Northwood School Course Catalogue 2025-2026

The Northwood School academic philosophy builds on the school's mission and serves as the foundation for all aspects of the curriculum:

Northwood School prepares students to shape the future. We engage students in the active pursuit of knowledge and believe that students learn best through exploration and inquiry. Students gain resilience, become independent thinkers, and challenge perspectives by forming relationships with their teachers and peers. The Northwood experience is rooted in the Adirondacks and creates confident, globally minded students, ready to innovate and adapt to our ever-changing world.

Table of Contents:

NORTHWOOD SCHOOL'S APPROACH TO EDUCATION

A Northwood School education, while maintaining a challenging college-preparatory curriculum at its core, has undergone a process of re-design in response to the changing world and college landscape. This year's offerings are designed to meet New York State requirements and college expectations while allowing students flexibility and choice to pursue their interests. We include a variety of options for engaging in honors and advanced courses of study while emphasizing independent initiatives. Pathways of study are designed to strengthen intellectual abilities, promote character development, advance interests in specific subject areas and prepare students for life beyond Northwood's campus.

Above all, **we aim to teach students how to learn.** We encourage them to be in the driver's seat of their own educational career. It is our goal that all students will build the skills necessary to succeed in one of our Peak Pathways which include opportunities for student-designed electives as well as in our Honors Applied Robotics and Advanced Research Studies Programs.

With that in mind, our **rigorous curriculum** aims to recognize **both the academic and experiential modes of learning** that students engage in both during the traditional academic day and during their co-curricular pursuits. In the following course descriptions, many courses are organized differently, **outside of the traditional confines of how school "seat time" is measured.** Courses may meet outside the traditional academic day, for intensive 48-hour weekends such as our Outing Club electives, or asynchronously such as our arts studio hours options.

This course program includes each of our offerings for the 2025-26 school year with descriptions of course content and how the course is executed. Please read carefully to understand the commitment of each course as well as any prerequisites or necessary teacher approvals. Placement in a course is also subject to space availability, the daily schedule and a student's overall course load. Some changes may occur.

GRADUATION REQUIREMENTS

The graduation requirements outlined here must be met to earn a Northwood diploma. Five academic courses plus co-curricular engagement per semester are the standard load for Northwood students. Students are urged to challenge themselves academically which, for many, means taking courses well beyond those required for a diploma. Northwood strongly recommends that students take a rigorous academic program for personal growth as well as for the practical purpose of increasing college and other post-secondary options.

The minimum number of credits required for graduation is 24. This translates to six full-year courses. (A year-long course earns 1 credit; a semester course earns 0.5 credit.)

Graduation Requirements		
Subject	**Credits**	**Required Courses**
Humanities		
English	4	*Humanities I, Humanities II, American Literature, A World Made of Text, AP Literature or AP Language*
Social Science	3	*Humanities I, Humanities II, US History or APUSH*
World Languages	2	*2 years of the same language minimum, 3 preferred*
Visual and/or performing art	1	*Can include fine art and music. Can be met through any combination of introductory courses, elective offerings or credited studio hours.*
STEM		
Science (lab)	3	*Must include both life science and physical science*
Math	3	*Algebra 1, Geometry, Algebra 2*
Electives	4	*Can be any course offered, labeled as elective or otherwise. Includes Peak Pathways.*

L.E.A.P.	*Students will complete a LEAP program each year of enrollment excluding senior year.*	
Northwood Seminar	*Students will complete the seminar program each year of enrollment.*	
Health	*Required for graduation. Met through Northwood Seminar.*	
Economics	*Required for graduation. Met through Northwood Seminar.*	
Physical Education	*Required for graduation. Can be met through athletics or NOC options.*	
Co-curricular Education	4*	*Met through co-curricular choice. May simultaneously provide credit for Arts or P.E.*
Total:	**24**	

*Students are required to engage in LEAP, Northwood Seminar and co-curricular education while enrolled at Northwood. For transfer students, the final number of credits to meet requirements will therefore vary in direct proportion to the number of semesters spent at Northwood.

L.E.A.P. (Learn, Engage, Apply, Perform)

At Northwood, students learn by doing – that is the guiding principle for the school's L.E.A.P. Program, an experiential learning curriculum launched in 2017. Northwood faculty leverage individual expertise to craft week-long courses which immerse students in unique subjects. Students choose their L.E.A.P courses at the beginning of the year and then meet periodically throughout the year in preparation for L.E.A.P week in May. Students work with experts in the field and are provided opportunities to explore compelling environments and complete ambitious projects resulting in skill development and confidence for future real-world challenges. L.E.A.P. courses take students and faculty out of the classroom for collaborative, first-hand experiences.

Northwood Seminar

All students in all grades participate in Northwood Seminar. These seminars include a rotating focus on student physical and mental wellness, academic mindsets and study skills, interpersonal and self-management skills. Depending on the grade and time of year, the seminars may also include economics topics and college and career-facing preparations. The seminar is led by Northwood faculty as well as external professionals as appropriate. The seminar is designed to prepare students to engage fully with the Northwood curriculum and to have agency over their academic and personal lives.

Health

Health education is a NYS requirement for graduation. All Northwood students meet this requirement through participation in the Northwood Seminar. Students transferring into Northwood in 11th grade or later who have no previous health credit may be required to cover additional material in order to meet the requirement.

Physical Education

Participation in Physical Education each year of high school is a NYS requirement for graduation. All Northwood students must meet this requirement through our co-curricular programs.

