study of the life sciences, in particular, organic chemistry, microbiology, cytology, genetics, biogenetics, evolution, comparative anatomy among zoology, botany, and human biology, and ecology and its effect on biodiversity. This course emphasizes investigation, analysis, and critical thinking of content through labs, research, media and various established organizations. The final science project includes a hypothesis, experimental design, data collection, results, and presentation using Microsoft Power Point.

AP Biology

Focuses on studying the different forms of life, pushes students to a higher level such as that achieved in a college introductory biology course. Students engage in learning about cellular biology, molecular genetics, evolutionary relationships, and ecological relationships. The core themes of the course are:

- Science as Process
- Evolution
- Energy Transfer
- Continuity and Change
- Relationship of structure to function
- Regulation
- Interdependence in nature
- Science, technology and society

In order to explore these themes, students participate in regular hands-on laboratory experiments. Students who achieve a passing score on the AP exam in May receive college credit for one semester of introductory biology.

Chemistry

Focuses upon the structure and properties of matter from an atomic level, helping students to understand atom interaction and the various changes that take place during chemical reactions. Students participate in laboratory experiments to enhance their studies. Key areas of study include matter and change, atoms, electrons, the periodic law, chemical bonding and formulas, compounds, equations, reactions, stoichiometry, phases of matter, chemical reactions, kinetics, organic and nuclear chemistry and organic compounds. This course provides a solid grounding in the principles/concepts of chemistry and also serves as an introductory course for students who will pursue other science courses in the future.

Physics

An introductory course in the foundations of physics. Emphasis is placed upon the development of an intuitive understanding of physics principles, as well as problem solving using mathematics. In-class laboratory work helps students develop reasoning power and the ability to apply physics principles, as well as acquaint students with sound laboratory techniques.

AP Environmental Science

This course introduces students to the various scientific concepts, principles, and methodologies of environmental science, and the study of the natural world. Students investigate all manner of issues affecting the world today, with topics ranging from water pollution to air toxicity. The objectives are to provide students with scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world; identify, analyze and evaluate the risks associated with environmental problems, both natural and man-made; and to examine alternative solutions for resolving and/or preventing them. Students perform many challenging laboratory experiments and master complex topics in a hands-on setting. This course fulfills one semester of an introductory college level environmental science or laboratory science course for those students who pass the AP exam in May.

ELECTIVES

Physical Education

A daily course in physical education is required of all students in 9th and 10th Grades.

Engineering

This is an introductory course, which develops students' problem solving skills, with emphasis placed upon the concept of developing 3-D models or solid rendering of an object. Students develop the skill sets and competencies needed to apply and participate in using technical drawings to develop and communicate ideas. Students focus on the applications of visualization processes and tools provided by modern, state-of-the-art computer hardware and software. This computer-based process replaces the traditional hand drawing methods. The course teaches the design development process of a product and how a model of a product is produced, analyzed and evaluated. Additionally, students research engineering careers and the educational preparation needed as well as the history of engineering, technology and achievements of the 21st century.

Drama

Provides students with basic understanding of the Dramatic Arts. Throughout the school year students discover themselves and realize their creative potential while learning about improvisation, playwriting, scene study, play production, monologues, and creative writing. By the end of the school year students develop skills such as teamwork, creativity, following directions, discipline, focus and spontaneity.

Spanish I

Provides students with the opportunity to learn the Spanish language. It aims to develop core skills in each of the major communication areas: listening, reading, speaking, and writing. The major emphasis of this course is to develop the ability to speak basic Spanish while having

accurate pronunciation and intonation. Additionally, students develop an appreciation of Spanish-speaking cultures.

Spanish II & III

Spanish II & III are designed to advance Spanish language communication skills from a foundational/introductory level to a solid beginning level in Spanish II and an intermediate/advanced level in Spanish III. Students are asked to emphasize the four basic components of language development: listening, speaking, reading, and writing. Students are asked to articulate or express themselves using past, present, and future tenses and express themselves using correct language mechanics and sentence structure.

Community College Courses

Students are allowed to take courses at local community colleges. See the college counselor for further details.