Co-curricular Education

A Northwood education is both academic and experiential. Crediting co-curricular engagement allows us to acknowledge the learning experiences students have outside of the traditional academic day. Students are credited with .5 credit per semester for regular co-curricular engagement. Activity options will be detailed for the coming year at registration.

CHALLENGE FOR HONORS

Northwood is excited to include a Challenge for Honors (CFH) model in many of our classes. This means that within select individual courses, students will have the opportunity to take on extra work throughout the year to earn honors credit for the course. The additional work will cover both the breadth and depth of the subject area. The course syllabus, available to students in the first week of school, will detail the required additional work and expected time commitment for the honors credential to be achieved in each course.

Declaration

Any course that will offer a Challenge for Honors option will have (CFH) appearing next to the course name in the list below. If a student plans to aim for an honors track, they should select courses with this designation. However, a student does not need to commit to the honors path at the time of class registration. Declarations for CFH will be held during the 3-week drop/add period in September.

Mid-year Checkpoint

As we approach the end of the first semester, declared CFH students will be required to undergo an evaluation of their progress toward the credential. This will consist of a review of their work and a meeting with the course teacher. The department head and Academic Dean may also be involved if needed to determine continued eligibility. At this point, each declared CFH student will be given a green light to continue aspiring for honors credit or will be informed of the reasons that they are no longer being considered for honors credit. Students may also opt to drop the CFH at this mid-year point. (*Note: for 12th grade and post-graduate students this deadline is November 1st. For 9th - 11th grade students, the deadline is December 1st.*)

Culmination

Many CFH courses will require students to compile a portfolio or other such culminating collection of their work. This may include a panel presentation to faculty or an otherwise public presentation of their final work product. Participation in these culminating portfolios and presentations will be factored into the honors grades.

HUMANITIES DEPARTMENT

(Core Subjects: English, Social Science, World Languages)

English Courses

Integrated Humanities 1 and 2 (CFH)

9th and 10th Grade Students

All 9th and 10th grade students will be enrolled in an integrated humanities course which counts towards both English and Social Science credits. In combining traditional English and World History courses, Integrated Humanities offers a more comprehensive understanding of both literary works and historical events. Students will become familiar with the systems of thought and human organization that have shaped both larger decisions of society and the details of everyday life. Students will examine important historical events and turning points while also exploring artwork and literature vis-à-vis historical points of view. Emphasis will be on analytical and communication skills as well as personal connection to texts. Exploring the ideological context of the ancient and modern world will serve to not only facilitate deeper content knowledge, but a better understanding of the connection between culture and current events. The course will be inquiry-driven and include project-based and collaborative work, emphasizing the mastery of core communication, research and writing skills to prepare students to be independent learners.

American Literature (CFH)

Designed for students simultaneously taking U.S. History. There will be some alignment in skills and content.

We will examine popular works across the American literary canon. Our exploration will include intensive studies across a diverse range of mediums (ranging from a culturally relevant film to a graphic novel) that will challenge students' analytical skill sets. Students will engage in both rigorous discourse and open-ended writing activities to practice their critical thinking and communication abilities while gaining a deeper understanding of the human condition. Ultimately, our rich curriculum and meaningful conversations will help us to derive meaning from texts, explain why our ideas matter, and connect to literature's role in American society.

Objectives: This course's primary objective is for students to deepen their understanding of American literature and to become more autonomous learners, effective analytical thinkers, and persuasive communicators. Although they will focus their efforts on literary works, students

will ultimately refine their abilities to think critically and creatively, synthesize arguments, and put ideas into words. These skills will be developed through intensive literary analysis and are translatable to students' future academic and professional endeavors.

A World Made of Text

Designed for 12th-grade and post-graduate students.

In this course we'll read diverse kinds of literature and will write both criticism and less-academic types of nonfiction. Semester 1: Nonfiction: The essay, in a survey of periods from the form's beginnings to the present, and of genres: narration and description, process analysis (how-to), comparison, definition, classification and division, argument. We will also be reading across genres in the other sense: memoir, travel writing, nature writing, sports writing, food writing, social criticism, and literary criticism. Semester 2: Poetry, in a brief survey running from Shakespeare's time to the 21st century, with the proposition that many poets are up to the same things as essayists; a Shakespeare play, with some short, low-stakes performance exercises by students working in small groups; and a 20th- or 21st-century American novel.

The first-semester writing track will develop a genre essay through a second draft—a narration-and-description piece (memoir, travelogue, profile, or place study), a process analysis, a comparison, or a definition piece—student's choice. The second-semester writing track will develop a critical essay through a series of brief interpretive tasks first at the scale of the sentence, then growing to the scale of two or three paragraphs, and then to a fully structured argument.

A.P. English Language and Composition

11th Grade - PG Students

Prerequisites: honors grades in previous courses and teacher recommendation. All students taking AP courses must take the National AP exam for that course. If a student fails to take an AP exam, he/she may not have the AP name placed on his/her transcript at the end of the year and will lose the course weighting.

A.P. English Language and Composition fosters the reading and writing skills needed for success in college and for intellectually responsible civic engagement. The course helps students become critical, responsive readers of diverse texts and flexible, thoughtful writers of texts addressed to diverse audiences for diverse purposes. The readings come mostly from American and British nonfiction in many genres: essay, memoir, journalism, satire, arts criticism, sports writing, travel writing, food and cookbook writing, political argument, and advertising. Students will undertake writing projects of their own in some of those genres. The course culminates in the A.P. exam in May.

A.P. English Literature and Composition

11th Grade - PG Students

Prerequisites: honors grades in previous courses and teacher recommendation. All students taking AP courses must take the National AP exam for that course. If a student fails to take an AP exam, he/she may not have the AP name placed on his/her transcript at the end of the year and will lose the course weighting.

The AP English Literature and Composition course focuses on reading, analyzing, and writing about imaginative literature (fiction, poetry, drama) from various periods. Students engage in close reading and critical analysis of imaginative literature to deepen their understanding of the ways writers use language to provide both meaning and pleasure. As they read, students consider a work's structure, style, and themes, as well as its use of figurative language, imagery, and symbolism. Writing assignments include expository, analytical, and argumentative essays that require students to analyze and interpret literary works. The course culminates in the A.P. exam in May.

Social Science Courses

9th and 10th Grade Students

See Integrated Humanities 1 and 2 in the prior English Courses.

11th Grade - PG Students

U.S. History is a required course for graduation. All students will need to take U.S. History or A.P. U.S. History if they have not already done so.

United States History

This course introduces students to the study of American history. Examination of Colonial British North America, the American Revolution and framing of the Constitution shape our early study. Important themes from this material will then be examined throughout the remainder of the course. Students will develop an understanding of American history and improve their essential communicative and critical thinking skills through emphasis on writing, the formation of historical arguments, and development of analytical reading skills through a variety of media. Film, online databases, books, online journals, and academic web resources expose students to a wide spectrum of opinions and views on American history. From this, students will form their own opinions and produce original work.

Embedded into the course is an overview of US Civics. This includes an analysis of the founding documents, explanations of the three branches of government and the checks and balances system. The class will also look at the electoral college system and all of these issues will be referred back to as relevant topics are reached in the normal course content. If the opportunity to look at this Civics content in the context of real time elections occurs, we will take time to look at how the US system of government is playing out in the modern day.

A.P. United States History

Prerequisites: honors grades in previous course and teacher recommendation. All students taking AP courses must take the National AP exam for that course. If a student fails to take an AP exam, he/she may not have the AP name placed on his/her transcript at the end of the year and will lose the course weighting.

This AP course is the equivalent of an introductory level college survey course. It will emphasize the skills, themes, and time periods of American history as laid out by the College Board in their recent curriculum redesign. Students will learn a significant volume of material through classroom instruction as well as independent learning. Through the year, students will familiarize themselves with the issues surrounding the settlement of, development of, and rise of America. Topics include the evolution of Colonial British North America, the American Revolution and Constitution, the growth and expansion of the nation during the 19th century, the rise of industry in the late 19th century, Secession, Civil War, and Reconstruction, the evolution of equality, and major historical issues of the 20th century.

Advanced Psychology: Psychology of Performance (Dual enrollment)

Advanced Psychology is a dual enrollment course in partnership with Paul Smith's College. This course is designed to develop an understanding of human behavior and mental processes in achieving peak performance in a variety of endeavors, including sport, academics, art, business and finance. Topics examined include: psychosocial aspects (e.g., motivation, psychological responses to setbacks, aggression) involved in performance, psychological skills training for performance (e.g., relaxation, self-talk), social influences (e.g., leadership, cohesion), major performance psychology concepts and issues (e.g., habits, self-awareness, happiness, and psychological well-being).

During the class, students will:

- Demonstrate understanding of the elements of performance studied in the class.
- Apply strategies and tactics studied in class to aspects of their personal performance.
- Reflect on the efficacy of the strategies and tactics they applied to their performance.
- Publish conclusions of their applications, sharing what they found as their preferred and the most efficacious strategies and tactics to improve performance.

Successful completion of the course will result in the opportunity to earn **3 (three)** college credits.
Grades: 11, 12, PG

Cost: $125

Advanced Humanities Research Program (Dual enrollment)

The program. The Advanced Humanities Research Program offers Northwood students the opportunity to engage in the highest level of academic inquiry by designing and executing a year-long research project in the humanities or social sciences. The program typifies student-led academic engagement by putting the student's interest at the center of course design. Capitalizing on the intrinsic motivation that comes from being authentically interested and/or invested in a topic, the course prompts students to ask questions that can be answered by studying history, literature, language, culture, systems, or society. No two courses of study will look the same.

The course. The course begins with an introduction to the principles of scholarly research. During the Fall, students will learn about the basic components of a research project—the problem, research questions, literature review, conceptual frameworks, data collection and analysis, and methods—while writing a research proposal and refining a research question. In this first step, students learn how to search scholarly databases, approach scholarly journal articles, and build a bibliography for research. While building college-ready skills, students learn how to "read the field" to enter into an academic conversation about their topic of interest. After examining the range of possible approaches to their question, students design a study using field-appropriate methods (for example, documentary methods for a historical inquiry or case study for a sociocultural question). Over the winter, students will work more independently to collect and analyze artifacts, interviews, documents, or qualitative data. This could mean conducting interviews, scanning historical archives, delving into literature, analyzing news articles, or observing social patterns in the field. During the spring semester, students generate assertions and arguments to produce a research report (major course paper) and share their findings with the public (presentation at the Hub, local newspaper, Northwood social media, etc.).

The course's purpose is to give students complete curricular freedom and the tools and structure to do something remarkable. Combining the student's investment in the topic with ownership over design will give students pre-college confidence while fostering genuine mastery in the humanities. Engaging in research represents the highest level of thinking in academia; this course offers students a unique opportunity to generate *new* information and ideas as practicing high-school researchers.

Prerequisites: Honors grades in history courses required. Interested students must fill out an application to be considered for the course. A recommendation from a teacher and from a peer or coach will be required. Enrolment is limited.

Advanced Humanities Research is a dual enrollment course in partnership with Paul Smith's College. Successful completion of the course will result in the opportunity to earn **3 (three)** college credits.
Grades: 11, 12, PG. Cost: $125

LANGUAGE AND CULTURE LAB

Our innovative Language and Culture Lab approach offers the convenience of online classes, along with in-person support and interaction. The program is aligned with the academic vision of Northwood, which emphasizes experiential, student-centered learning and customized rigor. Opportunities for real-world applications of the target language include conversing with native speakers and the exploration of global initiatives and perspectives. The program includes a dedicated learning space, fostering an environment conducive to online coursework, the exchanging of ideas, and conversations in the target language.

Dedicated Learning Space:

- Students have access to a dedicated space where they can work on their courses. A facilitator provides guidance, coaching, and support to students as they work.
- In addition to providing an engaging workspace, the Lab will also host a variety of cultural events and activities, such as:
- Conversation clubs where students can practice their language skills in a casual setting
- Guest lectures from native speakers to expose students to different accents and cultural perspectives
- Workshops and hands-on activities that allow students to engage with the culture, such as cooking classes and art workshops
- Movie nights, where students watch and discuss films in the target language
- Cultural fairs, where students can learn about different cultures and participate in cultural activities and games

Engaging with Native Speakers:

- Opportunities to engage with in-house "Ambassadors", students who are native speakers of the chosen language, to share speaking opportunities and cultural insights
- Opportunities to engage with other native speakers around the globe for language and cultural exchange through audio/video conferencing and other interactive technologies.

By providing these opportunities, we aim to give our students a comprehensive, holistic experience that will lead to fluency and cultural understanding.

Language classes will be included in a student's regular daily schedule and be assessed internally at Northwood, in order to have the grade reflect the immersive experiences as well as the online language learning program.

Online Course Offerings

French I

French II

French III

French IV

AP French

Spanish I

Spanish II

Spanish III

Spanish IV

AP Spanish

Mandarin Chinese I

Mandarin Chinese II

Latin I

Latin II

German I

German II

American Sign Language I

American Sign Language I I

The Language Lab also provides support for English Language Learners. The pursuit of this support requires communication with our admissions department or Dean of Academic Affairs and an additional yearly fee.

Any student interested in studying a language that is not listed above can propose their language of choice to the Dean of Academic Affairs to begin the process of approval.

STEM DEPARTMENT

(Core subjects: Sciences, Mathematics)

Science Courses

Adirondack Sciences: Rocks, Rivers and Erosive Forces (CFH)

Using the Adirondack Park as the laboratory for learning, this interdisciplinary science course will emphasize geological concepts while integrating elements from traditional geology and biology coursework. Students will dive into the forces that created and shaped the Adirondack Park and explore its rivers, mountains and lakes. Field work and labs will be a central part of this course, and students will gain an appreciation for why the Adirondack Park is Forever Wild.

Biology (CFH)

Biology includes the basic concepts of life science with an emphasis on how they relate to the ecosystems in the local area. Topics include ecology, chemistry of life, cellular structure and function, genetics, and human systems. Field trips, critical thinking activities, laboratory exercises and classroom discussions reinforce the topics covered. Students will learn about local ecosystems by exploring the flora and fauna that live in the Adirondacks.

Chemistry (CFH)

Prerequisites: Biology and must be enrolled in or have taken Algebra II. Chemistry develops a foundational understanding of major concepts in the field such as atomic theory, periodic law, chemical bonding, and stoichiometry. Critical thinking activities, laboratory exercises, and classroom discussions about chemistry in our everyday lives reinforce this knowledge. Students also gain experience writing lab reports, solving practical problems, and analyzing experimental data.

Human Biology *Prerequisites: biology and one other lab science.* Human Biology takes a hands-on approach to learning the structure and function of human body systems. The course aims to expand the students' current knowledge of how the human body works by studying the major body systems, leading to an understanding of how their daily activities affect their health now

and in the future. Students will also learn how disease leads to loss of functioning in the systems. Labs include dissections of a number of major animal organs.

Applied Physics

Prerequisite: *Algebra II.* This project-based course will examine the fundamental Physics concepts through the lens of applied problems. We will examine how we can use Physics principles to solve real-world problems such as how does Google Maps calculate estimated time, how we can build a bridge to withstand a certain load, and how roller coasters are designed. Each chapter/fundamental concept (projectile motion, Newton's laws, energy, etc.) will have an associated real-world problem to solve.

Advanced Physics: Principles of Engineering (Dual enrollment)

Advanced Physics is a dual enrollment course in partnership with Paul Smith's College. This college-level, project-based course will examine several engineering disciplines including but not limited to Environmental, Civil, Structural, Mechanical, Electrical and Biomedical Engineering. In each discipline we will explore the fundamental principles that are required in each field. Students will understand how the disciplines differ and what type of problems each type of engineer solves. For each discipline this will culminate with a project-based question that one would experience in that specific field.

Successful completion of the course will result in the opportunity to earn **4 (four)** college credits. *Prerequisite: Satisfactory completion of Precalculus.*
Grades: 11, 12, PG Cost: $165

Advanced Biology (Dual enrollment)

Advanced Biology is a dual enrollment course in partnership with Paul Smith's College. This course provides students with the conceptual framework, knowledge and analytical skills needed to think critically about the biological world. Laboratory activities will support the material and will be inquiry-based. The course is designed for students who are self-motivated, independent learners with a strong interest in biology. The course is equivalent to the introductory-level biology course taught at a university. Successful completion of the course will result in the opportunity to earn **4 (four)** college credits.

Prerequisites: honors-level grades in biology and chemistry.
Grades: 11, 12, PG. Cost: $165

Advanced STEM Research Program (Dual enrollment)
The Advanced STEM Research Program provides a year-long platform to engage in independent research within the fields of biological sciences, physical sciences, behavioral sciences, mathematics and engineering. Students with a deep interest in scientific discovery will design and implement their own research project throughout this year-long, college equivalent-level course. By engaging in literature research, generating a testable hypothesis, implementing an experiment, and analyzing the results, students will develop the mastery to critically think about the scientific world. Formal presentations of results at the end of the year will further develop the students' communication and critical thinking skills. Enrolled students must be self-driven, independent workers with a deep interest in problem-solving. Contact with regional experts may be arranged to support the student with advice and exposure to a higher level of academic engagement.

Advanced STEM Research is a dual enrollment course in partnership with Paul Smith's College. Successful completion of the course will result in the opportunity to earn **4 (four)** college credits.

Prerequisites: Honors grades in chemistry required. Successful completion of an AP Science course is beneficial. Interested students must fill out an application to be considered for the course. Enrollment is limited. Grades: 11, 12, PG. Cost: $165

Mathematics

Algebra I

This is a first-year algebra course in which students learn to reason symbolically. 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.

Geometry (CFH)

Prerequisites: Algebra I. In this course, students study two- and three-dimensional shapes and their relationships in a plane. It is a visual as well as analytical subject, integrating spatial and numerical concepts. Students classify and describe shapes in terms of congruence, similarity, and transformations. The course introduces students to different forms of mathematical logic, including inductive and deductive reasoning. Students solve measurement and algebraic problems using properties, proportions, and trigonometric relationships. Algebra is reviewed with all geometric applications.

Algebra II (CFH)

Prerequisites: Algebra I and Geometry. Algebra II is intended to help students enrich their skills and develop more concepts beyond basic algebra as they prepare for higher level math courses. This course is designed to help students apply the mathematics they learn in the classroom to real-world situations, communicate mathematically, and use technology appropriately. Topics that connect various areas of mathematics to algebra, geometry and trigonometry will be studied. Students will study real numbers, operations, and patterns as they extend their understanding of algebraic concepts. They will work with complex numbers, logarithms, polynomial functions, systems of equations and inequalities, transformations, and mathematical models.

Pre-Calculus

Prerequisites: Algebra II. Pre-calculus builds upon mathematical and analytical concepts introduced in Algebra II and prepares students for upper-level mathematics courses, both at the high school and college levels. Students study linear, quadratic, polynomial, rational, exponential and logarithmic functions, analytic geometry, triangle trigonometry and trigonometric functions, complex numbers, probability, and statistics.

Honors Pre-Calculus

Prerequisites: Honors Algebra II or honors grades in previous courses and teacher recommendation. This course is designed to provide students with a strong foundation of precalculus concepts, techniques, skills, and applications necessary to succeed in either Calculus or A.P. Calculus. Students will develop quantitative reasoning and problem-solving skills by being active learners and expanding their ability to analyze and interpret given information. Students will develop the ability to understand and communicate mathematical ideas effectively and develop an appreciation of the wide range of mathematical applications and opportunities in the world around us.

Calculus (CFH)

Prerequisites: Honors pre-calculus or honors grades in earlier courses and teacher recommendation. Calculus explores the concepts of derivative and integral calculus to give students a solid foundation upon which to build mathematical knowledge in future courses. Specifically, students study functions and different representations of functions (graphically, numerically, algebraically, etc.), limits, derivatives and differentiation, applications of derivatives, definite integrals, indefinite integrals, and applications of integrals. Students should have a solid foundation and a proven understanding of functions (polynomials, exponential, logarithmic, trigonometric) from a Pre- calculus course.

Statistics

Prerequisites: Algebra II or equivalent.
Statistics' students explore statistical concepts central to the analysis of data in many science and social science disciplines. Specifically, students explore data to describe patterns, departures from patterns, and associations between variables; plan and conduct experimental studies; investigate chance and random processes using probability and simulation; and learn how to objectively estimate population parameters and scientifically test hypotheses using statistical inference. Critical thinking, inferential reasoning and communication – both oral and

written – are emphasized over computation and algebraic manipulation. Use of technology – graphing calculators, spreadsheets and statistical analysis software – is prevalent throughout the course.

A.P. Calculus (AB)

Prerequisites: honors grades in previous course and teacher recommendation. All students taking AP courses must take the National AP exam for that course. If a student fails to take an AP exam, he/she may not have the AP name placed on his/her transcript at the end of the year and will lose the course weighting.

This course prepares students for the AP Calculus exam. The AP course covers topics in differential and integral calculus, including concepts and skills of limits, derivatives, definite integrals, and the Fundamental Theorem of Calculus. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. Students learn how to use technology to help solve problems, experiment, interpret results, and support conclusions.

A.P. Statistics

Prerequisites: honors grades in previous course and teacher recommendation. All students taking AP courses must take the National AP exam for that course. If a student fails to take an AP exam, he/she may not have the AP name placed on his/her transcript at the end of the year and will lose the course weighting.

This course follows a curriculum that prepares students for the AP Statistics exam. Students explore the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes: exploring data to describe patterns and departures from patterns, planning and conducting an experimental study, exploring random phenomena using probability and simulation to predict patterns, and estimating population parameters and testing hypotheses using statistical inference. Students must show strong critical thinking and inferential reasoning skills as well as excellent communication skills, both oral and written. Use of technology including graphing calculators and statistical analysis software is prevalent throughout the course.

PEAK PATHWAYS

Grades 11, 12, and Post-Graduate*: The Peak Pathways Program is a flagship academic experience at Northwood School, offering students a transformative, year-long journey in independent study. The program empowers students to explore an interest or future ambition through a self-directed project of their own design.

Students are paired with dedicated, in-house faculty members that provide guidance and participate in ongoing workshops that support interest identification, project development, critical thinking, and personal growth. Whether students are diving into an academic inquiry, creative endeavor, or entrepreneurial venture, the program offers structure, inspiration, and support at every step.

Through Peak Pathways, students:

- **Shine in college and career pathways** by showcasing distinctive, self-driven work that reflects initiative and intellectual curiosity.
- **Build essential life skills**, including time management, decision-making, and self-awareness.
- **Connect with professionals and mentors** beyond the classroom, gaining insight and advice from experts in their fields of interest.
- **Develop a compelling portfolio** that communicates their passions, talents, and goals.
- **Earn real-world experience**, and in some cases, industry-recognized credentials.
- **Hone transferable skills** like communication, collaboration, problem-solving, and creative thinking.

At its core, the Peak Pathways Program invites students to take ownership of their learning, transforming big questions into bold action. It's not just preparation for what's next—it's a launchpad for who they want to become.

**Students continuing in advanced language study through our Language Lab, or engaging in Advanced Research or Honors Applied Robotics will not be required to do a Peak Pathway, but they can opt-in.*

*** Due to policy around International Student VISAS set by DOH, International students may need to engage in Peak Pathways, specifically the external mentorship and real-world connections component, in a slightly different way than domestic students.*

EXAMPLES OF PEAK PATHWAY PROJECTS

(Organized by Discipline)

Please note that the following project descriptions are **meant to generate ideas** and are **not** an exhaustive list of projects to choose from. The goal is that each student can define their focus for themselves. Students will be guided through a more rigorous project design process at the beginning of the school year.

Art and Design

A student project might focus on *drawing, painting, sculpture, printmaking, photography, illustration, digital illustration, fiber arts, art history, AI-generated art, AI-generated writing, product design, fashion design, journalism, publishing, content creation, creative entrepreneurship, and more.* For example, a student might design a project such as:

- Develop skills in acrylic painting while developing a portfolio of work.
- Create a children's book from start to finish. Brainstorm the concept, develop compelling characters, and draft the story. Draft the page layouts and illustrations and finalize based on feedback and revision. Learn about the back-end business of children's book publishing and marketing.

Media and Marketing

A student project might focus on *social media marketing, digital arts, graphic design, animation, filmmaking, and more.* For example, a student might design a project such as:

- Make a documentary film and submit it to local film festivals.
- Become the steward of an Instagram account for one of Northwood's sports teams. Focus on connecting the in-school and out-of-school community on the memorable moments, game schedule and outcomes, training regime, and more related to life on that sports team.

Entrepreneurship and Innovation

A student project might focus on s*tart-ups, small/ medium/ large business, business design, intrapreneurship, social innovation, accounting, bookkeeping, taxation, marketing and sales, manufacturing and distribution, product/ app/ web design, fintech/ edtech/biotech, and more*. For example, a student might design a project such as:

- Use the business canvas to design, test, and refine a new business idea and develop a series of prototypes of the product, service, or system.
- Create a documentary on the most inspiring social innovations and their impact on the world and upload the video to YouTube.

Finance

A student project might focus on *portfolio management, risk management, or financial markets.* For example, a student might design a project such as:

- Study and research how investing works, develop and manage a mock portfolio. Lead a workshop on investing to other Northwood students who are interested in developing their own portfolios/ investing.
- Create a documentary explaining the nuances of the financial collapse in the United States in 2008.

Math, Computer Science, and Engineering

A student project might focus on *applied mathematics, data science, game theory, statistics, physics, database architecture, game/web/app design, software engineering, coding and programming, cybersecurity, information technology, wearable technology, mechanical engineering, electrical engineering, civil engineering, biochemical engineering, and more*. For example, a student might design a project such as:

- Research the different types of engineers and the trends in engineering career opportunities, support Northwood in organizing a Pathways presentation with alumnae in the field.
- Complete the self-contained course "Calculus with Applications," through MIT Open Courseware including the readings, the exercises, and the simulations, reflect on what it was like to take an undergraduate-level course and write a reflection for Northwood's *Mirror*.

Music, Performance, and Sound

A student project might focus on *Instrumentals (strings, woodwind, percussion, keyboard, brass), dance, voice, songwriting, composition, recording, sound engineering, AI-generated music, entertainment industry, musical theater, teacher tech, stage design, costume design, lighting, sound, acting, directing, and more*. For example, a student might design a project such as:

- Work on developing proper singing technique and recording a single.
- Complete a series of free online piano lessons to teach oneself piano, practice daily, and perform two favorite songs at the Spring concert.
- Complete behind-the-scenes tours and job shadows at the Lake Placid Centre for the Arts, run tech for a Northwood concert.

Recreational Tourism / Outdoor Leadership

A student project might focus on *adventure tourism, ecotourism, cultural tourism, guiding, conservation, protection, sports tourism, wellness tourism, beach and coastal tourism, hospitality, expeditionary programming, rangers, search and rescue, nature-based tourism, program/camp administration, climbing, hiking, camping, paddling, fishing, and more.* For example, a student might design a project such as:

- Plan and lead an original (with your guide's oversight) outdoor adventure for students at Northwood. Consider what the goals of the outdoor adventure will be, what skill level/ abilities participants must have, the gear you will need, the location/ weather/ Leave No Trace criteria, etc.
- Apprentice with an innkeeper or the administrator of a campground learning the workflow of a manager in the hospitality industry. Create a presentation for other Northwood students about career opportunities in the hospitality and tourism industry.

Sports Industry

A student project might focus on program development, event management, club/team/ facilities management, athletic administration, sports media, athletic recruiting, athlete/ talent management, sports sponsorship and sales, sports psychology, sports law and governance, coaching, training, nutrition, and more. For example, a student might design a project such as:

- Apprentice with Northwood's Athletic Director, learning the intricacies of planning and managing the Northwood (Hockey) Tournament.
- Organize a virtual sports industry career fair for Northwood students with interesting sports industry related professionals.

3D Modeling and Fabrication

A student project might focus on *mechanical drafting, 3D CAD modeling, AutoCAD, 3D printing in healthcare, 3D printing in construction, 3D printing in manufacturing, CNC laser cutting, engraving, carpentry, woodworking, precision tools/ power tools, materials science, product design, toy and game design, industrial design, green design, and more.* For example, a student might design a project such as:

- Learn how to create your own 3D print files in SketchUp. Develop a concept to design, print, and refine including multiple prototypes of real-world objects that create value in the world* (*Most students in this pathway will likely start with a project like this if it is their first year in the pathway).
- Apprentice at the Innovation Hub as a Maker-in-Residence, plan, market, and provide workshops to the greater community on how to 3D print and its future uses.

STEM Studies

A student project might focus on *geology, ecology, biology, marine biology, zoology, botany, anatomy and physiology, biochemical engineering, chemistry, biotechnology, pharmacology, medicine, epidemiology, meteorology, astronomy, space science, oceanography, renewable energy, environmental science, natural resource management, agriculture, food science, and more.* For example, a student might design a project such as:

- Hold interviews and perform research to understand the history of firefighting in New York State and create an educational booklet with the findings.
- Learn more about genetics and one's own family traits. Research and make a presentation for one's family on the implications.

Humanities Studies

A student project might focus on *literature, anthropology, psychology, abnormal psychology, criminology, sociology, US history, world history, law and justice, government and politics, domestic policy, foreign policy, macroeconomics, microeconomics, education, philosophy, religion, language and cultural studies, archaeology, geography, cartography, ethics, and more.* For example, a student might design a project such as:

- Research one's family ancestry, including namesake and points of origin. Develop a digital family tree to share with extended family.
- Write a short play based on the concept of "Manifest Destiny" and the allure of the American West. Hold a reading of the play for the community.
- Engage with the local historical society to develop an understanding of the native inhabitants of the Adirondacks and create a podcast with the findings.

ADDITIONAL ELECTIVE OFFERINGS

Grade 9 & 10 Arts *(Required for grade 9 and 10 students, .5 credits)*

Visual Art component - This is an introductory-level course. It is designed to broaden and enrich students' knowledge of art through the discovery of artistic styles, techniques, and a variety of media. Students will discover and explore their own artistic aesthetics and build on concepts in the studio setting.

Music component – This course will focus on improving student understanding and performance of music through hands-on instrumental instruction and student-driven projects. By discussing, analyzing, practicing, and responding to various genres of music, students will hone their own practical skills and develop deeper insights into their own relationships with music. Grade 9 students will develop a rudimentary understanding of ukulele performance, and Grade 10 students will achieve a shared understanding of guitar chords and performance. Shorter modules will encourage students to experiment with piano, percussion, and other chosen instruments to consider the many ways that specific musical choices impact performers and audiences alike. The course will be heavily influenced by student interest and adaptive to best serve the growth of participants.

Introduction to Innovation, Engineering, and Entrepreneurship *(for grade 10 students only, .5 credits, Pass/Fail)*

This course, which runs throughout the year, will offer students a foundation in the thinking and skills needed for further pursuit of studies in innovation, engineering and entrepreneurship. This will include exposure to ideation approaches and design thinking, coding and robotics, and entrepreneurial ways of seeing. This course, designed for grade 10 students, will expose them to the options available to them in later years of study and possibly spark career interests.

Honors Applied Robotics

This year-long course is designed to be an intermediate/advanced level, and students are expected to have basic knowledge or experience with logic and computer programming. Students will be members of the Northwood FIRST FRC robotics team (Team #6300). Students will design and build industrial robots from scratch – mastering the fundamental concepts in the process. Mechanical assembly, drive train design, electrical wiring, Java programming, mechanical engineering, and robot command and control are skills students will develop in this process. This course will employ advanced 3D printing tools and develop skills for 3D- model and part design. Grading in this pathway is based on the successful completion of projects and level of proficiency in skill areas.

Music or Visual Art - Credited Studio Hours *(.5 per semester)*

- In both visual art and music, students can receive credit for studio hours. **This option should only be pursued by students who have already achieved a foundation in the art form and who are committed to the independent pursuit of skill development.** Mentorship throughout the process will be available. In order to receive credit from this option, students must:
- Apply with the appropriate teacher prior to the beginning of the term (Ms. Van Slyke or Dr. Campbell). Teacher approval is required.
- Develop and maintain a Studio Journal (Visual) or Submit Weekly Reflections (Music) in an agreed upon format, which includes initial ideas, goals and objectives.
- Log hours consistently throughout the semester. (Evidence of 40 hours is required.)
- Incorporate some element of performance or presentation of one's work by end of the semester.
- Provide a reflection at the end of the marking period in a format agreed upon with the appropriate teacher.
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Basics of Drawing and Painting *(.5 per semester)*
Students will be taught the fundamental techniques of drawing and painting in a semester-long art elective. The course will be divided into two parts, with the first half dedicated to drawing and the second half to painting. By using the principles and elements of art and design, students will learn how to apply their skills in line, value, shape, form, space, texture, and color. The course will include class projects and sketchbook homework assignments, which will help the students practice and develop their skills in each assigned area. As a result of this course, students will improve their creative problem-solving abilities, discover a way to express themselves, and enhance their technical drawing and painting skills.

Music *(.5 per semester)*
The Northwood Music elective is a course for students who want to pursue collaborative music in a structured environment, meeting in a regular class period four times a week. This course provides students with opportunities to hone their own musical skills while also encouraging collaboration and creativity. Individual and group projects will address music's place in the Northwood community, encourage students to think about music performances from different eras, and empower students to write their own songs. While a background in vocal or instrumental performance is useful in this work, any student can succeed in the course. All enrolled students will explore their own musical potential and team up with classmates to create, arrange, and rehearse content for performance. The course will be heavily influenced by student interest and adaptive to best serve the growth of participants.

Journalism *(offered each semester or as a full-year elective)*

Journalism will explore the history and tenets of American journalism and provide students with an opportunity to research and write articles and editorials for publication. The focus of the class will be to produce a student-run school newspaper, *The Mirror*. Writing-intensive, the course aims to help students develop the full spectrum of skills used for feature articles, interviews, news articles, photojournalism pieces, and editorials. Students learn how to generate ideas, gather facts and information, write effective leads, and use the most incisive language to convey ideas in a concise and engaging manner. It is open to all students. Students may take the course for one or two semesters.

Note: Journalism does not meet in a regular 45-minute class period, but rather is structured as a professional newspaper team. To receive credit for the course, students must: attend weekly staff meetings, submit a minimum of 1 article per week, and meet editing and publishing deadlines.

Editor of *The Northwood Mirror* (https://northwoodmirror.com/)

The editor of *The Mirror* shapes the coverage of Northwood's student-led paper. They work closely with the paper's advisor, Mr. Spear, to choose the stories the paper will cover and assign the stories to staff writers. They suggest approaches to writing stories, and they edit their peer's work before publication. They also regularly contribute articles of their own. Editors must be excellent writers and careful editors of their own and their peers' work. They should have high standards for the published material in the paper and be able to meet deadlines. *The time commitment of this position is 6 hr./week. There is the possibility of more than one editor. This is a year-long, honors level commitment. (1 credit)*

Yearbook Designer and Editor

The Yearbook Designer and Editor works with yearbook company, school staff, and peers to design and implement the 2024-2025 yearbook! The yearbook is a professional publication that captures the history of our school. It is an important documentation that needs quality attention and time. The ideal candidate would have good computer skills, time management (must meet strict deadlines), communication skills and be self-motivated. The role would include creative work: organizing pages, develop theme and color schemes as well as management skills: employing and managing others to take responsibility for pages and to help in the process. The person would attend sports events, cocurricular and school activities to take photos as well as collecting and choosing photos provided by others in the community. Possessing or being willing to learn photography skills is important to this role. *The time commitment of this position is 6 hr./week. There is the possibility of more than one designer/editor. This is a year-long, honors level commitment. (1 credit)*

Adirondack Wilderness Experience (*48-hour "Weekend" options, .5 credit)*
This course will be offered once in both the fall and spring semesters.

In these courses, students will prepare for, plan and execute an outdoor wilderness experience which includes an overnight in the woods. In order to receive full credit for the course, students will need to:

- Read/watch the assigned preparatory materials and demonstrate understanding of the material
- Participate fully in the planning, execution and reflection stages of the wilderness experience
- Satisfactorily perform the assessment tasks at each checkpoint on the trip
- Effort will also be assessed based on the student's willingness to participate and collaborate with peers

SUPPORT PROGRAM

Learning Center

Northwood School's Learning Center is a non-credit program designed for students who are capable of meeting the standards of our curriculum but require or seek an extra layer of academic support in order to do so. The Learning Center is staffed by a team of Academic Coaches trained to assist students with academic anxiety, ADHD, executive function deficiencies, and mild to moderate diagnosed learning disabilities. Learning Center services are fully integrated into our daily schedule as a class period to allow students to take full advantage of all academic and co-curricular offerings. The Learning Center program includes regularly scheduled class periods, supported evening study hall (Monday – Thursday), and weekly collaborative communication among a student's teachers, advisor, dean, co-curricular leaders, and parents/guardians. Admission to the Learning Center program requires communication with our admissions department and an additional yearly fee.